

# PART NUMBER 55463BPA-ROCS

# Rochester Electronics Manufactured Components

Rochester branded components are manufactured using either die/wafers purchased from the original suppliers or Rochester wafers recreated from the original IP. All re-creations are done with the approval of the Original Component Manufacturer. (OCM)

Parts are tested using original factory test programs or Rochester developed test solutions to guarantee product meets or exceeds the OCM data sheet.

## **Quality Overview**

- ISO-9001
- AS9120 certification
- Qualified Manufacturers List (QML) MIL-PRF-38535
  - Class Q Military
  - Class V Space Level

Qualified Suppliers List of Distributors (QSLD)

 Rochester is a critical supplier to DLA and meets all industry and DLA standards.

Rochester Electronics, LLC is committed to supplying products that satisfy customer expectations for quality and are equal to those originally supplied by industry manufacturers.

The original manufacturer's datasheet accompanying this document reflects the performance and specifications of the Rochester manufactured version of this device. Rochester Electronics guarantees the performance of its semiconductor products to the original OCM specifications. 'Typical' values are for reference purposes only. Certain minimum or maximum ratings may be based on product characterization, design, simulation, or sample testing.



## 55461, 55463

Microcircuits, Monolithic Silicon Interface, Dual Peripheral Drivers

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INCH-POUND
MIL-M-38510/129B
06 December 2004
SUPERSEDING
MIL-M-38510/129A
06 December 1985

#### MILITARY SPECIFICATION

#### MICROCIRCUITS, MONOLITHIC SILICON INTERFACE, DUAL PERIPHERAL DRIVERS

Reactivated after 06 December 2004 and may be used for either new or existing design acquisition.

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product herein shall consist of this specification sheet and MIL-PRF-38535.

#### 1. SCOPE

- 1.1 <u>Scope.</u> This specification covers the detail requirements for bipolar, monolithic silicon, dual peripheral drivers. Two product assurance classes and a choice of case outlines and lead finishes are provided and are reflected in the complete part number. For this product, the requirements of MIL-M-38510 have been superseded by MIL-PRF-38535, (see 6.3)
  - 1.2 Part or Identifying Number (PIN). The PIN is in accordance with MIL-PRF-38535, and as specified herein.
  - 1.2.1 <u>Device types.</u> The device types are as follows:

Device types	Circuit
01	Dual NAND/AND gate and transistor (separate), high speed switching
02	Dual AND gate and transistor (connected), high speed switching
03	Dual NAND gate and transistor (connected), high speed switching
04	Dual OR gate and transistor (connected), high speed switching
05	Dual NOR gate and transistor (connected), high speed switching
06	High voltage dual NAND/AND gate and transistor (separate), medium speed switching
07	High voltage dual AND gate and transistor (connected), medium speed switching
08	High voltage dual NAND gate and transistor (connected), medium speed switching
09	High voltage dual OR gate and transistor (connected), medium speed switching
10	High voltage dual NOR gate and transistor (connected), medium speed switching

- 1.2.2 Device class. The device class is the product assurance level as defined in MIL-PRF-38535.
- 1.2.3 Case outline. The case outlines are as designated in MIL-STD-1835 and as follows:

Outline letter	Descriptive designator	<u>Terminals</u>	Package style
С	GDIP1-T14 or CDIP2-T14	14	Dual in line
Р	GDIP1-T8 or CDIP2-T8	8	Dual in line

Comments, suggestions, or questions on this document should be addressed to: Commander, Defense Supply Center Columbus, ATTN: DSCC-VAS, 3990 East Broad St., Columbus, OH 43218-3990, or email <a href="mailto:Linear@dscc.dla.mil">Linear@dscc.dla.mil</a>. Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at <a href="http://assist.daps.dla.mil">http://assist.daps.dla.mil</a>.

AMSC N/A FSC 5962

#### 1.3 Absolute maximum ratings.

Supply voltage ( V <sub>CC</sub> )	7 V dc
Input voltage ( V <sub>IN</sub> )	5.5 V dc
Interemitter voltage (V <sub>EM</sub> )	5.5 V dc
V <sub>CC</sub> to substrate voltage (V <sub>CCS</sub> ):	
Device type 01	
Device type 06	40 V dc
Collector to substrate voltage (V <sub>CS</sub> ):	05.1/ -1-
Device type 01  Device type 06	
Collector to base voltage (V <sub>EB</sub> ):	40 V uc
Device type 01	35 V dc
Device type 06	
Collector to emitter voltage (V <sub>CER</sub> ):	
Device type 01	
Device type 06	40 V dc
Collector to emitter voltage (V <sub>CEO</sub> ):	05.77.1
Device type 06	25 V dc
Emitter to base voltage (V <sub>BE</sub> ):	E V do
Device types 01 and 06	5 V UC
Offstate output voltage (VOO):  Device types 02 through 05	30 V dc
Device types 07 through 10	
Continuous collector current (I <sub>CC</sub> ):	
Device types 01 and 06	300 mA
Continuous output current (IOC):	
Device types 02 through 05 and 07 through 10	300 mA <u>1</u> /
Peak collector current (I <sub>CP</sub> ):	
Device types 01 and 06	500 mA
Peak output current (I <sub>OP</sub> ):	500 4
Device types 02 through 05 and 07 through 10	500 MA
Device types 01 and 06	1375 mW
Device types 02 through 05 and 07 through 10	1050 mW
Ambient operating temperature range	
Storage temperature range	
Junction temperature ( T <sub>J</sub> )	
Lead temperature 1/16 inch from case, (soldering, 60 seconds)	300°C
1.4 Recommended operating conditions.	
Supply voltage range	+4.5 V to +5.5 V <u>2</u> /
Ambient operating temperature range ( T <sub>A</sub> )	

Both halves of these dual circuits may conduct rated current simultaneously; however, power dissipation averaged over a short time interval must fall within the continuous power dissipation ratings.

2/ For device types 01 and 06 only, the substrate (pin 8) must always be at the most negative device

voltage for proper operation.

#### 1.5 Power and thermal characteristics.

Package	Case outline	Maximum allowable power dissipation	Maximum θ <sub>J</sub> C	Maximum θ <sub>JA</sub>
14 lead dual in line	С	275 mW at T <sub>A</sub> = +125°C	29°C/W	91°C/W
8 lead dual in line	Р	210 mW at T <sub>A</sub> = +125°C	26°C/W	119°C/W

#### 2. APPLICABLE DOCUMENTS

2.1 <u>General</u>. The documents listed in this section are specified in sections 3, 4, or 5 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents cited in sections 3, 4, or 5 of this specification, whether or not they are listed.

#### 2.2 Government documents.

2.2.1 <u>Specifications, standards, and handbooks</u>. The following specifications and standards form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

#### DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-PRF-38535 - Integrated Circuits (Microcircuits) Manufacturing, General Specification for.

#### DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-883 - Test Method Standard for Microelectronics.

MIL-STD-1835 - Interface Standard Electronic Component Case Outlines.

(Copies of these documents are available online at <a href="http://assist.daps.dla.mil/quicksearch/">http://assist.daps.dla.mil/quicksearch/</a> or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.3 <u>Order of precedence</u>. In the event of a conflict between the text of this specification and the references cited herein the text of this document shall takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

#### 3. REQUIREMENTS

- 3.1 <u>Qualification</u>. Microcircuits furnished under this specification shall be products that are manufactured by a manufacturer authorized by the qualifying activity for listing on the applicable qualified manufacturers list before contract award (see 4.3 and 6.4).
- 3.2 <u>Item requirements</u>. The individual item requirements shall be in accordance with MIL-PRF-38535 and as specified herein or as modified in the device manufacturer's Quality Management (QM) plan. The modification in the QM plan shall not affect the form, fit, or function as described herein.
- 3.3 <u>Design, construction, and physical dimensions</u>. The design, construction, and physical dimensions shall be as specified in MIL-PRF-38535 and herein.
- 3.3.1 <u>Logic diagrams and terminal connections.</u> The logic diagrams and terminal connections shall be as specified on figure 1.
  - 3.3.2 Truth tables. The truth tables shall be as specified on figure 2.
- 3.3.3 <u>Schematic circuits</u>. The schematic circuits shall be maintained by the manufacturer and made available to the qualifying activity and the preparing activity upon request.
  - 3.3.4 Case outlines. The case outlines shall be as specified in 1.2.3.
  - 3.3.5 Package and sealing material. Package and sealing material shall be in accordance with MIL-PRF-38535.
  - 3.4 Lead material and finish. The lead material and finish shall be in accordance with MIL-PRF-38535 (see 6.6).
- 3.5 <u>Electrical performance characteristics</u>. The electrical performance characteristics are as specified in table I, and apply over the full recommended ambient operating temperature range, unless otherwise specified.
- 3.6 <u>Electrical test requirements</u>. Electrical test requirements for each device class shall be the subgroups specified in table II. The electrical tests for each subgroup are described in table III.
  - 3.7 Marking. Marking shall be in accordance with MIL-PRF-38535.
- 3.8 <u>Microcircuit group assignment</u>. The devices covered by this specification shall be in microcircuit group number 53 (see MIL-PRF-38535, appendix A).

TABLE I. <u>Electrical performance characteristics.</u>

		Conditions	Device	Limits		
Test	Symbol	-55°C ≤ T <sub>A</sub> ≤ +125°C unless otherwise specified	type	Min	Max	Units
Input clamp voltage	VIC	V <sub>CC</sub> = 4.5 V, I <sub>IN</sub> = -12 mA	All		-1.5	V
High level input currents into A or B	l <sub>IH1</sub>	V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 2.4 V	All		40	μА
	I <sub>IH2</sub>	V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 5.5 V			1	mA
High level input current into G	I <sub>IH3</sub>	V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 2.4 V	01,06		80	μА
	I <sub>IH4</sub>	V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 5.5 V			2	mA
Low level input currents into A or B	I <sub>IL1</sub>	V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 0.4 V or 5.5 V	All		-1.6	mA
Low level input current into G	I <sub>IL2</sub>	V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 0.4 V or 5.5 V	01,06		-3.2	mA
High level supply current	I <sub>CCH1</sub>	V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 0 V	01,06		4	mA
	I <sub>CCH2</sub>	V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 5.5 V	02,04, 07,09		11	
	Іссн3	V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 0 V	05,08		17	
	I <sub>CCH4</sub>	V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 0 V	03		14	
	I <sub>CCH5</sub>	V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 0 V	10		10	
Low level supply current	ICCL1	V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 5.5 V	01,06		11	mA
	I <sub>CCL2</sub>	V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 0 V	02		65	
	ICCL3	V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 0 V	04		63	
	ICCL4	V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 5.5 V	03		71	
	ICCL5	V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 0 V	07,09		76	
	ICCL6	V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 5.5 V	08		76	
	I <sub>CCL7</sub>	V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 5.5 V	05		79	
	I <sub>CCL8</sub>	V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 5.5 V	10		85	

 ${\sf TABLE\ I.\ } \underline{\sf Electrical\ performance\ characteristics} - Continued.$ 

		Conditions	Device	Lin	nits	
Test	Symbol	-55°C ≤ T <sub>A</sub> ≤ +125°C unless otherwise specified	type	Min	Max	Units
Low level output voltage	V <sub>OL1</sub>	V <sub>CC</sub> = 4.5 V, V <sub>IN</sub> = 0.8 V or 4.5 V; I <sub>OL</sub> = 100 mA	02, 07		0.5	V
	V <sub>OL2</sub>	V <sub>CC</sub> = 4.5 V, V <sub>IN</sub> = 2 V, I <sub>OL</sub> = 100 mA	03, 08		0.5	
	V <sub>OL3</sub>	V <sub>CC</sub> = 4.5 V, V <sub>IN</sub> = 0.8 V, I <sub>OL</sub> = 100 mA	04, 09		0.5	
	V <sub>OL4</sub>	$V_{CC} = 4.5 \text{ V}, V_{IN} = 2 \text{ V or } 0 \text{ V},$ $I_{OL} = 100 \text{ mA}$	05, 10		0.5	
	V <sub>OL5</sub>	$V_{CC} = 4.5 \text{ V}, V_{IN} = 0.8 \text{ V} \text{ or } 4.5 \text{ V},$ $I_{OL} = 300 \text{ mA}$	02, 07		0.8	
	V <sub>OL6</sub>	V <sub>CC</sub> = 4.5 V, V <sub>IN</sub> = 2 V, I <sub>OL</sub> = 300 mA	03, 08		0.8	
	V <sub>OL7</sub>	V <sub>CC</sub> = 4.5 V, V <sub>IN</sub> = 0.8 V, I <sub>OL</sub> = 300 mA	04, 09		0.8	
	V <sub>OL8</sub>	V <sub>CC</sub> = 4.5 V, V <sub>IN</sub> = 2 V or 0 V, I <sub>OL</sub> = 300 mA	05, 10		0.8	
Low level output voltage, TTL gate	V <sub>OL9</sub>	$V_{CC} = 4.5 \text{ V}, V_{IN} = 2 \text{ V}, I_{O} = 16 \text{ mA}$	01, 06		0.5	V
High level output current	I <sub>OH1</sub>	V <sub>CC</sub> = 4.5 V, V <sub>OH</sub> = 30 V, V <sub>IN</sub> = 2 V	02,07		300	μА
	I <sub>OH2</sub>	V <sub>CC</sub> = 4.5 V, V <sub>OH</sub> = 30 V, V <sub>IN</sub> = 0.8 V or 4.5 V	03,08		300	
	ЮНЗ	V <sub>CC</sub> = 4.5 V, V <sub>OH</sub> = 30 V, V <sub>IN</sub> = 2 V or 0 V	04,09		300	
	I <sub>OH4</sub>	V <sub>CC</sub> = 4.5 V, V <sub>OH</sub> = 30 V, V <sub>IN</sub> = 0.8 V	05,10		300	
High level output voltage, TTL gate	Voн	$V_{CC} = 4.5 \text{ V}, V_{IN} = 0.8 \text{ V},$ $I_{OL} = -400  \mu\text{A}$	01,06	2.4		V
Short circuit output current, TTL gate	los <sub>1</sub>	V <sub>CC</sub> = 5.5 V	01,06		-55	mA
<b>3</b>	I <sub>OS2</sub>	V <sub>CC</sub> = 4.5 V		-18		
Collector base breakdown voltage	V <sub>CB01</sub>	I <sub>C</sub> = 100 μA, I <sub>E</sub> = 0	01	35		V
	V <sub>CB02</sub>	$I_C = 100 \mu A, I_E = 0$	06	40		
Collector emitter breakdown voltage	V <sub>CER1</sub>	$I_C$ = 100 μA, $R_{BE}$ = 500 $Ω$	01	35		V
	V <sub>CER2</sub>	$I_C$ = 100 μA, $R_{BE}$ = 500 $\Omega$	06	40		

 ${\sf TABLE\ I.\ } \underline{\sf Electrical\ performance\ characteristics} - Continued.$ 

		Conditions	Device	Lir	nits	
Test	Symbol	-55°C ≤ T <sub>A</sub> ≤ +125°C unless otherwise specified	type	Min	Max	Units
Collector emitter breakdown voltage	V <sub>CE01</sub>	I <sub>C</sub> = 10 mA	06	25		V
Emitter base breakdown voltage	V <sub>EBO</sub>	$I_E = 100 \mu A, I_C = 0$	01,06	5		<b>V</b>
Static forward current transfer ratio	h <sub>FE1</sub>	$V_{CE} = 3 \text{ V}, I_{C} = 100 \text{ mA}, V_{S} = 4 \text{ V},$ $T_{A} = +25^{\circ}\text{C}, +125^{\circ}\text{C}$	01,06	25		
	h <sub>FE2</sub>	$V_{CE} = 3 \text{ V}, I_{C} = 300 \text{ mA}, V_{S} = 6 \text{ V},$ $T_{A} = +25^{\circ}\text{C}, +125^{\circ}\text{C}$		30		
	h <sub>FE3</sub>	$V_{CE} = 3 \text{ V}, I_{C} = 100 \text{ mA}, V_{S} = 4 \text{ V},$ $T_{A} = -55^{\circ}\text{C}$		10		
	h <sub>FE4</sub>	$V_{CE} = 3 \text{ V}, I_{C} = 300 \text{ mA}, V_{S} = 6 \text{ V},$ $T_{A} = -55^{\circ}\text{C}$		15		
Base emitter voltage	V <sub>BE1</sub>	$I_B = 10 \text{ mA}, I_C = 100 \text{ mA}$	01,06		1.2	V
	V <sub>BE2</sub>	I <sub>B</sub> = 30 mA, I <sub>C</sub> = 300 mA			1.4	
Collector emitter saturation voltage	VCESAT1	I <sub>B</sub> = 10 mA, I <sub>C</sub> = 100 mA	01,06		0.5	V
	V <sub>CESAT2</sub>	I <sub>B</sub> = 30 mA, I <sub>C</sub> = 300 mA			0.8	
Delay time	t <sub>D</sub>	$I_C = 200 \text{ mA}, R_L = 50 \Omega, C_L = 100 \text{ pF},$ $V_{BE} = -1 \text{ V}, I_B = 20 \text{ mA}, T_A = +25^{\circ}\text{C}$	01,06		15	ns
		$I_C$ = 200 mA, $R_L$ = 50 $\Omega$ , $C_L$ = 100 pF, $V_{BE}$ = -1 V, $I_B$ = 20 mA, $-55^{\circ}C \le T_A \le +125^{\circ}C$			22.5	
Rise time	t <sub>R</sub>	$I_C = 200 \text{ mA}, R_L = 50 \Omega, C_L = 100 \text{ pF},$ $V_{BE} = -1 \text{ V}, I_B = 20 \text{ mA}, T_A = +25^{\circ}\text{C}$	01,06		20	ns
		$I_{C}$ = 200 mA, $R_{L}$ = 50 $\Omega$ , $C_{L}$ = 100 pF, $V_{BE}$ = -1 V, $I_{B}$ = 20 mA, $-55^{\circ}C \le T_{A} \le +125^{\circ}C$			30	
Storage time	ts	$I_C$ = 200 mA, $R_L$ = 50 $\Omega$ , $C_L$ = 100 pF, $V_{BE}$ = -1 V, $I_B$ = 20 mA, $T_A$ = +25°C	01		15	ns
		$I_{C}$ = 200 mA, $R_{L}$ = 50 $\Omega$ , $C_{L}$ = 100 pF, $V_{BE}$ = -1 V, $I_{B}$ = 20 mA, $-55^{\circ}C \le T_{A} \le +125^{\circ}C$			22.5	

 ${\sf TABLE\ I.\ } \underline{\sf Electrical\ performance\ characteristics} - Continued.$ 

		Conditions	Device	Lin	nits	
Test	Symbol	-55°C ≤ T <sub>A</sub> ≤ +125°C unless otherwise specified	type	Min	Max	Units
Storage time	ts	$I_C = 200 \text{ mA}, R_L = 50 \Omega, C_L = 100 \text{ pF},$ $V_{BE} = -1 \text{ V}, I_B = 20 \text{ mA}, T_A = +25^{\circ}\text{C}$	06		23	ns
		$I_C$ = 200 mA, $R_L$ = 50 $\Omega$ , $C_L$ = 100 pF, $V_{BE}$ = -1 V, $I_B$ = 20 mA, $-55^{\circ}C \le T_A \le +125^{\circ}C$			34.5	
Fall time	tF	$I_C = 200 \text{ mA}, R_L = 50 \Omega, C_L = 100 \text{ pF},$ $V_{BE} = -1 \text{ V}, I_B = 20 \text{ mA}, T_A = +25^{\circ}\text{C}$	01,06		15	ns
		$I_{C} = 200 \text{ mA}, R_{L} = 50 \Omega, C_{L} = 100 \text{ pF},$ $V_{BE} = -1 \text{ V}, I_{B} = 20 \text{ mA},$ $-55^{\circ}\text{C} \le T_{A} \le +125^{\circ}\text{C}$			22.5	
Propagation delay time (low to high level output) TTL gate	t <sub>PLH1</sub>	$C_L$ = 100 pF, $R_L$ = 400 $\Omega$ , $V_{CC}$ = 4.5 V, $T_A$ = +25°C	01,06		30	ns
		$C_L$ = 100 pF, $R_L$ = 400 $\Omega$ , $V_{CC}$ = 4.5 V, -55°C ≤ $T_A$ ≤ +125°C			45	
Propagation delay time (low to high level output)	t <sub>PLH2</sub>	$I_{C}$ = 200 mA, $C_{L}$ = 100 pF, $R_{L}$ = 50 $\Omega$ , $V_{CC}$ = 4.5 V, $T_{A}$ = +25°C	01		30	ns
		$I_C$ = 200 mA, $C_L$ = 100 pF, $R_L$ = 50 $\Omega$ , $V_{CC}$ = 4.5 V, -55°C $\leq$ $T_A \leq$ +125°C			45	
	tPLH3	$I_{C}$ = 200 mA, $C_{L}$ = 100 pF, $R_{L}$ = 50 $\Omega$ , $V_{CC}$ = 4.5 V, $T_{A}$ = +25°C	06		65	
		$I_{C}$ = 200 mA, $C_{L}$ = 100 pF, $R_{L}$ = 50 $\Omega$ , $V_{CC}$ = 4.5 V, -55°C $\leq$ $T_{A} \leq$ +125°C			90	
Propagation delay time (high to low level output) TTL gate	t <sub>PHL1</sub>	$C_L = 100 \text{ pF}, R_L = 400 \Omega,$ $T_A = +25^{\circ}C$	01,06		15	ns
		$C_L$ = 100 pF, $R_L$ = 400 $\Omega$ , $-55^{\circ}C \le T_A \le +125^{\circ}C$			22.5	
Propagation delay time (high to low level output)	t <sub>PHL2</sub>	$I_C$ = 200 mA, $C_L$ = 100 pF, $R_L$ = 50 $\Omega$ , $T_A$ = +25°C	01		30	ns
. ,		$I_C = 200 \text{ mA, } C_L = 100 \text{ pF, } R_L = 50 \ \Omega,$ $-55^{\circ}\text{C} \leq T_A \leq +125^{\circ}\text{C}$			45	
	t <sub>PHL3</sub>	$I_C$ = 200 mA, $C_L$ = 100 pF, $R_L$ = 50 $\Omega$ , $T_A$ = +25°C	01		50	
		$I_C = 200 \text{ mA, } C_L = 100 \text{ pF, } R_L = 50 \Omega,$ $-55^{\circ}C \leq T_A \leq +125^{\circ}C$			75	

 ${\sf TABLE\ I.\ } \underline{\sf Electrical\ performance\ characteristics} - Continued.$ 

		Conditions	Device	Lim	nits	
Test	Symbol	-55°C ≤ T <sub>A</sub> ≤ +125°C unless otherwise specified	type	Min	Max	Units
Transition time (low to high level output)	tTLH1	$I_{C}$ = 200 mA, $C_{L}$ = 100 pF, $R_{L}$ = 50 $\Omega$ , $T_{A}$ = +25°C	01		15	ns
		$I_C = 200 \text{ mA, } C_L = 100 \text{ pF, } R_L = 50 \ \Omega,$ $-55^{\circ}C \leq T_A \leq +125^{\circ}C$			22.5	
	t <sub>TLH2</sub>	$I_{C}$ = 200 mA, $C_{L}$ = 100 pF, $R_{L}$ = 50 $\Omega$ , $T_{A}$ = +25°C	06		20	
		$I_C = 200 \text{ mA}, C_L = 100 \text{ pF}, R_L = 50 \Omega,$ $-55^{\circ}C \leq T_A \leq +125^{\circ}C$			30	
Transition time (high to low level output)	t <sub>THL1</sub>	$I_C$ = 200 mA, $C_L$ = 100 pF, $R_L$ = 50 $\Omega$ , $T_A$ = +25°C	01		15	ns
		$I_C = 200 \text{ mA, } C_L = 100 \text{ pF, } R_L = 50 \ \Omega,$ $-55^{\circ}C \leq T_A \leq +125^{\circ}C$			22.5	
	t <sub>THL2</sub>	$I_{C}$ = 200 mA, $C_{L}$ = 100 pF, $R_{L}$ = 50 $\Omega$ , $T_{A}$ = +25°C	06		20	
		$I_C = 200 \text{ mA, } C_L = 100 \text{ pF, } R_L = 50 \Omega,$ $-55^{\circ}C \leq T_A \leq +125^{\circ}C$			30	
Propagation delay time (low to high level output)	tPLH	$V_{CC} = 4.5 \text{ V}, I_{O} = 200 \text{ mA},$ $C_{L} = 100 \text{ pF}, R_{L} = 50 \Omega,$ $T_{A} = +25^{\circ}\text{C}$	02,04		30	ns
		$V_{CC}$ = 4.5 V, $I_{O}$ = 200 mA, $C_{L}$ = 100 pF, $R_{L}$ = 50 Ω, $-55^{\circ}$ C $\leq$ $T_{A}$ $\leq$ +125 $^{\circ}$ C			45	
	tpLH	V <sub>CC</sub> = 4.5 V, I <sub>O</sub> = 200 mA,	03		35	
		$C_L = 100 \text{ pF}, R_L = 50 \Omega,$ $T_A = +25^{\circ}\text{C}$	05		45	
		$V_{CC} = 4.5 \text{ V}, I_{O} = 200 \text{ mA},$	03		55	
		$C_L = 100 \text{ pF}, R_L = 50 \Omega,$ -55°C ≤ $T_A \le +125$ °C	05		75	
	tPLH	$V_{CC} = 4.5 \text{ V}, I_{O} = 200 \text{ mA},$ $C_{L} = 100 \text{ pF}, R_{L} = 50 \Omega,$ $T_{A} = +25^{\circ}\text{C}$	07,09		55	
		V <sub>CC</sub> = 4.5 V, I <sub>O</sub> = 200 mA,	07		65	
		$C_L = 100 \text{ pF}, R_L = 50 \Omega,$ -55°C ≤ T <sub>A</sub> ≤ +125°C	09		70	

 ${\sf TABLE\ I.\ } \underline{\sf Electrical\ performance\ characteristics} - Continued.$ 

		Conditions	Device	Lin	nits	
Test	Symbol	-55°C ≤ T <sub>A</sub> ≤ +125°C	type	Min	Max	Units
		unless otherwise specified				
Propagation delay time	tpLH	$V_{CC} = 4.5 \text{ V}, I_{O} = 200 \text{ mA},$	08,10		65	ns
(low to high level output)		$C_L = 100 \text{ pF}, R_L = 50 \Omega,$				
σαιραί)		T <sub>A</sub> = +25°C				
		V <sub>CC</sub> = 4.5 V, I <sub>O</sub> = 200 mA,	08		95	
		$C_L = 100 \text{ pF}, R_L = 50 \Omega,$	10		90	
		-55°C ≤ T <sub>A</sub> ≤ +125°C	10		90	
Propagation delay time	tphL	V <sub>CC</sub> = 4.5 V, I <sub>O</sub> = 200 mA,	02,04		30	ns
(high to low level		$C_L = 100 \text{ pF}, R_L = 50 \Omega,$				
output)		T <sub>A</sub> = +25°C				
		V <sub>CC</sub> = 4.5 V, I <sub>O</sub> = 200 mA,			45	
		$C_L = 100 \text{ pF}, R_L = 50 \Omega,$				
		-55°C ≤ T <sub>A</sub> ≤ +125°C				ļ
	t <sub>PHL</sub>	V <sub>CC</sub> = 4.5 V, I <sub>O</sub> = 200 mA,	03,05		35	
		$C_L = 100 \text{ pF}, R_L = 50 \Omega,$				
		T <sub>A</sub> = +25°C				
		V <sub>CC</sub> = 4.5 V, I <sub>O</sub> = 200 mA,			55	
		$C_L = 100 \text{ pF}, R_L = 50 \Omega,$				
		$-55^{\circ}C \le T_{A} \le +125^{\circ}C$				
	tpHL	V <sub>CC</sub> = 4.5 V, I <sub>O</sub> = 200 mA,	07,09		40	
		$C_L = 100 \text{ pF}, R_L = 50 \Omega,$				
		T <sub>A</sub> = +25°C				_
		V <sub>CC</sub> = 4.5 V, I <sub>O</sub> = 200 mA,			60	
		$C_L = 100 \text{ pF}, R_L = 50 \Omega,$				
		-55°C ≤ T <sub>A</sub> ≤ +125°C				
	tpHL	V <sub>CC</sub> = 4.5 V, I <sub>O</sub> = 200 mA,	08,10		50	
		$C_L = 100 \text{ pF}, R_L = 50 \Omega,$				
		T <sub>A</sub> = +25°C				
		V <sub>CC</sub> = 4.5 V, I <sub>O</sub> = 200 mA,			75	
		$C_L = 100 \text{ pF}, R_L = 50 \Omega,$				
		-55°C ≤ T <sub>A</sub> ≤ +125°C				

 ${\sf TABLE\ I.\ } \underline{\sf Electrical\ performance\ characteristics} - Continued.$ 

		Conditions	Device	Lin	nits	
Test	Symbol	-55°C ≤ T <sub>A</sub> ≤ +125°C unless otherwise specified	type	Min	Max	Units
Transition time (low to high level output)	t <sub>TLH</sub>	$V_{CC} = 4.5 \text{ V}, I_{O} = 200 \text{ mA},$ $C_{L} = 100 \text{ pF}, R_{L} = 50 \Omega,$ $T_{A} = +25^{\circ}\text{C}$	02,03, 04,05		14	ns
		$V_{CC}$ = 4.5 V, $I_{O}$ = 200 mA, $C_{L}$ = 100 pF, $R_{L}$ = 50 Ω, -55°C ≤ $T_{A}$ ≤ +125°C			18.5	
	tTLH	$V_{CC} = 4.5 \text{ V}, I_{O} = 200 \text{ mA},$ $C_{L} = 100 \text{ pF}, R_{L} = 50 \Omega,$ $T_{A} = +25^{\circ}C$	07,10		20	
		$V_{CC} = 4.5 \text{ V}, I_{O} = 200 \text{ mA},$ $C_{L} = 100 \text{ pF}, R_{L} = 50 \Omega,$ $-55^{\circ}\text{C} \le T_{A} \le +125^{\circ}\text{C}$			26.5	
	t <sub>TLH</sub>	$V_{CC} = 4.5 \text{ V}, I_{O} = 200 \text{ mA},$ $C_{L} = 100 \text{ pF}, R_{L} = 50 \Omega,$ $T_{A} = +25^{\circ}\text{C}$	08,09		25	
		$V_{CC} = 4.5 \text{ V}, I_{O} = 200 \text{ mA},$ $C_{L} = 100 \text{ pF}, R_{L} = 50 \Omega,$ $-55^{\circ}\text{C} \le T_{A} \le +125^{\circ}\text{C}$			33.5	
Transition time (high to low level output)	t <sub>THL</sub>	$V_{CC} = 4.5 \text{ V}, I_{O} = 200 \text{ mA},$ $C_{L} = 100 \text{ pF}, R_{L} = 50 \Omega,$ $T_{A} = +25^{\circ}\text{C}$	02,03, 04,05		20	ns
		$V_{CC} = 4.5 \text{ V}, I_{O} = 200 \text{ mA},$ $C_{L} = 100 \text{ pF}, R_{L} = 50 \Omega,$ $-55^{\circ}\text{C} \le T_{A} \le +125^{\circ}\text{C}$			25	
	t <sub>THL</sub>	$V_{CC} = 4.5 \text{ V}, I_{O} = 200 \text{ mA},$ $C_{L} = 100 \text{ pF}, R_{L} = 50 \Omega,$ $T_{A} = +25^{\circ}C$	07,08,10		20	
		V <sub>CC</sub> = 4.5 V, I <sub>O</sub> = 200 mA,	07,10		25	
		$C_L = 100 \text{ pF}, R_L = 50 \Omega,$ -55°C ≤ $T_A$ ≤ +125°C	08		35	
	tTHL	$V_{CC} = 4.5 \text{ V}, I_{O} = 200 \text{ mA},$ $C_{L} = 100 \text{ pF}, R_{L} = 50 \Omega,$ $T_{A} = +25^{\circ}\text{C}$	09		25	

TABLE II. Electrical test requirements.

	Subgroups (	see table III)
MIL-PRF-38535	Class S	Class B
test requirements	devices	devices
Interim electrical parameters	1	1
Final electrical test parameters	1*, 2, 3, 9	1*, 2, 3, 9
Group A test requirements	1, 2, 3, 9, 10, 11	1, 2, 3, 9, 10, 11
Group B electrical test parameters when using the method 5005 QCI option	1, 2, 3, and table IV delta limits	N/A
Group C end-point electrical parameters	1, 2, 3, and table IV delta limits	1 and table IV delta limits
Group D end-point electrical parameters	1, 2, 3	1

<sup>\*</sup>PDA applies to subgroup 1.

#### 4. VERIFICATION.

- 4.1 <u>Sampling and inspection</u>. Sampling and inspection procedures shall be in accordance with MIL-PRF-38535 or as modified in the device manufacturer's Quality Management (QM) plan. The modification in the QM plan shall not effect the form, fit, or function as described herein.
- 4.2 <u>Screening</u>. Screening shall be in accordance with MIL-PRF-38535, and shall be conducted on all devices prior to qualification and quality conformance inspection. The following additional criteria shall apply:
  - a. The burn-in test duration, test condition, and test temperature, or approved alternatives shall be as specified in the device manufacturer's QM plan in accordance with MIL-PRF-38535. The burn-in test circuit shall be maintained under document control by the device manufacturer's Technology Review Board (TRB) in accordance with MIL-PRF-38535 and shall be made available to the acquiring or preparing activity upon request. The test circuit shall specify the inputs, outputs, biases, and power dissipation, as applicable, in accordance with the intent specified in test method 1015 of MIL-STD-883.
  - b. Interim and final electrical test parameters shall be as specified in table II, except interim electrical parameters test prior to burn-in is optional at the discretion of the manufacturer.
  - c. Additional screening for space level product shall be as specified in MIL-PRF-38535.
  - 4.3 Qualification inspection. Qualification inspection shall be in accordance with MIL-PRF-38535.

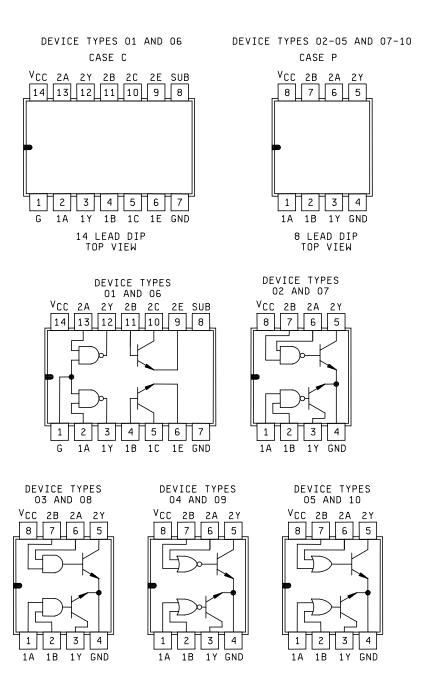


Figure 1. Logic diagrams and terminal connections.

Device types

	01, 06		
Α	G	Υ	Y'
0	0	1	0
0	1	1	0
1	0	1	0
1	1	0	1

Y is output at the gate.
Y' is output at the transistor with the gate connected to the base of the transistor.

Device types

	02, 07		
Α	В	Υ	OUTPUT
0	0	0	ON
0	1	0	ON
1	0	0	ON
1	1	1	OFF

## Device types

	03, 08		
Α	В	Y	OUTPUT
0	0	1	OFF
0	1	1	OFF
1	0	1	OFF
1	1	0	ON

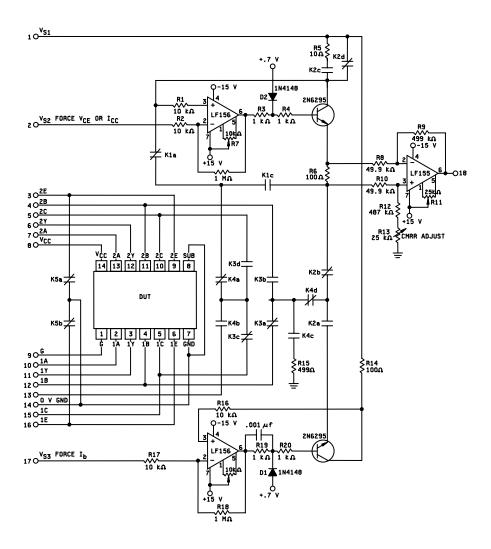
## Device types 04, 09

	04, 09		
Α	В	Υ	OUTPUT
0	0	0	ON
0	1	1	OFF
1	0	1	OFF
1	1	1	OFF

# Device types 05, 10

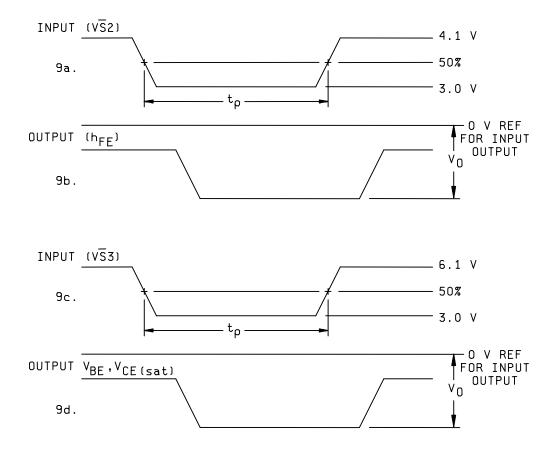
	05, 10		
Α	В	Υ	OUTPUT
0	0	1	OFF
0	1	0	ON
1	0	0	ON
1	1	0	ON

Figure 2. Truth tables.



- The output offset voltage shall be adjusted to zero volts with the device under test (DUT) removed.
  The operational amplifier stabilization networks may vary with test adapter construction.
  Alternative drive circuits for the 2N6295 may be used to develop the proper forcing currents and input voltage pulses. These circuits shall require the approval of the qualifying activity.
- 2. Relay switch positions are defined in table III.
- 3. Resistors R5, R6, R14 shall have a tolerance ≤ 0.1% for device types 01, 06.
- 4. Reference figure 4 for input and output waveforms for device types 01, 06.

FIGURE 3. Test circuit for static tests, device types 01 and 06.



- 1. The pulse generator shall have the following characteristics: PRR = 1 kHz,  $t_p$  = 20  $\mu$ s,  $Z_{out} \cong 50~\Omega$ ,  $t_r$ ,  $t_f$  = 10 ns.
- 2. All V<sub>O</sub> measurements are referenced to 0 V GND.
- 3. Use figures 4a and 4b for tests 23 26 and figures 4a, 4c, and 4d for tests 27 34.

FIGURE 4. hFE,  $V_{BE}$ ,  $V_{CE(sat)}$  waveforms for table III, device types 01 and 06.

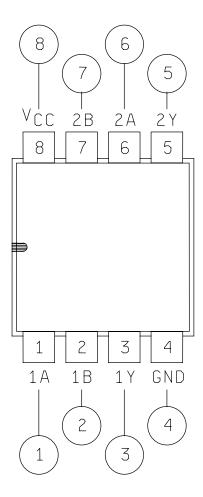
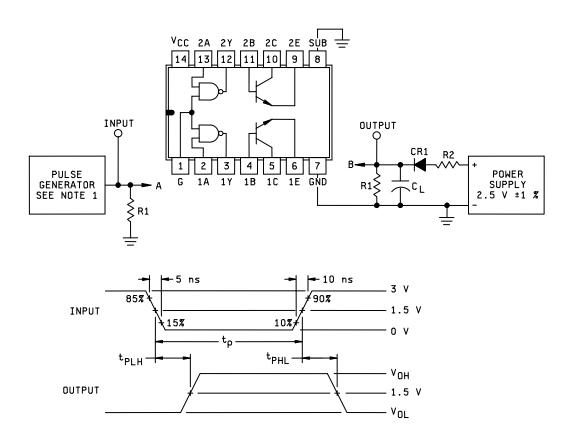
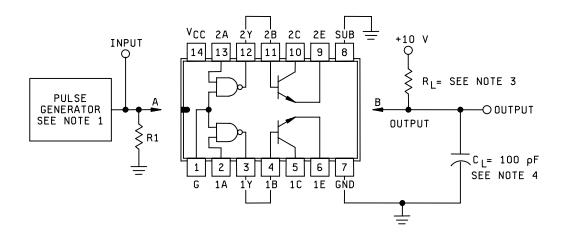


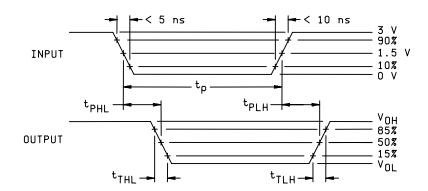
Figure 5. <u>Test circuit for static tests, device types 02 through 05 and 07 through 10</u>.



- 1. The pulse generator shall have the following characteristics: PRR = 1 MHz,  $t_p$  = 0.5  $\mu$ s,  $Z_{out} \cong$  50  $\Omega$ .
- 2. R1 = 6.04 k $\Omega$  ±1 percent, 1/8 watt.
- 3.  $C_L = 100 \text{ pF}, \pm 5 \text{ pF}$  (including probe and parasitic capacitance).
- 4. Select R2 for a current flow of 16 mA  $\pm$ 1% out of Point B with Point L held at 0.5 volts. 5. CR1 = 1N4150 or equivalent.
- 6. R1 = 51  $\Omega \pm 5\%$  carbon.

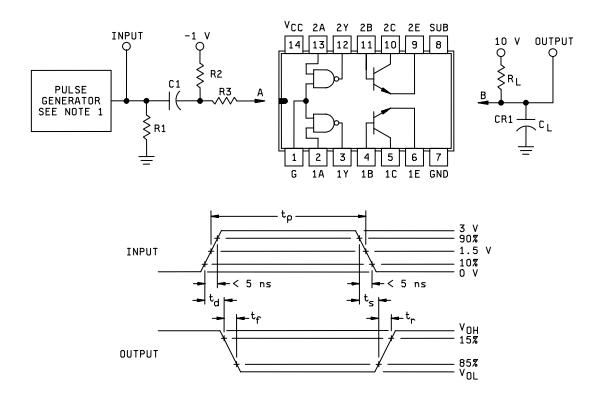
Figure 6. Propagation delay time waveforms (TTL gates only), for device types 01 and 06.





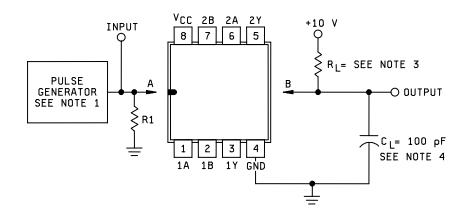
- 1. The pulse generator shall have the following characteristics: PRR = 1 MHz,  $t_p$  = 0.5  $\mu$ s,  $Z_{out} \cong 50 \ \Omega$ . 2. When testing device 01 or 06, connect output Y to transistor base and ground the substrate terminal.
- 3.  $R_L = 47 \Omega \pm 5\%$  carbon.
- 4.  $C_L = 100 pF$  minimum, including probe and jig capacitance.
- 5. R1 = 51  $\Omega \pm 5\%$  carbon.

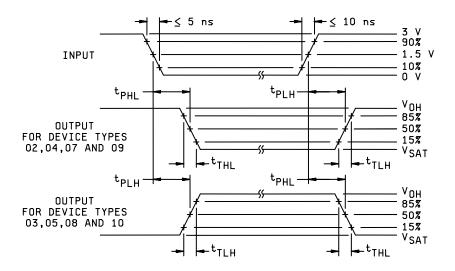
FIGURE 7. Switching time waveforms (TTL gates and transistors combined) for device types 01 and 06.



- 1. The pulse generator shall have the following characteristics: PRR = 1 MHz,  $t_p$  = 0.3  $\mu$ s,  $Z_{out} \cong$  50  $\Omega$ .
- 2.  $C_L = 100 \text{ pF minimum}$ , including probe and jig capacitance.
- 3. R1 = 62  $\Omega \pm 5\%$  carbon.
- 4. R2 = 1 k $\Omega$  ±5% carbon.
- 5.  $C1 = 0.1 \mu F \pm 5\%$ .
- 6.  $R_L = 47 \Omega \pm 5\%$  carbon.
- 7. R3 =  $51\Omega \pm 5\%$  carbon.
- 8. All voltages have a tolerance of  $\pm 1\%$  of nominal.

FIGURE 8. Switching times (transistors only) for device types 01 and 06.





- 1. Pulse generator shall have the following characteristics: PRR  $\leq$  1 MHz,  $Z_{OUt} \cong$  50  $\Omega, t_f \leq$  10 ns,  $t_f \leq$  5 ns.
- 2. R1 = 51  $\Omega \pm 5\%$ .
- 3.  $R_L = 47 \Omega \pm 5\%$ .
- 4.  $C_L = 100 \text{ pF} \pm 10\%$ , including probe and jig capacitance.

FIGURE 9. Switching time waveforms for device types 02 through 05 and 07 through 10.

TABLE III. Group A inspection for device type 01.

Subgroup	Symbol	Test	1	2	17	12	15	16	4	3	5	8	9	10	11	7	6	Relays ener-		/leasure termina		Equations	Note	Test	limits	Unit
		no.	Vs1	Vs2	Vs3	1B	1C	1E	2B	2E	2C	Vcc	G	1A	1Y	2A	2Y	gized	No.	Value	Unit			Min	Max	
1	V <sub>IC</sub>	1										4.5 V	-12 mA	4.5 V		4.5 V		None	9	E1	V	V <sub>IC</sub> = E1	See		-1.5	V
T <sub>A</sub> =	V <sub>IC</sub>	2										4.5 V	4.5 V	-12 mA		4.5 V		66	10	E2	V	V <sub>IC</sub> = E2	figure 3		-1.5	V
+25°C	V <sub>IC</sub>	3										4.5 V	4.5 V	4.5 V		-12 mA		**	7	E3	V	V <sub>IC</sub> = E3	for test		-1.5	V
	I <sub>IH1</sub>	4										5.5 V	GND	2.4 V		GND		**	10	I1	Α	I <sub>IH1</sub> = I1	circuit		40	μА
	I <sub>IH1</sub>	5										"	66	GND		2.4 V		66	7	12	"	I <sub>IH1</sub> = I2	"		40	μА
	I <sub>IH2</sub>	6										"	"	5.5 V		GND		"	10	13	"	$I_{1H2} = I3$	"		1	mA
	I <sub>IH2</sub>	7										"	"	GND		5.5 V		"	7	14	"	I <sub>IH2</sub> = I4	"		1	mA
	I <sub>IH3</sub>	8										"	2.4 V	GND		GND		"	9	15	"	$I_{1H3} = I5$	"		80	μА
	I <sub>IH4</sub>	9										"	5.5 V	GND		GND		"	9	16		I <sub>IH4</sub> = I6			2	mA
	I <sub>IL1</sub>	10										"	5.5 V	0.4 V		5.5 V			10	17		I <sub>IL1</sub> = I7			-1.6	mA "
	I <sub>IL1</sub>	11										"	5.5 V	5.5 V		0.4 V		"	7	18		I <sub>IL1</sub> = 18			-1.6	"
	I <sub>IL2</sub>	12											0.4 V	5.5 V		5.5 V			9	19		I <sub>IL2</sub> = 19	-		-3.2	
	ICCH1	13										"	GND	GND		GND		"	8	I10	"	ICCH1 = I10	"		4	"
	ICCL1	14										"	5.5 V	5.5 V		5.5 V		66	8	l11	"	ICCL1 = I11	u		11	"
	V <sub>O</sub> L <sub>9</sub>	15										4.5 V	2 V	2 V	I <sub>OL</sub> = 16 mA			"	11	E4	V	V <sub>OL9</sub> = E4	"		0.5	V
	VOL9	16										"	2 V			2 V	I <sub>OL</sub> = 16 mA	66	6	E5	"	V <sub>OL9</sub> = E5	"		0.5	"
	Vон	17										66	4.5 V	0.8 V	IOH = - 400 μA			66	11	E6	"	V <sub>OH</sub> = E6	"	2.4		66
	Vон	18										"	4.5 V			0.8 V	IOH = - 400 μA	66	6	E7	"	VoH = E7	u	2.4		"
	los <sub>1</sub>	19										5.5 V	GND	GND	GND		100 μι τ	66	11	l12	Α	los1 = l12	"		-55	mA
	los <sub>1</sub>	20										5.5 V	66			GND	GND	66	6	l13	"	I <sub>OS1</sub> = I13	"		-55	mA
	los2	21										4.5 V	66	GND	GND			66	11	l14	"	l <sub>OS2</sub> = l14	"	-18		"
	l <sub>OS2</sub>	22										4.5 V	66			GND	GND	66	6	l15	"	I <sub>OS2</sub> = I15	"	-18		"
	h <sub>FE1</sub>	23	4 V	V <del>S</del> 2														"	18 to 14	E8	٧	h <sub>FE1</sub> = E8/1000	See figures 3 and 4	25		
	h <sub>FE1</sub>	24	4 V	u.														3	"	E9	"	h <sub>FE1</sub> = E9/1000	for test	25		
	h <sub>FE2</sub>	25	6 V	"														None	"	E10	"	h <sub>FE2</sub> = E10/3000	circuit	30		
	h <sub>FE2</sub>	26	6 V	"														3	"	E11	"	h <sub>FE2</sub> = E11/3000	and waveforms	30		
	V <sub>BE1</sub>	27	4 V	u	V S 3													1,2	12 to 16	E12	"	V <sub>BE1</sub> = E12	u		1.2	٧
	V <sub>BE1</sub>	28	4 V	"	V <del>S</del> 3													1,2,3	11 to 10	E13	íí.	V <sub>BE1</sub> = E13	u		1.2	V

TABLE III. Group A inspection for device type 01 – Continued.

Subgroup	Symbol	Test	1	2	17	12	15	16	4	3	5	8	9	10	11	7	6	Relays ener-		leasure termina		Equations	Note	Test I	imits	Unit
		no.	Vs1	Vs2	Vs3	1B	1C	1E	2B	2E	2C	Vcc	G	1A	1Y	2A	2Y	gized	No.	Value	Unit			Min	Max	
1 T <sub>A</sub> =	V <sub>BE2</sub>	29	6 V	V S 2	V <del>S</del> 3													1,2	12 to 16	E14	٧	V <sub>BE2</sub> = E14	See figures 3 and 4		1.4	٧
+25°C	V <sub>BE2</sub>	30	6 V	"	"													1,2,3	11 to 10	E15	66	V <sub>BE2</sub> = E15	for test		1.4	V
	VCESAT 1	31	4 V	66	ű													1,2	5 to 6	E16	"	VCESAT1 = E16	circuit		0.5	"
	VCESAT 1	32	4 V	66	ű													1,2,3	10 to 9	E17	"	VCESAT1 = E17	and waveforms		0.5	"
	VCESAT 2	33	6 V	"	ű													1,2	5 to 6	E18	"	V <sub>CESAT2</sub> = E18	"		0.8	"
	V <sub>CESAT</sub>	34	6 V	"	ű													1,2,3	10 to 9	E19	"	V <sub>CESAT2</sub> = E19	"		0.8	"
	V <sub>CB01</sub>	35				GND	100 μΑ											3	15 to 12	E20	44	V <sub>CB01</sub> = E20	See figure 3 for test	35		66
	V <sub>CB01</sub>	36							GND		100 μΑ							4	5 to 3	E21	"	V <sub>CB01</sub> = E21	circuit	35		"
	V <sub>CER1</sub>	37					100 μΑ	GND										4	15 to 16	E22	"	V <sub>CER1</sub> = E22	u	35		"
	V <sub>CER1</sub>	38								GND	100 μΑ							3,4	5 to 3	E23	"	V <sub>CER1</sub> = E23	"	35		66
	V <sub>EBO</sub>	39				GND		100 μΑ										3,4	16 to 12	E24	"	V <sub>EBO</sub> = E24	"	5		"
	V <sub>EBO</sub>	40							GND	100 μΑ								4	3 to 4	E25	"	V <sub>EBO</sub> = E25	"	5		"
2	V <sub>IC</sub>	41										4.5 V	-12 mA	4.5 V		4.5 V		None	9	E1	V	V <sub>IC</sub> = E1	See		-1.5	V
T <sub>A</sub> =	VIC	42										4.5 V	4.5 V	-12 mA		4.5 V		"	10	E2	V	V <sub>IC</sub> = E2	figure 3		-1.5	V
+125°C	Vic	43 44										4.5 V 5.5 V	4.5 V GND	4.5 V 2.4 V		-12 mA GND		"	7	E3	V	V <sub>IC</sub> = E3	for test		-1.5 40	V
	liH1	44 45										5.5 V	GND "	GND		2.4 V		"	10 7	12	Α "	I <sub>IH1</sub> = I1 I <sub>IH1</sub> = I2	circuit "		40	μA μA
	liH1	46										"	44	5.5 V		GND		44	10	13	"	I <sub>IH1</sub> = I <sub>2</sub>	"		1	mΑ
	I <sub>IH2</sub> I <sub>IH2</sub>	47										"	"	GND		5.5 V		"	7	14	44	I <sub>IH2</sub> = I3	"		1	mA
	I <sub>IH3</sub>	48										**	2.4 V	GND		GND		"	9	15	"	I <sub>IH3</sub> = I5	"		80	μА
	I <sub>IH4</sub>	49										"	5.5 V	GND		GND		"	9	16	"	I <sub>IH4</sub> = I6	"		2	mΑ
	I <sub>IL1</sub>	50										66	5.5 V	0.4 V		5.5 V		"	10	17	"	I <sub>IL1</sub> = I7	"		-1.6	mA
	IIL1	51										44	5.5 V	5.5 V		0.4 V		"	7	18	"	I <sub>IL1</sub> = I8	"		-1.6	"
	I <sub>IL2</sub>	52										44	0.4 V	5.5 V		5.5 V		44	9	19	"	I <sub>IL2</sub> = 19	"		-3.2	"
	I <sub>CCH1</sub>	53										66	GND	GND		GND		"	8	I10	u	I <sub>CCH1</sub> = 110	"		4	"
	I <sub>CCL1</sub>	54										"	5.5 V	5.5 V		5.5 V		"	8	l11	44	I <sub>CCL1</sub> =	44		11	"

TABLE III. Group A inspection for device type 01 – Continued.

Subgroup	Symbol	Test	1	2	17	12	15	16	4	3	5	8	9	10	11	7	6	Relays ener-	Measu	ıred teri	minal	Equations	Note	Test I	imits	Unit
		no.	Vs1	V <sub>S2</sub>	Vs3	1B	1C	1E	2B	2E	2C	Vcc	G	1A	1Y	2A	2Y	gized	No.	Value	Unit			Min	Max	
2	V <sub>OL9</sub>	55										4.5 V	2 V	2 V	I <sub>OL</sub> = 16 mA			None	11	E4	٧	V <sub>OL9</sub> = E4	See		0.5	V
T <sub>A</sub> =	$V_{OL9}$	56										"	2 V			2 V	I <sub>OL</sub> = 16 mA	"	6	E5	"	V <sub>OL9</sub> = E5	figure 3		0.5	"
+125°C	V <sub>OH</sub>	57										"	4.5 V	0.8 V	I <sub>OH</sub> = - 400 μA			ű	11	E6	"	V <sub>OH</sub> = E6	for test	2.4		"
	V <sub>OH</sub>	58										"	4.5 V		•	0.8 V	I <sub>OH</sub> = - 400 μA	"	6	E7	"	V <sub>OH</sub> = E7	circuit	2.4		"
	los <sub>1</sub>	59										5.5 V	GND	GND	GND		100 ps 1	"	11	l12	Α	I <sub>OS1</sub> = I12	"		-55	mA
	los <sub>1</sub>	60										5.5 V	"			GND	GND	"	6	l13	"	I <sub>OS1</sub> = I13	"		-55	"
	los <sub>2</sub>	61										4.5 V	66	GND	GND			44	11	l14	"	I <sub>OS2</sub> = I14	"	-18		"
	I <sub>OS2</sub>	62										4.5 V	**			GND	GND	44	6	l15	"	I <sub>OS2</sub> = I15	"	-18		"
	h <sub>FE1</sub>	63	4 V	V \$ 2														"	18 to 14	E8	٧	h <sub>FE1</sub> = E8/1000	See figures 3 and 4	25		
	h <sub>FE1</sub>	64	4 V	"														3	"	E9	"	h <sub>FE1</sub> = E9/1000	for test	25		
	hFE2	65	6 V	"														None	"	E10	"	hFE2 = E10/3000	circuit	30		
	h <sub>FE2</sub>	66	6 V	"														3	u	E11	"	h <sub>FE2</sub> = E11/3000	and waveforms	30		
	V <sub>BE1</sub>	67	4 V	"	V S 3													1,2	12 to 16	E12	"	V <sub>BE1</sub> = E12	u		1.2	٧
	V <sub>BE1</sub>	68	4 V	ű	V <del>S</del> 3													1,2,3	11 to 10	E13	u	V <sub>BE1</sub> = E13	и		1.2	V
	V <sub>BE2</sub>	69	6 V	"	V S 3													1,2	12 to 16	E14	V	V <sub>BE2</sub> = E14	See figures 3 and 4		1.4	٧
	$V_{BE2}$	70	6 V	ű	44													1,2,3	11 to 10	E15	u	V <sub>BE2</sub> = E15	for test		1.4	٧
	V <sub>CESAT</sub>	71	4 V	и	66													1,2	5 to 6	E16	"	V <sub>CESAT1</sub> = E16	circuit		0.5	"
	V <sub>CESAT</sub>	72	4 V	"	"													1,2,3	10 to 9	E17	"	VCESAT1 = E17	and waveforms		0.5	"
	$V_{\text{CESAT}}$	73	6 V	"	"													1,2	5 to 6	E18	"	V <sub>CESAT2</sub> = E18	и		0.8	"
	2 V <sub>CESAT</sub>	74	6 V	"	u													1,2,3	10 to	E19	"	VCESAT2 = E19	u		0.8	44
	V <sub>CB01</sub>	75				GND	100 μΑ											3	15 to 12	E20	"	V <sub>CB01</sub> = E20	See figure 3 for test	35		u
	V <sub>CB01</sub>	76							GND		100 μΑ							4	5 to 3	E21	"	V <sub>CB01</sub> = E21	circuit	35		"
	V <sub>CER1</sub>	77					100 μΑ	GND			μιι							4	15 to 16	E22	"	V <sub>CER1</sub> = E22	u	35		"
	V <sub>CER1</sub>	78								GND	100 μΑ							3,4	5 to 3	E23	"	V <sub>CER1</sub> = E23	и	35		"

TABLE III. Group A inspection for device type 01 – Continued.

Subgroup	Symbol	Test	1	2	17	12	15	16	4	3	5	8	9	10	11	7	6	Relays ener-	Meası	ured terr	ninal	Equations	Note	Test	imits	Unit
		no.	Vs1	Vs2	Vs3	1B	1C	1E	2B	2E	2C	Vcc	G	1A	1Y	2A	2Y	gized	No.	Value	Unit			Min	Max	
2 T <sub>A</sub> =	V <sub>EBO</sub>	79				GND		100 μΑ										3,4	16 to 12	E24	٧	V <sub>EBO</sub> = E24	See figure 3 for test	5		V
+125°C	V <sub>EBO</sub>	80							GND	100 μΑ								4	3 to 4	E25	ű	V <sub>EBO</sub> = E25	circuit	5		ű
3	$V_{IC}$	81											-12 mA	4.5 V		4.5 V		None	9	E1	V	V <sub>IC</sub> = E1	See		-1.5	V
T <sub>A</sub> =	$V_{IC}$	82										4.5 V	4.5 V	-12 mA		4.5 V		"	10	E2	V	V <sub>IC</sub> = E2	figure 3		-1.5	V
-55°C	V <sub>IC</sub>	83										4.5 V	4.5 V	4.5 V		-12 mA		"	7	E3	V	V <sub>IC</sub> = E3	for test		-1.5	V
	l <sub>IH1</sub>	84										5.5 V	GND "	2.4 V		GND		"	10	11	Α "	I <sub>IH1</sub> = I1	circuit "		40	μA
	l <sub>IH1</sub>	85											"	GND		2.4 V			7	12	"	I <sub>IH1</sub> = I2			40	μ <b>A</b>
	I <sub>IH2</sub>	86										"	"	5.5 V GND		GND 5.5 V		"	10 7	13 14	"	I <sub>1H2</sub> = I3	"		1	mA m ^
	I <sub>IH2</sub>	87 88										"	2.4 V	GND		GND		66	9	15	"	I <sub>1H2</sub> = I4	"		1 80	mA μA
	I <sub>IH3</sub>	89										"	5.5 V	GND		GND		"	9	16	"	I <sub>IH3</sub> = I5 I <sub>IH4</sub> = I6	"		2	μA mA
	I <sub>IH4</sub>	90										"	5.5 V	0.4 V		5.5 V		66	10	17	"	I <sub>IL1</sub> = I7	u		-1.6	mA
	I <sub>IL1</sub>	91										"	5.5 V	5.5 V		0.4 V		"	7	18	"	I <sub>IL1</sub> = 18	"		-1.6	"
	I <sub>IL2</sub>	92										"	0.4 V	5.5 V		5.5 V		66	9	19	"	I <sub>IL2</sub> = 19	"		-3.2	"
•	ICCH1	93										"	GND	GND		GND		"	8	l10	"	ICCH1 = I10	u		4	u
	ICCL1	94										"	5.5 V	5.5 V		5.5 V		"	8	l11	и	ICCL1 =	u		11	"
	V <sub>O</sub> L <sub>9</sub>	95										4.5 V	2 V	2 V	I <sub>OL</sub> = 16 mA			66	11	E4	٧	V <sub>OL9</sub> = E4	u		0.5	V
	V <sub>OL9</sub>	96										u	2 V			2 V	I <sub>OL</sub> = 16 mA	"	6	E5	и	V <sub>OL9</sub> = E5	u		0.5	"
	Vон	97										"	4.5 V	0.8 V	IOH = - 400 μA			"	11	E6	"	V <sub>OH</sub> = E6	и	2.4		"
	Vон	98										u.	4.5 V			0.8 V	IOH = - 400 μA	66	6	E7	u	V <sub>OH</sub> = E7	u	2.4		"
	los <sub>1</sub>	99										5.5 V	GND	GND	GND			"	11	l12	Α	los1 = I12	"		-55	mA
	los <sub>1</sub>	100										5.5 V	"			GND	GND	66	6	l13	"	I <sub>OS1</sub> = I <sub>13</sub>	"		-55	mA
	los <sub>2</sub>	101										4.5 V	"	GND	GND			**	11	l14	"	$I_{OS2} = I14$	"	-18		"
	los <sub>2</sub>	102										4.5 V	"			GND	GND	66	6	l15	"	$I_{OS2} = I15$	"	-18		"
	h <sub>FE3</sub>	103	4 V	V S 2														"	18 to 14	E8	٧	h <sub>FE3</sub> = E8/1000	See figures 3 and 4	10		
	h <sub>FE3</sub>	104	4 V	"														3	"	E9	ű	h <sub>FE3</sub> = E9/1000	for test	10		
	h <sub>FE4</sub>	105	6 V	"														None	"	E10	ű	h <sub>FE4</sub> = E10/3000	circuit	15		
	h <sub>FE4</sub>	106	6 V	u														3	u	E11	"	h <sub>FE4</sub> = E11/3000	and waveforms	15		
	V <sub>BE1</sub>	107	4 V	u	V <del>S</del> 3													1,2	12 to 16	E12	"	V <sub>BE1</sub> = E12	u		1.2	V
	V <sub>BE1</sub>	108	4 V	"	V <del>S</del> 3													1,2,3	11 to 10	E13	"	V <sub>BE1</sub> = E13	и		1.2	V

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TABLE III. Group A inspection for device type 01 – Continued.

Subgroup	Symbol	Test	1	2	17	12	15	16	4	3	5	8	9	10	11	7	6	Relays ener-	Measu	ured ter	minal	Equations	Note	Test I	imits	Unit
		no.	V <sub>S1</sub>	V <sub>S2</sub>	V <sub>S3</sub>	1B	1C	1E	2B	2E	2C	V <sub>C</sub> C	G	1A	1Y	2A	2Y	gized	No.	Value	Unit			Min	Max	
3	V <sub>BE2</sub>	109	6 V	V S 2	V S 3													1,2	12 to 16	E14	٧	V <sub>BE2</sub> = E14	See figures 3 and 4		1.4	V
T <sub>A</sub> =	V <sub>BE2</sub>	110	6 V	"	66													1,2,3	11 to 10	E15	ű	V <sub>BE2</sub> = E15	for test		1.4	V
-55°C	VCESAT	111	4 V	"	66													1,2	5 to 6	E16	"	VCESAT1 = E16	circuit		0.5	"
	VCESAT	112	4 V	и	"													1,2,3	10 to 9	E17	íí	V <sub>CESAT1</sub> = E17	and waveforms		0.5	u
	VCESAT 2	113	6 V	ш	"													1,2	5 to 6	E18	"	VCESAT2 = E18	"		0.8	"
	VCESAT 2	114	6 V	ш	"													1,2,3	10 to 9	E19	"	V <sub>CESAT2</sub> = E19	"		0.8	"
	V <sub>CB01</sub>	115				GND	100 μΑ											3	15 to 12	E20	"	V <sub>CB01</sub> = E20	See figure 3 for test	35		"
	V <sub>CB01</sub>	116							GND		100 μΑ							4	5 to 3	E21	"	V <sub>CB01</sub> = E21	circuit	35		"
	V <sub>CER1</sub>	117					100 μΑ	GND										4	15 to 16	E22	"	V <sub>CER1</sub> = E22	u	35		"
	V <sub>CER1</sub>	118								GND	100 μΑ							3,4	5 to 3	E23	"	V <sub>CER1</sub> = E23	u	35		"
	VEBO	119				GND		100 μΑ										3,4	16 to 12	E24	ű	V <sub>EBO</sub> = E24	ű	5		"
	VEBO	120							GND	100 ແA								4	3 to 4	E25	"	V <sub>EBO</sub> =	u	5		"

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TABLE III. Group A inspection for device type 01 – Continued.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Notes	Measured	Test	limits	Unit
		no.	G	1A	1Y	1B	1C	1E	GND	Sub	2E	2C	2B	2Y	2A	Vcc		terminal	Min	Max	
9 T <sub>A</sub> =	t <sub>D</sub>	121 122				Α	В	GND		GND "	GND	В	Α				See figure 8 for test	5 10		15 "	ns "
+25°C	ts	123				Α	В	GND		"	OND	5	^				circuit and	5		"	"
	ts	124								"	GND	В	Α				waveforms	10		"	"
	t <sub>R</sub>	125				Α	В	GND		"							u	5		20	"
	tR	126					_	OND		"	GND	В	Α				u	10		20	"
	t <sub>F</sub>	127 128				Α	В	GND		"	GND	В	Α				u	5 10		15 15	"
	tPLH1	129	3 V	IN	OUT					"	OND	D				4.5 V	See figure 6	2 to 3		30	"
	"	130	IN	3 V	OUT					"						"	for test	1 to 3		"	"
	"	131 132	3 V IN							"				OUT OUT	IN 3 V	"	circuit and waveforms	13 to 12 1 to 12		"	"
	t <sub>PHL1</sub>	133	3 V	IN	OUT					"						4.5 V	u	2 to 3		15	u
	"	134 135	IN 3 V	3 V	OUT					"				OUT	IN	"	u	1 to 3 13 to 12		"	"
	"	136	IN							"				OUT	3 V	ű	u	1 to 12		ű	"
	tPLH2	137	3 V	IN	Connect to 1B		OUT			"						4.5 V	See figure 7	2 to 5		30	"
	66	138	IN	3 V	Connect to 1B		OUT			"						44	for test	1 to 5		"	66
	u	139	3 V							"		OUT		Connect to 2B	IN	44	circuit and	13 to 10		"	u
	44	140	IN							"		OUT		Connect to 2B	3 V	"	waveforms	1 to 10		u	"
	t <sub>PHL2</sub>	141	3 V	IN	Connect to 1B		OUT			"						4.5 V	и	2 to 5		30	"
	66	142	IN	3 V	Connect to 1B		OUT			"						"	u	1 to 5		"	44
	66	143	3 V							"		OUT		Connect to 2B		"	u	13 to 10		"	"
	66	144	IN							"		OUT		Connect to 2B		"	u	1 to 10		"	"
	tTLH1	145	3 V	IN	Connect to 1B		OUT			"			•			"	u	5	_	15	íí.
	t <sub>TLH1</sub>	146	3 V							"		OUT		Connect to 2B	IN	u	и	10		u	"
	tTHL1	147	3 V	IN	Connect to 1B		OUT			"						u	и	5		u	"
	t <sub>THL1</sub>	148	3 V							"		OUT		Connect to 2B	IN	"	и	10		"	44

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TABLE III. Group A inspection for device type 01 – Continued.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Notes	Measured	Test	limits	Unit
		no.	G	1A	1Y	1B	1C	1E	GND	Sub	2E	2C	2B	2Y	2A	Vcc		terminal	Min	Max	
10	t <sub>D</sub>	149				Α	В	GND		GND							See figure 8	5		22.5	ns
T <sub>A</sub> =	tD	150								"	GND	В	Α				for test	10		"	"
+125°C	ts	151				Α	В	GND		"							circuit and	5		"	"
	ts	152								"	GND	В	Α				waveforms	10		66	"
	t <sub>R</sub>	153				Α	В	GND		"							"	5		30	"
	t <sub>R</sub>	154								"	GND	В	Α				"	10		30	"
	tF	155				Α	В	GND		"							"	5		22.5	"
	tF	156								"	GND	В	Α					10		22.5	"
	tPLH1	157	3 V	IN 3 V	OUT					"						4.5 V	See figure 6	2 to 3		45 "	"
	"	158 159	IN 3 V	3 V	001					"				OUT	IN	"	for test circuit and	1 to 3 13 to 12		"	44
	"	160	ĬN							"				OUT	3 V	"	waveforms	1 to 12		"	"
	t <sub>PHL1</sub>	161	3 V	IN	OUT					"						4.5 V	"	2 to 3		22.5	**
	"	162	IN 3 V	3 V	OUT					"				OUT	INI	"	"	1 to 3		"	"
	"	163 164	3 V IN							"				OUT OUT	IN 3 V	"	"	13 to 12 1 to 12		"	"
	t <sub>PLH2</sub>	165	3 V	IN	Connect to 1B		OUT			"					-	4.5 V	See figure 7	2 to 5		45	u
	"	166	IN	3 V	Connect to 1B		OUT			"						"	for test	1 to 5		"	u
	"	167	3 V		10 15					"		OUT		Connect to 2B	IN	"	circuit and	13 to 10		"	"
	44	168	IN							"		OUT		Connect to 2B	3 V	"	waveforms	1 to 10		"	"
	t <sub>PHL2</sub>	169	3 V	IN	Connect to 1B		OUT			"						4.5 V	"	2 to 5		"	"
	44	170	IN	3 V	Connect to 1B		OUT			"						**	"	1 to 5		u	"
	"	171	3 V							"		OUT		Connect to 2B		"	u	13 to 10		"	"
	"	172	IN							"		OUT		Connect to 2B		"	u	1 to 10		"	"
	t <sub>TLH1</sub>	173	3 V	IN	Connect to 1B		OUT			"						"	"	5		22.5	44
	t <sub>TLH1</sub>	174	3 V							"		OUT		Connect to 2B	IN	44	"	10		"	44
	t <sub>THL1</sub>	175	3 V	IN	Connect to 1B		OUT			66						"	u	5		"	"
	tTHL1	176	3 V							"		OUT		Connect to 2B	IN	66	u	10		"	"

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TABLE III. Group A inspection for device type 01 – Continued.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Notes	Measured	Test	limits	Unit
		no.	G	1A	1Y	1B	1C	1E	GND	Sub	2E	2C	2B	2Y	2A	Vcc		terminal	Min	Max	
11	t <sub>D</sub>	177				Α	В	GND		GND							See figure 8	5		22.5	ns
T <sub>A</sub> =	tD	178								66	GND	В	Α				for test	10		"	"
-55°C	ts	179				Α	В	GND		44							circuit and	5		"	"
	ts	180								"	GND	В	Α				waveforms	10		"	44
	$t_R$	181				Α	В	GND		44							66	5		30	"
	t <sub>R</sub>	182								"	GND	В	Α				66	10		30	"
	tF	183				Α	В	GND		44							66	5		22.5	"
	tF	184								"	GND	В	Α				66	10		22.5	"
	tPLH1	185	3 V	IN	OUT					"						4.5 V	See figure 6	2 to 3		45	"
	"	186 187	IN 3 V	3 V	OUT					"				OUT	IN	"	for test circuit and	1 to 3 13 to 12		"	"
	"	188	IN							"				OUT	3 V	"	waveforms	1 to 12		66	"
	t <sub>PHL1</sub>	189	3 V	IN	OUT					"						4.5 V	ű	2 to 3		22.5	"
	"	190	IN	3 V	OUT					"						"	"	1 to 3		"	"
	"	191 192	3 V IN							"				OUT OUT	IN 3 V	"	"	13 to 12 1 to 12		"	"
	t <sub>PLH2</sub>				Connect		0.17			"				001	3 V	4.5.4	0 " -				"
		193	3 V	IN	to 1B		OUT									4.5 V	See figure 7	2 to 5		45	
	44	194	IN	3 V	Connect to 1B		OUT			44						"	for test	1 to 5		"	44
	"	195	3 V		10 16					"		OUT		Connect to 2B	IN	44	circuit and	13 to 10		"	44
	"									"		O. I.T.		Connect	0.17	44	,			"	"
		196	IN									OUT		to 2B	3 V		waveforms	1 to 10			
	t <sub>PHL2</sub>	197	3 V	IN	Connect to 1B		OUT			"						4.5 V	ű	2 to 5		66	44
	"	198	IN	3 V	Connect to 1B		OUT			"						66	"	1 to 5		"	66
	"	199	3 V							"		OUT		Connect to 2B		"	"	13 to 10		66	44
	"	200	IN							"		OUT		Connect to 2B		"	ű	1 to 10		"	"
	tTLH1	201	3 V	IN	Connect to 1B		OUT			"						"	u	5		22.5	"
	t <sub>TLH1</sub>	202	3 V							"		OUT		Connect to 2B	IN	"	u	10		u	"
	t <sub>THL1</sub>	203	3 V	IN	Connect to 1B		OUT			"						66	"	5		"	44
	tTHL1	204	3 V							"		OUT		Connect to 2B	IN	"	u	10		"	"

Subgroup Symbol Test 1 2 3 4 5 6 7 8 Notes Measured Test limits Unit no. 1A 1B 1Y GND 2Y 2A 2B Vcc terminal Min Max 4.5 V 1 -12 mA 4.5 V GND See figure -1.5 ٧  $V_{IC}$ 1 1 to 4  $T_A =$ 2 4.5 V -12 mA 5 for test 2 to 4 +25°C " -12 mA 4.5 V 3 6 to 4 circuit 4.5 V -12 mA 7 to 4 4 2.4 V GND 5.5 V 5 1 to 4 40 I<sub>IH1</sub> μΑ GND 2.4 V 2 to 4 6 \*\* " " 2.4 V 7 GND 6 to 4 GND 8 2.4 V 7 to 4 5.5 V GND 1 I<sub>IH2</sub> 9 1 to 4 mΑ GND 5.5 V 2 to 4 10 " GND 11 5.5 V 6 to 4 12 GND 5.5 V 7 to 4 13 0.4 V 5.5 V 1 to 4 -1.6 mΑ I<sub>IL1</sub> 5.5 V 0.4 V 2 to 4 14 15 0.4 V 5.5 V 6 to 4 \*\* 5.5 V 16 0.4 V 7 to 4 5.5 V 17 5.5 V 5.5 V 5.5 V 8 11 I<sub>CCH2</sub> GND GND GND GND 8 65 18 ICCL2 19 0.8 V 0.8 V 100 mA 4.5 V 3 to 4 0.5 ٧  $V_{OL1}$ 100 mA 0.8 V 0.8 V 5 to 4 0.5 20 V<sub>OL1</sub> 21 0.8 V 0.8 V 300 mA 3 to 4 8.0 V<sub>OL5</sub> 0.8 V 0.8 V 22 300 mA 5 to 4 8.0  $V_{OL5}$ 2 V 2 V 30 V 3 300 μΑ I<sub>OH1</sub> 30 V 2 V 2 V 5 300 IOH1

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TABLE III. Group A inspection for device type 02.

3

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TABLE III. Group A inspection for device type 02 – Continued.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	Notes	Measured	Test	limits	Unit
		no.	1A	1B	1Y	GND	2Y	2A	2B	Vcc		terminal	Min	Max	
2	V <sub>IC</sub>	25	-12 mA	4.5 V		GND				4.5 V	See figure	1 to 4		-1.5	V
T <sub>A</sub> =	"	26	4.5 V	-12 mA		"				"	5 for test	2 to 4		"	"
+125°C	"	27				"		-12 mA	4.5 V	"	circuit	6 to 4		"	u
	u	28				"		4.5 V	-12 mA	u	u	7 to 4		"	"
	l <sub>IH1</sub>	29	2.4 V	GND		"				5.5 V	"	1 to 4		40	μА
	"	30	GND	2.4 V		"				"	ű	2 to 4		"	"
	"	31				"		2.4 V	GND	"	ű	6 to 4		"	"
	u	32				"		GND	2.4 V	u	ű	7 to 4		u	u
	l <sub>IH2</sub>	33	5.5 V	GND		**				"	u	1 to 4		1	mA
	"	34	GND	5.5 V		"				"	ű	2 to 4		"	"
	u	35				**		5.5 V	GND	"	u	6 to 4		"	u
	u	36				**		GND	5.5 V	"	u	7 to 4		"	u
	I <sub>IL1</sub>	37	0.4 V	5.5 V		"				"	и	1 to 4		-1.6	mA
	"	38	5.5 V	0.4 V		"				"	"	2 to 4		"	"
	"	39				"		0.4 V	5.5 V	"	"	6 to 4		"	"
	"	40				"		5.5 V	0.4 V	"	u	7 to 4		"	"
	I <sub>CCH2</sub>	41	5.5 V	5.5 V		"		5.5 V	5.5 V	"	ű	8		11	"
	ICCL2	42	GND	GND		"		GND	GND	"	u	8		65	"
	V <sub>OL1</sub>	43	0.8 V	0.8 V	100 mA	"				4.5 V	"	3 to 4		0.5	V
	V <sub>OL1</sub>	44				"	100 mA	0.8 V	0.8 V	u	u	5 to 4		0.5	"
	V <sub>OL5</sub>	45	0.8 V	0.8 V	300 mA	"				"	u	3 to 4		0.8	u
	V <sub>OL5</sub>	46				"	300 mA	0.8 V	0.8 V	"	"	5 to 4		0.8	"
	I <sub>OH1</sub>	47	2 V	2 V	30 V	"				"	и	3		300	μА
	IOH1	48				"	30 V	2 V	2 V	íí.	ű	5		300	u

32

Subgroup

3

T<sub>A</sub> =

-55°C

Symbol

Test

1

5.5 V

GND

0.8 V

0.8 V

2 V

65

66

67

68

69

70

71

72

I<sub>CCH2</sub>

ICCL2

 $V_{OL1}$ 

 $V_{OL1}$ 

V<sub>OL5</sub>

 $V_{OL5}$ 

I<sub>OH1</sub>

IOH1

5.5 V

GND

2 V

0.8 V 100 mA

0.8 V 300 mA

30 V

2

3

4

1A 1B 1Y GND 2Y 2A 2B Vcc terminal Min Max no. 4.5 V ٧ -12 mA 4.5 V GND See figure -1.5  $V_{IC}$ 49 1 to 4 50 4.5 V -12 mA 5 for test 2 to 4 4.5 V 51 -12 mA circuit 6 to 4 4.5 V 52 -12 mA 7 to 4 2.4 V GND 5.5 V 40 53 1 to 4 μΑ I<sub>IH1</sub> 54 GND 2.4 V 2 to 4 " " 2.4 V GND 55 6 to 4 GND 2.4 V 56 7 to 4 5.5 V GND 57 1 to 4 I<sub>IH2</sub> 1 mΑ 58 GND 5.5 V 2 to 4 5.5 V GND 59 6 to 4 5.5 V 7 to 4 60 GND 0.4 V 5.5 V 1 to 4 -1.6 mΑ I<sub>IL1</sub> 62 5.5 V 0.4 V 2 to 4 63 0.4 V 5.5 V 6 to 4 5.5 V 0.4 V 7 to 4

5.5 V

GND

0.8 V

0.8 V

2 V

100 mA

300 mA

30 V

5.5 V

GND

0.8 V

0.8 V

2 V

4.5 V

TABLE III. Group A inspection for device type 02 – Continued.

6

7

8

Notes

Measured

8

8

3 to 4

5 to 4

3 to 4

5 to 4

3

5

11

65

0.5

0.5

0.8

0.8

300

300

V

μΑ

Test limits

Unit

5

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TABLE III. Group A inspection for device type 02 – Continued.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	Notes	Measured	Test limits		Unit
		no.	1A	1B	1Y	GND	2Y	2A	2B	Vcc		terminal	Min	Max	
9	tpLH	73	IN	3 V	OUT	GND				4.5 V	See figure 9	1 to 3		30	ns
T <sub>A</sub> =	"	74	3 V	IN	OUT	"				"	for test	2 to 3		"	"
+25°C	"	75				"	OUT	IN	3 V	"	circuit and	6 to 5		íí.	"
	"	76				"	OUT	3 V	IN	"	waveforms	7 to 5		"	"
	tPHL	77	IN	3 V	OUT	66				4.5 V	"	1 to 3		30	"
	"	78	3 V	IN	OUT	"				"	"	2 to 3		"	"
	"	79				"	OUT	IN	3 V	"	"	6 to 5		"	"
	"	80				"	OUT	3 V	IN	"	"	7 to 5		"	"
	tTLH	81	IN	IN	OUT	66				"	66	3		14	"
	tTLH	82				"	OUT	IN	IN	"	"	5		14	"
	tTHL	83	IN	IN	OUT	"				"	ű	3		20	"
	t <sub>THL</sub>	84				"	OUT	IN	IN	"	"	5		20	"
10	t <sub>PLH</sub>	85	IN	3 V	OUT	GND				4.5 V	66	1 to 3		45	ns
T <sub>A</sub> =	44	86	3 V	IN	OUT	"				"	ű	2 to 3		u	"
+125°C	"	87				"	OUT	IN	3 V	"	"	6 to 5		"	"
	"	88				"	OUT	3 V	IN	u	"	7 to 5		"	"
	tpHL	89	IN	3 V	OUT	"				4.5 V	"	1 to 3		"	"
	"	90	3 V	IN	OUT	"				"	"	2 to 3		"	"
	"	91				"	OUT	IN	3 V	u	"	6 to 5		"	"
	"	92				"	OUT	3 V	IN	"	"	7 to 5		"	"
	t <sub>TLH</sub>	93	IN	IN	OUT	66				"	"	3		18.5	"
	t <sub>TLH</sub>	94				"	OUT	IN	IN	"	"	5		18.5	"
	tTHL	95	IN	IN	OUT	66				u	"	3		25	"
	t <sub>THL</sub>	96				"	OUT	IN	IN	"	"	5		25	"

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TABLE III. Group A inspection for device type 02 – Continued.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	Notes	Measured	Test limits		Unit
		no.	1A	1B	1Y	GND	2Y	2A	2B	Vcc		terminal	Min	Max	
11	t <sub>PLH</sub>	97	IN	3 V	OUT	GND				4.5 V	See figure 9	1 to 3		45	ns
T <sub>A</sub> =	u	98	3 V	IN	OUT	u				"	for test	2 to 3		"	"
-55°C	u	99				íí	OUT	IN	3 V	"	circuit and	6 to 5		u	u
	u	100				íí.	OUT	3 V	IN	"	waveforms	7 to 5		u	u
	t <sub>PHL</sub>	101	IN	3 V	OUT	66				4.5 V	66	1 to 3		"	"
	"	102	3 V	IN	OUT	"				ű	66	2 to 3		"	"
	u	103				íí.	OUT	IN	3 V	"	"	6 to 5		u	u
	"	104				í,	OUT	3 V	IN	"	66	7 to 5		"	"
	tTLH	105	IN	IN	OUT	66				"	66	3		18.5	"
	tTLH	106				íí.	OUT	IN	IN	"	"	5		18.5	u
	t <sub>THL</sub>	107	IN	IN	OUT	66				"	"	3		25	u
	tTHL	108				íí.	OUT	IN	IN	"	66	5		25	u

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TABLE III. Group A inspection for device type 03.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	Notes	Measured	Test	limits	Unit
		no.	1A	1B	1Y	GND	2Y	2A	2B	Vcc		terminal	Min	Max	
1	V <sub>IC</sub>	1	-12 mA	4.5 V		GND				4.5 V	See figure	1 to 4		-1.5	V
T <sub>A</sub> =	"	2	4.5 V	-12 mA		66				"	5 for test	2 to 4		u	"
+25°C	"	3				66		-12 mA	4.5 V	"	circuit	6 to 4		u	"
	u	4				"		4.5 V	-12 mA	u	u	7 to 4		"	"
	I <sub>IH1</sub>	5	2.4 V	GND		66				5.5 V	u	1 to 4		40	μА
	u	6	GND	2.4 V		66				u	u	2 to 4		"	"
	u	7				"		2.4 V	GND	u	u	6 to 4		"	"
	u	8				66		GND	2.4 V	u	u	7 to 4		"	"
	I <sub>IH2</sub>	9	5.5 V	GND		"				"	u	1 to 4		1	mA
	u	10	GND	5.5 V		u				u	u	2 to 4		"	"
	u	11				66		5.5 V	GND	"	u	6 to 4		"	"
	u	12				66		GND	5.5 V	u	u	7 to 4		"	"
	I <sub>IL1</sub>	13	0.4 V	5.5 V		"				"	ű	1 to 4		-1.6	mA
	"	14	5.5 V	0.4 V		"				"	u	2 to 4		"	"
	u	15				66		0.4 V	5.5 V	u	u	6 to 4		"	"
	u	16				"		5.5 V	0.4 V	ű	и	7 to 4		"	"
	I <sub>CCH4</sub>	17	GND	GND		"		GND	GND	"	u	8		14	"
	ICCL4	18	5.5 V	5.5 V		66		5.5 V	5.5 V	u	u	8		71	"
	V <sub>OL2</sub>	19	2 V	2 V	100 mA	"				4.5 V	ű	3 to 4		0.5	V
	V <sub>OL2</sub>	20				"	100 mA	2 V	2 V	"	u	5 to 4		0.5	"
	V <sub>OL6</sub>	21	2 V	2 V	300 mA	66				íí	и	3 to 4		0.8	"
	V <sub>OL6</sub>	22				"	300 mA	2 V	2 V	"	u	5 to 4		0.8	"
	I <sub>OH2</sub>	23	0.8 V	4.5 V	30 V	"				"	u	3		300	μА
	I <sub>OH2</sub>	24	-			"	30 V	0.8 V	4.5 V	"	и	5		300	"

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TABLE III. Group A inspection for device type 03 – Continued.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	Notes	Measured	Test	limits	Unit
		no.	1A	1B	1Y	GND	2Y	2A	2B	Vcc		terminal	Min	Max	
2	V <sub>IC</sub>	25	-12 mA	4.5 V		GND				4.5 V	See figure	1 to 4		-1.5	V
T <sub>A</sub> =	u	26	4.5 V	-12 mA		66				"	5 for test	2 to 4		u	"
+125°C	"	27				66		-12 mA	4.5 V	66	circuit	6 to 4		u	"
	u	28				66		4.5 V	-12 mA	"	"	7 to 4		u	"
	l <sub>IH1</sub>	29	2.4 V	GND		"				5.5 V	"	1 to 4		40	μА
	"	30	GND	2.4 V		"				"	44	2 to 4		"	u
	"	31				66		2.4 V	GND	66	44	6 to 4		íí.	"
	"	32				"		GND	2.4 V	"	"	7 to 4		"	u
	I <sub>IH2</sub>	33	5.5 V	GND		"				66	"	1 to 4		1	mA
	"	34	GND	5.5 V		"				"	44	2 to 4		"	"
	"	35				"		5.5 V	GND	66	"	6 to 4		"	"
	"	36				"		GND	5.5 V	"	ű	7 to 4		"	"
	I <sub>IL1</sub>	37	0.4 V	5.5 V		"				"	44	1 to 4		-1.6	mA
	"	38	5.5 V	0.4 V		"				"	44	2 to 4		"	"
	"	39				66		0.4 V	5.5 V	"	44	6 to 4		"	"
	"	40				"		5.5 V	0.4 V	"	44	7 to 4		"	u
	I <sub>CCH4</sub>	41	GND	GND		"		GND	GND	66	"	8		14	"
	ICCL4	42	5.5 V	5.5 V		"		5.5 V	5.5 V	"	"	8		71	"
	V <sub>OL2</sub>	43	2 V	2 V	100 mA	"				4.5 V	"	3 to 4		0.5	V
	V <sub>OL2</sub>	44				66	100 mA	2 V	2 V	"	44	5 to 4		0.5	"
	Vol6	45	2 V	2 V	300 mA	"				"	66	3 to 4		0.8	"
	V <sub>OL6</sub>	46				"	300 mA	2 V	2 V	"		5 to 4		0.8	"
	I <sub>OH2</sub>	47	0.8 V	4.5 V	30 V	"				"	ű	3		300	μА
	IOH2	48				66	30 V	0.8 V	4.5 V	"	ű	5		300	"

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TABLE III. Group A inspection for device type 03 – Continued.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	Notes	Measured	Test	limits	Unit
		no.	1A	1B	1Y	GND	2Y	2A	2B	Vcc		terminal	Min	Max	
3	V <sub>IC</sub>	49	-12 mA	4.5 V		GND				4.5 V	See figure	1 to 4		-1.5	V
T <sub>A</sub> =	"	50	4.5 V	-12 mA		66				"	5 for test	2 to 4		"	"
-55°C	"	51				66		-12 mA	4.5 V	"	circuit	6 to 4		"	"
	"	52				66		4.5 V	-12 mA	"	"	7 to 4		u	es.
	l <sub>IH1</sub>	53	2.4 V	GND		"				5.5 V	"	1 to 4		40	μА
	u	54	GND	2.4 V		"				u	u	2 to 4		"	"
	"	55				66		2.4 V	GND	"	"	6 to 4		u	es.
	"	56				66		GND	2.4 V	í,	"	7 to 4		u	es.
	I <sub>IH2</sub>	57	5.5 V	GND		"				"	"	1 to 4		1	mA
	"	58	GND	5.5 V		"				"	"	2 to 4		"	"
	"	59				"		5.5 V	GND	"	"	6 to 4		"	"
	"	60				66		GND	5.5 V	"	"	7 to 4		u	es.
	I <sub>IL1</sub>	61	0.4 V	5.5 V		66				"	"	1 to 4		-1.6	mA
	u	62	5.5 V	0.4 V		"				u	u	2 to 4		"	"
	u	63				66		0.4 V	5.5 V	u	u	6 to 4		"	"
	u	64				66		5.5 V	0.4 V	u	u	7 to 4		"	"
	ICCH4	65	GND	GND		66		GND	GND	"	u	8		14	"
	I <sub>CCL4</sub>	66	5.5 V	5.5 V		"		5.5 V	5.5 V	ű	и	8		71	"
	V <sub>OL2</sub>	67	2 V	2 V	100 mA	"				4.5 V	и	3 to 4		0.5	V
	V <sub>OL2</sub>	68				66	100 mA	2 V	2 V	u	u	5 to 4		0.5	"
	V <sub>OL6</sub>	69	2 V	2 V	300 mA	"				u	и	3 to 4		0.8	"
	V <sub>OL6</sub>	70				66	300 mA	2 V	2 V	u	u	5 to 4		0.8	"
	I <sub>OH2</sub>	71	0.8 V	4.5 V	30 V	"				íí	и	3		300	μА
	I <sub>OH2</sub>	72				"	30 V	0.8 V	4.5 V	u	и	5		300	"

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TABLE III. Group A inspection for device type 03 – Continued.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	Notes	Measured	Test	limits	Unit
		no.	1A	1B	1Y	GND	2Y	2A	2B	Vcc		terminal	Min	Max	
9	tpLH	73	IN	3 V	OUT	GND				4.5 V	See figure 9	1 to 3		35	ns
T <sub>A</sub> =	"	74	3 V	IN	OUT	"				"	for test	2 to 3		66	"
+25°C	"	75				"	OUT	IN	3 V	ű	circuit and	6 to 5		"	"
	"	76				"	OUT	3 V	IN	u	waveforms	7 to 5		"	"
	t <sub>PHL</sub>	77	IN	3 V	OUT	66				4.5 V	66	1 to 3		35	"
	"	78	3 V	IN	OUT	"				"	ű	2 to 3		"	"
	"	79				"	OUT	IN	3 V	"	66	6 to 5		"	"
	"	80				"	OUT	3 V	IN	ű	íí.	7 to 5		"	"
	tтьн	81	IN	IN	OUT	66				ű	66	3		14	"
	tTLH	82				"	OUT	IN	IN	"	66	5		14	"
	t <sub>THL</sub>	83	IN	IN	OUT	"				ű	íí.	3		20	"
	tTHL	84				"	OUT	IN	IN	"	"	5		20	"
10	t <sub>PLH</sub>	85	IN	3 V	OUT	GND				4.5 V	66	1 to 3		55	ns
T <sub>A</sub> =	"	86	3 V	IN	OUT	"				"	ű	2 to 3		"	"
+125°C	"	87				"	OUT	IN	3 V	"	ű	6 to 5		"	"
	"	88				"	OUT	3 V	IN	"	66	7 to 5		"	"
	t <sub>PHL</sub>	89	IN	3 V	OUT	66				4.5 V	66	1 to 3		55	"
	"	90	3 V	IN	OUT	"				ű	66	2 to 3		"	"
	"	91				"	OUT	IN	3 V	"	66	6 to 5		"	"
	"	92				"	OUT	3 V	IN	ű	ű	7 to 5		u	"
	tTLH	93	IN	IN	OUT	"				ű	"	3		18.5	"
	tTLH	94				"	OUT	IN	IN	u	"	5		18.5	"
	t <sub>THL</sub>	95	IN	IN	OUT	"				"	"	3		25	"
	tTHL	96				"	OUT	IN	IN	"	"	5		25	"

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TABLE III. Group A inspection for device type 03 – Continued.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	Notes	Measured	Test	limits	Unit
		no.	1A	1B	1Y	GND	2Y	2A	2B	Vcc		terminal	Min	Max	
11	t <sub>PLH</sub>	97	IN	3 V	OUT	GND				4.5 V	See figure 9	1 to 3		55	ns
T <sub>A</sub> =	u	98	3 V	IN	OUT	u				"	for test	2 to 3		"	"
-55°C	u	99				íí	OUT	IN	3 V	"	circuit and	6 to 5		u	"
	u	100				u	OUT	3 V	IN	"	waveforms	7 to 5		u	"
	t <sub>PHL</sub>	101	IN	3 V	OUT	66				4.5 V	66	1 to 3		"	"
	"	102	3 V	IN	OUT	"				"	66	2 to 3		"	"
	u	103				íí.	OUT	IN	3 V	"	"	6 to 5		u	"
	"	104				í,	OUT	3 V	IN	"	66	7 to 5		"	"
	tTLH	105	IN	IN	OUT	66				"	66	3		18.5	"
	tTLH	106				íí.	OUT	IN	IN	"	"	5		18.5	"
	t <sub>THL</sub>	107	IN	IN	OUT	66				"	"	3		25	"
	tTHL	108				"	OUT	IN	IN	"	66	5		25	"

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TABLE III. Group A inspection for device type 04.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	Notes	Measured	Test	limits	Unit
		no.	1A	1B	1Y	GND	2Y	2A	2B	V <sub>C</sub> C		terminal	Min	Max	
1	V <sub>IC</sub>	1	-12 mA	4.5 V		GND				4.5 V	See figure	1 to 4		-1.5	V
T <sub>A</sub> =	"	2	4.5 V	-12 mA		66				í,	5 for test	2 to 4		££	"
+25°C	"	3				66		-12 mA	4.5 V	"	circuit	6 to 4		íí.	"
	"	4				66		4.5 V	-12 mA	"	u	7 to 4		"	u
	l <sub>IH1</sub>	5	2.4 V	GND		"				5.5 V	"	1 to 4		40	μА
	"	6	GND	2.4 V		"				"	u	2 to 4		"	"
	"	7				"		2.4 V	GND	"	u	6 to 4		"	"
	"	8				"		GND	2.4 V	"	u	7 to 4		"	"
	I <sub>IH2</sub>	9	5.5 V	GND		"				"	"	1 to 4		1	mA
	"	10	GND	5.5 V		"				"	u	2 to 4		"	"
	"	11				"		5.5 V	GND	"	ű	6 to 4		í,	ıı
	"	12				"		GND	5.5 V	"	u	7 to 4		"	"
	I <sub>IL1</sub>	13	0.4 V	GND		"				"	í.	1 to 4		-1.6	mA
	"	14	GND	0.4 V		"				"	í.	2 to 4		££	"
	"	15				66		0.4 V	GND	"	u	6 to 4		"	"
	"	16				"		GND	0.4 V	"	u	7 to 4		"	"
	ICCH2	17	5.5 V	5.5 V		"		5.5 V	5.5 V	"	"	8		11	ű
	I <sub>CCL3</sub>	18	GND	GND		66		GND	GND	"	u	8		68	"
	V <sub>OL3</sub>	19	0.8 V	0.8 V	100 mA	"				4.5 V	"	3 to 4		0.5	V
	V <sub>OL3</sub>	20				"	100 mA	0.8 V	0.8 V	"	ű	5 to 4		0.5	ıı
	V <sub>OL7</sub>	21	0.8 V	0.8 V	300 mA	"				"	"	3 to 4		0.8	ű
	V <sub>OL7</sub>	22				"	300 mA	0.8 V	0.8 V	"		5 to 4		0.8	"
	Іонз	23	2 V	GND	30 V	"				"	ű.	3		300	μА
	I <sub>OH3</sub>	24				"	30 V	2 V	GND	"	ű	5		300	"

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TABLE III. Group A inspection for device type 04 – Continued.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	Notes	Measured	Test	limits	Unit
		no.	1A	1B	1Y	GND	2Y	2A	2B	Vcc	·	terminal	Min	Max	
2	V <sub>IC</sub>	25	-12 mA	4.5 V		GND				4.5 V	See figure	1 to 4		-1.5	V
T <sub>A</sub> =	"	26	4.5 V	-12 mA		66				"	5 for test	2 to 4		u	"
+125°C	"	27				66		-12 mA	4.5 V	66	circuit	6 to 4		"	"
	u	28				66		4.5 V	-12 mA	"	"	7 to 4		"	"
	I <sub>IH1</sub>	29	2.4 V	GND		"				5.5 V	í.	1 to 4		40	μΑ
	"	30	GND	2.4 V		"				"	u	2 to 4		"	"
	"	31				66		2.4 V	GND	66	u	6 to 4		"	"
	"	32				"		GND	2.4 V	"	u	7 to 4		"	"
	I <sub>IH2</sub>	33	5.5 V	GND		"				66	"	1 to 4		1	mA
	"	34	GND	5.5 V		"				"	u	2 to 4		"	"
	"	35				"		5.5 V	GND	66	u	6 to 4		"	"
	"	36				"		GND	5.5 V	"	ű	7 to 4		u	"
	I <sub>IL1</sub>	37	0.4 V	GND		"				66	££	1 to 4		-1.6	mA
	"	38	GND	0.4 V		"				"	í.	2 to 4		"	"
	"	39				"		0.4 V	GND	66	u	6 to 4		"	"
	"	40				"		GND	0.4 V	"	u	7 to 4		"	"
	I <sub>CCH2</sub>	41	5.5 V	5.5 V		66		5.5 V	5.5 V	"	u.	8		11	"
	ICCL3	42	GND	GND		"		GND	GND	66	u	8		65	"
	V <sub>OL3</sub>	43	0.8 V	0.8 V	100 mA	66				4.5 V	££	3 to 4		0.5	V
	V <sub>OL3</sub>	44				66	100 mA	0.8 V	0.8 V	66	ss .	5 to 4		0.5	"
	Vol7	45	0.8 V	0.8 V	300 mA	"				"	"	3 to 4		0.8	"
	V <sub>OL7</sub>	46				66	300 mA	0.8 V	0.8 V	66	u	5 to 4		0.8	"
	Іонз	47	2 V	GND	30 V	"				"	"	3		300	μА
	Іонз	48				66	30 V	2 V	GND	66	"	5		300	"

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TABLE III. Group A inspection for device type 04 – Continued.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	Notes	Measured	Test	limits	Unit
		no.	1A	1B	1Y	GND	2Y	2A	2B	Vcc		terminal	Min	Max	
3	V <sub>IC</sub>	49	-12 mA	4.5 V		GND				4.5 V	See figure	1 to 4		-1.5	٧
T <sub>A</sub> =	"	50	4.5 V	-12 mA		66				í,	5 for test	2 to 4		tt.	í,
-55°C	u	51				66		-12 mA	4.5 V	"	circuit	6 to 4		"	"
	u	52				66		4.5 V	-12 mA	u	"	7 to 4		"	"
	l <sub>IH1</sub>	53	2.4 V	GND		"				5.5 V	"	1 to 4		40	μА
	"	54	GND	2.4 V		"				"	u	2 to 4		"	"
	u	55				66		2.4 V	GND	"	"	6 to 4		"	"
	"	56				66		GND	2.4 V	í,	í.	7 to 4		tt.	í,
	I <sub>IH2</sub>	57	5.5 V	GND		"				"	u u	1 to 4		1	mA
	"	58	GND	5.5 V		**				"	u	2 to 4		"	í,
	"	59				66		5.5 V	GND	"	í.	6 to 4		tt.	í,
	u	60				66		GND	5.5 V	u	"	7 to 4		"	"
	I <sub>IL1</sub>	61	0.4 V	GND		"				"	u	1 to 4		-1.6	mA
	u	62	GND	0.4 V		"				"	u	2 to 4		"	"
	"	63				"		0.4 V	GND	"	u	6 to 4		"	"
	u	64				66		GND	0.4 V	u	"	7 to 4		"	"
	ICCH2	65	5.5 V	5.5 V		66		5.5 V	5.5 V	u	"	8		11	íí
	I <sub>CCL3</sub>	66	GND	GND		"		GND	GND	"	u	8		65	"
	V <sub>OL3</sub>	67	0.8 V	0.8 V	100 mA	"				4.5 V	u .	3 to 4		0.5	V
	V <sub>OL3</sub>	68				66	100 mA	0.8 V	0.8 V	"	"	5 to 4		0.5	"
	V <sub>OL7</sub>	69	0.8 V	0.8 V	300 mA	"				"	u	3 to 4		0.8	"
	V <sub>OL7</sub>	70				"	300 mA	0.8 V	0.8 V	"	u	5 to 4		0.8	ű
	ЮНЗ	71	2 V	GND	30 V	"				"	u .	3		300	μА
	I <sub>OH3</sub>	72	_	_		"	30 V	2 V	GND	"	"	5	_	300	"

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Subgroup Symbol 6 8 Notes Measured Test limits Unit Test 1 2Y 1A 1B 1Y GND 2A 2B terminal Max no. Vcc 73 GND OUT GND 4.5 V See figure 9 1 to 3 30 tpLH ns  $T_A =$ 74 GND IN OUT for test 2 to 3 +25°C OUT 75 **GND** circuit and 6 to 5 7 to 5 76 OUT GND IN waveforms 77 IN GND OUT 4.5 V 1 to 3 30 t<sub>PHL</sub> GND OUT 2 to 3 78 IN OUT IN GND " 79 6 to 5 80 OUT GND IN 7 to 5 IN OUT 14 t<sub>TLH</sub> OUT IN IN 5 14 tTLH 3 IN IN OUT 20 83 tTHL " OUT 5 84 20 tTHL GND OUT GND 1 to 3 10 IN 4.5 V 45 ns tPLH T<sub>A</sub> = 86 GND IN OUT 2 to 3 +125°C 87 OUT **GND** 6 to 5 88 OUT GND 7 to 5 4.5 V 89 IN GND OUT 1 to 3 45 t<sub>PHL</sub> GND OUT 2 to 3 90 OUT GND 6 to 5 7 to 5 OUT GND IN " IN IN OUT 3 18.5 tTLH OUT 94 IN IN 5 18.5 tTLH

OUT

IN

IN

"

3

5

25

25

IN

95

96

t<sub>THL</sub>

tTHL

IN

OUT

TABLE III. Group A inspection for device type 04 – Continued.

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TABLE III. Group A inspection for device type 04 - Continued.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	Notes	Measured	Test	limits	Unit
		no.	1A	1B	1Y	GND	2Y	2A	2B	Vcc		terminal	Min	Max	
11	tpLH	97	IN	GND	OUT	GND				4.5 V	See figure 9	1 to 3		45	ns
T <sub>A</sub> =	"	98	GND	IN	OUT	"				"	for test	2 to 3		"	"
-55°C	"	99				"	OUT	IN	GND	ii .	circuit and	6 to 5		u	"
	"	100				"	OUT	GND	IN	66	waveforms	7 to 5		"	"
	tpHL	101	IN	GND	OUT	66				4.5 V	u	1 to 3		u	"
	"	102	GND	IN	OUT	66				ii .	u	2 to 3		u	"
	"	103				"	OUT	IN	GND	"	u	6 to 5		"	"
	"	104				"	OUT	GND	IN	ii .	u	7 to 5		u	"
	tTLH	105	IN	IN	OUT	66				ii .	u	3		18.5	"
	tTLH	106				"	OUT	IN	IN	"	u	5		18.5	"
	t <sub>THL</sub>	107	IN	IN	OUT	66				"	u	3		25	"
	tTHL	108				"	OUT	IN	IN	"	u	5		25	"

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TABLE III. Group A inspection for device type 05.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	Notes	Measured	Test	limits	Unit
		no.	1A	1B	1Y	GND	2Y	2A	2B	Vcc	·	terminal	Min	Max	
1	V <sub>IC</sub>	1	-12 mA	4.5 V		GND				4.5 V	See figure	1 to 4		-1.5	V
T <sub>A</sub> =	"	2	4.5 V	-12 mA		"				u	5 for test	2 to 4		"	"
+25°C	"	3				**		-12 mA	4.5 V	"	circuit	6 to 4		"	"
	u	4				66		4.5 V	-12 mA	u	u.	7 to 4		"	"
	I <sub>IH1</sub>	5	2.4 V	GND		66				5.5 V	"	1 to 4		40	μΑ
	"	6	GND	2.4 V		44				"	44	2 to 4		"	"
	"	7				66		2.4 V	GND	"	í.	6 to 4		u	u
	"	8				66		GND	2.4 V	í,	í.	7 to 4		u	u
	l <sub>IH2</sub>	9	5.5 V	GND		66				"	ıı	1 to 4		1	mA
	u	10	GND	5.5 V		"				u	u.	2 to 4		"	"
	"	11				66		5.5 V	GND	"	í.	6 to 4		u	u
	"	12				**		GND	5.5 V	"	44	7 to 4		"	"
	I <sub>IL1</sub>	13	0.4 V	GND		"				"	и	1 to 4		-1.6	mA
	u	14	GND	0.4 V		"				u	u.	2 to 4		"	"
	"	15				66		0.4 V	GND	"	í.	6 to 4		u	u
	u	16				66		GND	0.4 V	u	u	7 to 4		"	"
	Ісснз	17	GND	GND		66		GND	GND	"	u	8		17	"
	ICCL7	18	5.5 V	5.5 V		66		5.5 V	5.5 V	í,	í.	8		79	u
	V <sub>OL4</sub>	19	2 V	2 V	100 mA	"				4.5 V	и	3 to 4		0.5	V
	V <sub>OL4</sub>	20				"	100 mA	2 V	2 V	u	u.	5 to 4		0.5	"
	V <sub>OL8</sub>	21	2 V	2 V	300 mA	**				"	íí.	3 to 4		0.8	u
	V <sub>OL8</sub>	22				"	300 mA	2 V	2 V	íí	"	5 to 4		0.8	"
	I <sub>OH4</sub>	23	0.8 V	0.8 V	30 V	**				"	íí.	3		300	μΑ
	I <sub>OH4</sub>	24				66	30 V	0.8 V	0.8 V	íí.	"	5		300	"

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TABLE III. Group A inspection for device type 05 - Continued.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	Notes	Measured	Test	limits	Unit
		no.	1A	1B	1Y	GND	2Y	2A	2B	Vcc	•	terminal	Min	Max	
2	V <sub>IC</sub>	25	-12 mA	4.5 V		GND				4.5 V	See figure	1 to 4		-1.5	V
T <sub>A</sub> =	"	26	4.5 V	-12 mA		66				"	5 for test	2 to 4		u	"
+125°C	"	27				66		-12 mA	4.5 V	"	circuit	6 to 4		u	"
	"	28				66		4.5 V	-12 mA	"	u	7 to 4		"	"
	l <sub>IH1</sub>	29	2.4 V	GND		"				5.5 V	"	1 to 4		40	μА
	"	30	GND	2.4 V		"				"	"	2 to 4		"	"
	"	31				"		2.4 V	GND	"	"	6 to 4		"	"
	"	32				66		GND	2.4 V	"	"	7 to 4		"	"
	I <sub>IH2</sub>	33	5.5 V	GND		"				"	"	1 to 4		1	mA
	"	34	GND	5.5 V		"				u	"	2 to 4		"	"
	"	35				66		5.5 V	GND	"	"	6 to 4		"	"
	"	36				66		GND	5.5 V	u	"	7 to 4		tt.	"
	I <sub>IL1</sub>	37	0.4 V	GND		"				"	и	1 to 4		-1.6	mA
	"	38	GND	0.4 V		"				"	u	2 to 4		u	"
	"	39				66		0.4 V	GND	"	"	6 to 4		"	"
	"	40				66		GND	0.4 V	"	"	7 to 4		"	"
	Ісснз	41	GND	GND		66		GND	GND	"	u	8		17	"
	ICCL7	42	5.5 V	5.5 V		66		5.5 V	5.5 V	"	"	8		79	"
	V <sub>OL4</sub>	43	2 V	2 V	100 mA	"				4.5 V	и	3 to 4		0.5	V
	V <sub>OL4</sub>	44				66	100 mA	2 V	2 V	"	u	5 to 4		0.5	"
	V <sub>OL8</sub>	45	2 V	2 V	300 mA	"				"	"	3 to 4		0.8	"
	V <sub>OL8</sub>	46				66	300 mA	2 V	2 V	"	u	5 to 4		0.8	"
	I <sub>OH4</sub>	47	0.8 V	0.8 V	30 V	"				"	"	3		300	μА
	IOH4	48				66	30 V	0.8 V	0.8 V	"	"	5		300	"

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TABLE III. Group A inspection for device type 05 - Continued.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	Notes	Measured	Test	limits	Unit
		no.	1A	1B	1Y	GND	2Y	2A	2B	V <sub>C</sub> C		terminal	Min	Max	
3	V <sub>IC</sub>	49	-12 mA	4.5 V		GND				4.5 V	See figure	1 to 4		-1.5	V
T <sub>A</sub> =	"	50	4.5 V	-12 mA		66				"	5 for test	2 to 4		tt.	u
-55°C	u	51				"		-12 mA	4.5 V	"	circuit	6 to 4		u	"
	u	52				"		4.5 V	-12 mA	u	u	7 to 4		u	"
	l <sub>IH1</sub>	53	2.4 V	GND		"				5.5 V	"	1 to 4		40	μА
	u	54	GND	2.4 V		"				u	u.	2 to 4		u	"
	"	55				66		2.4 V	GND	"	í.	6 to 4		í,	u
	"	56				"		GND	2.4 V	"	"	7 to 4		"	"
	I <sub>IH2</sub>	57	5.5 V	GND		"				"	11	1 to 4		1	mA
	"	58	GND	5.5 V		"				"	44	2 to 4		"	"
	"	59				66		5.5 V	GND	"	44	6 to 4		"	"
	"	60				66		GND	5.5 V	"	í.	7 to 4		í,	u
	I <sub>IL1</sub>	61	0.4 V	GND		"				"	u	1 to 4		-1.6	mA
	u	62	GND	0.4 V		"				"	u.	2 to 4		u	"
	u	63				"		0.4 V	GND	"	u	6 to 4		u	"
	"	64				66		GND	0.4 V	"	í.	7 to 4		í,	u
	Ісснз	65	GND	GND		66		GND	GND	"	íí.	8		17	u
	I <sub>CCL7</sub>	66	5.5 V	5.5 V		"		5.5 V	5.5 V	u	u	8		79	"
	V <sub>OL4</sub>	67	2 V	2 V	100 mA	"				4.5 V	11	3 to 4		0.5	V
	VOL4	68				66	100 mA	2 V	2 V	"	44	5 to 4		0.5	"
	V <sub>OL8</sub>	69	2 V	2 V	300 mA	66				"	"	3 to 4		0.8	ű
	V <sub>OL8</sub>	70				66	300 mA	2 V	2 V	"	í.	5 to 4		0.8	"
	IOH4	71	0.8 V	0.8 V	30 V	"				"	íí.	3		300	μΑ
	I <sub>OH4</sub>	72				66	30 V	0.8 V	0.8 V	íí	"	5		300	"

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TABLE III. Group A inspection for device type 05 - Continued.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	Notes	Measured	Test	limits	Unit
		no.	1A	1B	1Y	GND	2Y	2A	2B	Vcc		terminal	Min	Max	
9	t <sub>PLH</sub>	73	IN	GND	OUT	GND				4.5 V	See figure 9	1 to 3		45	ns
$T_A =$	"	74	GND	IN	OUT	ee .				u	for test	2 to 3		u	"
+25°C	"	75				"	OUT	IN	GND	ű	circuit and	6 to 5		"	"
	u	76				"	OUT	GND	IN	"	waveforms	7 to 5		"	"
	tPHL	77	IN	GND	OUT	66				4.5 V	"	1 to 3		35	"
	"	78	GND	IN	OUT	"				ű	"	2 to 3		"	"
	66	79				"	OUT	IN	GND	"	"	6 to 5		"	"
	44	80				"	OUT	GND	IN	"	"	7 to 5		"	44
	t <sub>TLH</sub>	81	IN	IN	OUT	66				"	66	3		14	"
	tTLH	82				"	OUT	IN	IN	"	"	5		14	u
	tTHL	83	IN	IN	OUT	66				ű	"	3		20	"
	t <sub>THL</sub>	84				"	OUT	IN	IN	"	66	5		20	44
10	t <sub>PLH</sub>	85	IN	GND	OUT	GND				4.5 V	u u	1 to 3		75	ns
$T_A =$	u	86	GND	IN	OUT	"				"	"	2 to 3		и	"
+125°C	66	87				££	OUT	IN	GND	"	66	6 to 5		££	u
	66	88				"	OUT	GND	IN	"	"	7 to 5		"	u
	tPHL	89	IN	GND	OUT	££				4.5 V	"	1 to 3		55	"
	66	90	GND	IN	OUT	££				"	66	2 to 3		££	"
	u	91				"	OUT	IN	GND	"	"	6 to 5		u	"
	66	92				££	OUT	GND	IN	"	"	7 to 5		££	"
	t <sub>TLH</sub>	93	IN	IN	OUT	66				"	66	3		18.5	"
	tTLH	94				"	OUT	IN	IN	"	"	5		18.5	"
	tTHL	95	IN	IN	OUT	66				"	66	3		25	44
	t <sub>THL</sub>	96				"	OUT	IN	IN	"	"	5		25	"

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TABLE III. Group A inspection for device type 05. – Continued.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	Notes	Measured	Test	limits	Unit
		no.	1A	1B	1Y	GND	2Y	2A	2B	Vcc		terminal	Min	Max	
11	t <sub>PLH</sub>	97	IN	GND	OUT	GND				4.5 V	See figure 9	1 to 3		75	ns
T <sub>A</sub> =	u	98	GND	IN	OUT	u				u	for test	2 to 3		"	"
-55°C	"	99				íí	OUT	IN	GND	íí	circuit and	6 to 5		u	"
	u	100				u	OUT	GND	IN	66	waveforms	7 to 5		"	"
	t <sub>PHL</sub>	101	IN	GND	OUT	66				4.5 V	"	1 to 3		55	u u
	"	102	GND	IN	OUT	66				íí	"	2 to 3		u	"
	u	103				u	OUT	IN	GND	u	ű	6 to 5		"	"
	"	104				íí	OUT	GND	IN	íí	"	7 to 5		u	"
	t <sub>TLH</sub>	105	IN	IN	OUT	66				íí	"	3		18.5	u u
	t <sub>TLH</sub>	106				ű	OUT	IN	IN	ű	u	5		18.5	"
	t <sub>THL</sub>	107	IN	IN	OUT	66				u	ű	3		25	"
	t <sub>THL</sub>	108				í,	OUT	IN	IN	í,	66	5		25	**

TABLE III. Group A inspection for device type 06.

Subgroup	Symbol	Test	1	2	17	12	15	16	4	3	5	8	9	10	11	7	6	Relays ener-		leasure termina		Equations	Note	Test	limits	Unit
		no.	V <sub>S1</sub>	V <sub>S2</sub>	V <sub>S3</sub>	1B	1C	1E	2B	2E	2C	Vcc	G	1A	1Y	2A	2Y	gized	No.	Value	Unit			Min	Max	
1	V <sub>IC</sub>	1										4.5 V	-12 mA	4.5 V		4.5 V		None	9	E1	V	V <sub>IC</sub> = E1	See		-1.5	V
T <sub>A</sub> =	V <sub>IC</sub>	2										4.5 V	4.5 V	-12 mA		4.5 V		**	10	E2	V	V <sub>IC</sub> = E2	figure 3		-1.5	V
+25°C	V <sub>IC</sub>	3										4.5 V	4.5 V	4.5 V		-12 mA		66	7	E3	V	V <sub>IC</sub> = E3	for test		-1.5	V
	I <sub>IH1</sub>	4										5.5 V	GND	2.4 V		GND		**	10	l1	Α	I <sub>IH1</sub> = I1	circuit		40	μΑ
	I <sub>IH1</sub>	5										"	"	GND		2.4 V		"	7	12	"	I <sub>IH1</sub> = I2	"		40	μΑ
	I <sub>IH2</sub>	6										"	"	5.5 V		GND		**	10	13	"	$I_{1H2} = I3$	44		1	mA
	I <sub>IH2</sub>	7										"	"	GND		5.5 V		**	7	14	"	I <sub>IH2</sub> = I4	44		1	mA
	I <sub>IH3</sub>	8										"	2.4 V	GND		GND		**	9	15	"	I <sub>IH3</sub> = I5	44		80	μΑ
	I <sub>IH4</sub>	9										66	5.5 V	GND		GND		66	9	16	"	I <sub>IH4</sub> = I6	44		2	mA
	I <sub>IL1</sub>	10										"	5.5 V	0.4 V		5.5 V		££	10	17	"	$I_{IL1} = I7$	44		-1.6	mA
	I <sub>IL1</sub>	11										"	5.5 V	5.5 V		0.4 V		"	7	18	"	$I_{1L1} = 18$	"		-1.6	44
	I <sub>IL2</sub>	12										"	0.4 V	5.5 V		5.5 V		"	9	19	"	$I_{1L2} = 19$	"		-3.2	44
	ICCH1	13										66	GND	GND		GND		"	8	I10	"	ICCH1 = I10	u		4	"
	ICCL1	14										66	5.5 V	5.5 V		5.5 V		"	8	l11	"	ICCL1 = I11	u		11	"
	V <sub>O</sub> L9	15										4.5 V	2 V	2 V	I <sub>OL</sub> = 16 mA			44	11	E4	٧	V <sub>OL9</sub> = E4	"		0.5	V
	V <sub>O</sub> L9	16										"	2 V			2 V	I <sub>OL</sub> = 16 mA	"	6	E5	"	V <sub>OL9</sub> = E5	££		0.5	"
	Vон	17										"	4.5 V	0.8 V	IOH = - 400 μA			"	11	E6	"	V <sub>OH</sub> = E6	í.	2.4		"
	Vон	18										"	4.5 V			0.8 V	IOH = - 400 μA	u	6	E7	íí.	V <sub>OH</sub> = E7	u	2.4		u
	los1	19										5.5 V	GND	GND	GND		p	"	11	l12	Α	los1 = I12	"		-55	mA
	los1	20										5.5 V	"			GND	GND	"	6	l13	"	los1 = I13	ű		-55	mA
	l <sub>OS2</sub>	21										4.5 V	"	GND	GND			"	11	l14	"	I <sub>OS2</sub> = I14	"	-18		"
	l <sub>OS2</sub>	22										4.5 V	"			GND	GND	"	6	I15		I <sub>OS2</sub> = I15	"	-18		"
	h <sub>FE1</sub>	23	4 V	V \$ 2														"	18 to 14	E8	٧	h <sub>FE1</sub> = E8/1000	See figures 3 and 4	25		
	h <sub>FE1</sub>	24	4 V	44														3	"	E9	"	h <sub>FE1</sub> = E9/1000	for test	25		
	h <sub>FE2</sub>	25	6 V	ű														None	"	E10	"	h <sub>FE2</sub> = E10/3000	circuit	30		
	h <sub>FE2</sub>	26	6 V	ű														3	"	E11	"	h <sub>FE2</sub> = E11/3000	and waveforms	30		
	V <sub>BE1</sub>	27	4 V	"	V <del>S</del> 3													1,2	12 to 16	E12	ű	V <sub>BE1</sub> = E12	u		1.2	V
	V <sub>BE1</sub>	28	4 V	íí.	V <del>S</del> 3													1,2,3	4 to 3	E13	í,	V <sub>BE1</sub> = E13	í,		1.2	٧

TABLE III. Group A inspection for device type 06 – Continued.

Subgroup	Symbol	Test no.	1	2	17	12	15	16	4	3	5	8	9	10	11	7	6	Relays ener-		1easure terminal		Equations	Note	Test I	imits	Unit
			V <sub>S1</sub>	V <sub>S2</sub>	V <sub>S3</sub>	1B	1C	1E	2B	2E	2C	Vcc	G	1A	1Y	2A	2Y	gized	No.	Value	Unit			Min	Max	
1 T <sub>A</sub> =	V <sub>BE2</sub>	29	6 V	V <del>S</del> 2	V <del>S</del> 3													1,2	12 to 16	E14	V	V <sub>BE2</sub> = E14	See figures 3 and 4		1.4	٧
+25°C	V <sub>BE2</sub>	30	6 V	"	cc .													1,2,3	4 to 3	E15	u	V <sub>BE2</sub> = E15	for test		1.4	٧
	V <sub>CESAT1</sub>	31	4 V	"														1,2	15 to 16	E16	"	VCESAT1 = E16	circuit		0.5	"
	VCESAT1	32	4 V	u	"													1,2,3	5 to 3	E17	"	VCESAT1 = E17	and waveforms		0.5	"
	VCESAT2	33	6 V	ű	"													1,2	15 to 16	E18	"	V <sub>CESAT2</sub> = E18	u		0.8	"
	V <sub>CESAT2</sub>	34	6 V	ű	"													1,2,3	5 to 3	E19	"	V <sub>CESAT2</sub> = E19	u		0.8	"
	VCB02	35				GND	100 μΑ											3	15 to 12	E20	"	V <sub>CB02</sub> = E20	u	40		"
	V <sub>CB02</sub>	36							GND		100 μΑ							4	5 to 4	E21	"	V <sub>CB02</sub> = E21	и	40		"
	V <sub>CER2</sub>	37					100 μΑ	GND										4	15 to 16	E22	"	V <sub>CER2</sub> = E22	"	40		66
	V <sub>CER2</sub>	38								GND	100 μΑ							3,4	5 to 3	E23	"	V <sub>CER2</sub> = E23	"	40		66
	V <sub>CEO1</sub>	39					10 mA	GND										3	15 to 16	E24	"	V <sub>CEO1</sub> = E24	u	25		"
	V <sub>CEO1</sub>	40								GND	10 mA							3,4	5 to 3	E25	и	V <sub>CEO1</sub> = E25	"	25		66
	V <sub>EBO</sub>	41				GND		100 μΑ										3,4	16 to 12	E26	"	V <sub>EBO</sub> = E26	u	5		"
	V <sub>EBO</sub>	42							GND		100 μΑ							4	3 to 4	E27	"	V <sub>EBO</sub> = E27	u	5		"
2	$V_{IC}$	43										4.5 V	-12 mA	4.5 V		4.5 V		None	9	E1	V	V <sub>IC</sub> = E1	See		-1.5	V
T <sub>A</sub> =	V <sub>IC</sub>	44										4.5 V	4.5 V	-12 mA		4.5 V		"	10	E2	V	V <sub>IC</sub> = E2	figure 3		-1.5	V
+125°C	V <sub>IC</sub>	45 46										4.5 V 5.5 V	4.5 V GND	4.5 V 2.4 V		-12 mA GND		"	7 10	E3	V A	V <sub>IC</sub> = E3	for test circuit		-1.5 40	V ^
	l <sub>IH1</sub> l <sub>IH1</sub>	47										3.5 V	"	GND		2.4 V		44	7	12	"	I <sub>IH1</sub> = I1 I <sub>IH1</sub> = I2	"		40	μA μA
	I <sub>IH2</sub>	48										"	"	5.5 V		GND		"	10	13	"	I <sub>IH2</sub> = I3	"		1	mΑ
	I <sub>IH2</sub>	49										"	"	GND		5.5 V		"	7	14	"	I <sub>IH2</sub> = I4	"		1	mA
	I <sub>IH3</sub>	50										"	2.4 V	GND		GND		"	9	15	"	I <sub>IH3</sub> = I5	"		80	μΑ
	I <sub>IH4</sub>	51										u	5.5 V	GND		GND		"	9	16	"	I <sub>IH4</sub> = I6	"		2	mA
	I <sub>IL1</sub>	52										"	4.5 V	0.4 V		4.5 V		"	10	17	"	I <sub>IL1</sub> = I7	"		-1.6	mA
	IIL1	53										"	4.5 V	4.5 V		0.4 V		"	7	18	"	I <sub>IL1</sub> = I8	"		-1.6	"
	I <sub>IL2</sub>	54										и	0.4 V	4.5 V		4.5 V		"	9	19	"	$I_{1L2} = 19$	"		-3.2	ii .

TABLE III. Group A inspection for device type 06 – Continued.

Subgroup	Symbol	Test.	1	2	17	12	15	16	4	3	5	8	9	10	11	7	6	Relays ener-		1easure termina		Equations	Note	Test I	imits	Unit
		no	V <sub>S1</sub>	V <sub>S2</sub>	V <sub>S3</sub>	1B	1C	1E	2B	2E	2C	Vcc	G	1A	1Y	2A	2Y	gized	No.	Value	Unit			Min	Max	
2	I <sub>CCH1</sub>	55										5.5 V	GND	GND		GND		None	8	I10	u	I <sub>CCH1</sub> = 110	See		4	mA
T <sub>A</sub> =	I <sub>CCL1</sub>	56										"	5.5 V	5.5 V		5.5 V		"	8	l11	66	I <sub>CCL1</sub> = 111	figure 3		11	"
+125°C	V <sub>O</sub> L9	57										4.5 V	2 V	2 V	I <sub>OL</sub> = 16 mA			"	11	E4	٧	V <sub>OL9</sub> = E4	for test		0.5	V
	V <sub>OL9</sub>	58										"	2 V			2 V	I <sub>OL</sub> = 16 mA	44	6	E5	66	V <sub>OL9</sub> = E5	circuit		0.5	"
	V <sub>OH</sub>	59										"	4.5 V	0.8 V	I <sub>OH</sub> = - 400 μA			44	11	E6	"	V <sub>OH</sub> = E6	"	2.4		"
	VoH	60										"	4.5 V			0.8 V	I <sub>OH</sub> = - 400 μA	"	6	E7	"	V <sub>OH</sub> = E7	u	2.4		"
	I <sub>OS1</sub>	61										5.5 V	GND	GND	GND			"	11	l12	Α	I <sub>OS1</sub> = I12	"		-55	mA
	I <sub>OS1</sub>	62										5.5 V	"			GND	GND	"	6	l13	"	I <sub>OS1</sub> = I13	"		-55	"
	los <sub>2</sub>	63										4.5 V	"	GND	GND			"	11	l14	"	I <sub>OS2</sub> = I14	"	-18		"
	los <sub>2</sub>	64										4.5 V	"			GND	GND	"	6	115	"	I <sub>OS2</sub> = I15	"	-18		"
	h <sub>FE1</sub>	65	4 V	V <del>S</del> 2														í.	18 to 14	E8	٧	h <sub>FE1</sub> = E8/1000	See figures 3 and 4	25		
	h <sub>FE1</sub>	66	4 V	"														3	"	E9	"	h <sub>FE1</sub> = E9/1000	for test	25		
	h <sub>FE2</sub>	67	6 V	"														None	"	E10	"	h <sub>FE2</sub> = E10/3000	circuit	30		
	h <sub>FE2</sub>	68	6 V	"														3	66	E11	"	h <sub>FE2</sub> = E11/3000	and waveforms	30		
	V <sub>BE1</sub>	69	4 V	u	V <del>S</del> 3													1,2	12 to 16	E12	"	V <sub>BE1</sub> = E12	"		1.2	V
	V <sub>BE1</sub>	70	4 V	"	V S 3													1,2,3	4 to 3	E13	"	V <sub>BE1</sub> = E13	u		1.2	V
	V <sub>BE2</sub>	71	6 V	íí.	V S 3													1,2	12 to 16	E14	٧	V <sub>BE2</sub> = E14	í.		1.4	V
	$V_{BE2}$	72	6 V	"	"													1,2,3	4 to 3	E15	"	V <sub>BE2</sub> = E15	"		1.4	V
	V <sub>CESAT</sub>	73	4 V	"	"													1,2	15 to 16	E16	"	VCESAT1 = E16	"		0.5	"
	V <sub>CESAT</sub>	74	4 V	"	ű													1,2,3	5 to 3	E17	"	V <sub>CESAT1</sub> = E17	í.		0.5	44
	V <sub>CESAT</sub>	75	6 V	"	"													1,2	15 to 16	E18	66	V <sub>CESAT2</sub> = E18	££		0.8	í,
	V <sub>CESAT</sub>	76	6 V	u	u													1,2,3	5 to 3	E19	"	V <sub>CESAT2</sub> = E19	u		0.8	"

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TABLE III. Group A inspection for device type 06 – Continued.

Subgroup	Symbol	Test.	1	2	17	12	15	16	4	3	5	8	9	10	11	7	6	Relays ener-	Meası	ured ter	minal	Equations	Note	Test	limits	Unit
		no	V <sub>S1</sub>	V <sub>S2</sub>	V <sub>S3</sub>	1B	1C	1E	2B	2E	2C	Vcc	G	1A	1Y	2A	2Y	gized	No.	Value	Unit			Min	Max	
2	V <sub>CB02</sub>	77				GND	100 μΑ											3	15 to 12	E20	"	V <sub>CB02</sub> = E20	See figure	40		٧
T <sub>A</sub> =	V <sub>CB02</sub>	78							GND		100 μΑ							4	5 to 4	E21	"	V <sub>CB02</sub> = E21	3 for test	40		"
+125°C	V <sub>CER2</sub>	79					100 μΑ	GND										4	15 to 16	E22	66	VCER2 = E22	circuit	40		44
	V <sub>CER2</sub>	80								GND	100 μΑ							3,4	5 to 3	E23	66	V <sub>CER2</sub> = E23	u	40		66
	V <sub>CEO1</sub>	81					10 mA	GND										3	15 to 16	E24	66	V <sub>CEO1</sub> = E24	u	25		66
	V <sub>CEO1</sub>	82								GND	10 mA							3,4	5 to 3	E25	66	V <sub>CEO1</sub> = E25	u	25		cc
	V <sub>EBO</sub>	83				GND		100 μΑ										3,4	16 to 12	E26	66	V <sub>EBO</sub> = E26	u	5		66
	V <sub>EBO</sub>	84							GND		100 μΑ							4	3 to 4	E27	66	V <sub>EBO</sub> = E27	и	5		66
3	V <sub>IC</sub>	85										4.5 V	-12 mA	4.5 V		4.5 V		None	9	E1	V	V <sub>IC</sub> = E1	See figure		-1.5	V
T <sub>A</sub> =	V <sub>IC</sub>	86										4.5 V	4.5 V	-12 mA		4.5 V		"	10	E2	٧	V <sub>IC</sub> = E2	3 for test		-1.5	V
-55°C	V <sub>IC</sub>	87										4.5 V	4.5 V	4.5 V		-12 mA		"	7	E3	V	V <sub>IC</sub> = E3	circuit		-1.5	V
	I <sub>IH1</sub>	88										5.5 V	GND	2.4 V		GND		"	10	l1	Α	I <sub>IH1</sub> = I1	"		40	μА
	I <sub>IH1</sub>	89										"	"	GND		2.4 V		66	7	12	66	I <sub>IH1</sub> = I2	"		40	μΑ
	I <sub>IH2</sub>	90										"	"	5.5 V		GND		"	10	13	"	I <sub>IH2</sub> = I3	u		1	mA
	I <sub>IH2</sub>	91										"	"	GND		5.5 V		"	7	14	"	I <sub>IH2</sub> = I4	u		1	mA
	lінз	92										"	2.4 V	GND		GND		"	9	15	"	I <sub>IH3</sub> = I <sub>5</sub>	u		80	μΑ
	I <sub>IH4</sub>	93										"	5.5 V	GND		GND		"	9	16	"	I <sub>IH4</sub> = I6	"		2	mA
	I <sub>IL1</sub>	94										"	4.5 V	0.4 V		4.5 V		"	10	17	"	$I_{1L1} = 17$	"		-1.6	mA
	I <sub>IL1</sub>	95										"	4.5 V	4.5 V		0.4 V		66	7	18	"	$I_{1L1} = 18$	"		-1.6	"
	I <sub>IL2</sub>	96										"	0.4 V	4.5 V		4.5 V		"	9	19	"	$I_{1L2} = 19$	u		-3.2	"
	I <sub>CCH1</sub>	97										"	GND	GND		GND		"	8	l10	"	I <sub>CCH1</sub> = 110	u		4	ns
	ICCL1	98										"	5.5 V	5.5 V		5.5 V		"	8	l11	"	I <sub>CCL1</sub> = 111	u		11	66
	V <sub>OL9</sub>	99										4.5 V	2 V	2 V	I <sub>OL</sub> = 16 mA			"	11	E4	٧	V <sub>OL9</sub> = E4	u		0.5	٧
	V <sub>OL9</sub>	100										"	2 V			2 V	I <sub>OL</sub> = 16 mA	"	6	E5	"	V <sub>OL9</sub> = E5	u		0.5	66
	V <sub>OH</sub>	101										u	4.5 V	0.8 V	I <sub>OH</sub> = - 400 μA			66	11	E6	"	V <sub>OH</sub> = E6	u	2.4		cs .
	Voн	102										"	4.5 V			0.8 V	IOH = - 400 μA	"	6	E7	44	VoH = E7	u	2.4		"

TABLE III. Group A inspection for device type 06 – Continued.

Subgroup	Symbol	Test.	1	2	17	12	15	16	4	3	5	8	9	10	11	7	6	Relays ener-	Measu	red tern	minal	Equations	Note	Test	limits	Unit
		no	V <sub>S1</sub>	V <sub>S2</sub>	V <sub>S3</sub>	1B	1C	1E	2B	2E	2C	V <sub>CC</sub>	G	1A	1Y	2A	2Y	gized	No.	Value	Unit			Min	Max	
3	los <sub>1</sub>	103										5.5 V	GND	GND	GND			None	11	l12	Α	Ios1 = I12	See figure		-55	mA
T <sub>A</sub> =	los <sub>1</sub>	104										5.5 V	"			GND	GND	"	6	l13	"	Ios1 = I13	3 for test		-55	"
-55°C	I <sub>OS2</sub>	105										4.5 V	44	GND	GND			"	11	l14	"	$I_{OS2} = I14$	circuit	-18		"
	I <sub>OS2</sub>	106										4.5 V	íí.			GND	GND	"	6	l15	"	$I_{OS2} = I15$	"	-18		"
	h <sub>FE3</sub>	107	4 V	V S 2														"	18 to 14	E8	V	h <sub>FE3</sub> = E8/1000	See figures 3 and 4	10		
	h <sub>FE3</sub>	108	4 V	"														3	"	E9	"	h <sub>FE3</sub> = E9/1000	for test	10		
	h <sub>FE4</sub>	109	6 V	"														None	"	E10	44	h <sub>FE4</sub> = E10/3000	circuit	15		
	h <sub>FE4</sub>	110	6 V	u														3	"	E11	"	h <sub>FE4</sub> = E11/3000	and waveforms	15		
	V <sub>BE1</sub>	111	4 V	44	V <del>S</del> 3													1,2	12 to 16	E12	44	V <sub>BE1</sub> = E12	"		1.2	٧
	V <sub>BE1</sub>	112	4 V	"	V S 3													1,2,3	4 to 3	E13	"	V <sub>BE1</sub> = E13	и		1.2	٧
	$V_{BE2}$	113	6 V	"	V S 3													1,2	12 to 16	E14	٧	V <sub>BE2</sub> = E14	u		1.4	٧
	V <sub>BE2</sub>	114	6 V	66	"													1,2,3	4 to 3	E15	"	V <sub>BE2</sub> = E15	"		1.4	٧
	V <sub>CESAT1</sub>	115	4 V	"	"													1,2	15 to 16	E16	"	VCESAT1 = E16	"		0.5	**
	V <sub>CESAT1</sub>	116	4 V	"	"													1,2,3	5 to 3	E17	"	VCESAT1 = E17	"		0.5	"
	V <sub>CESAT2</sub>	117	6 V	"	"													1,2	15 to 16	E18	"	V <sub>CESAT2</sub> = E18	"		0.8	"
	V <sub>CESAT2</sub>	118	6 V	"	"													1,2,3	5 to 3	E19	"	V <sub>CESAT2</sub> = E19	"		0.8	"
	V <sub>CB02</sub>	119		"	"	GND	100 μΑ											3	15 to 12	E20	"	V <sub>CB02</sub> = E20	""	40		"
	V <sub>CB02</sub>	120		"	"		μπ		GND		100 μΑ							4	5 to 4	E21	"	V <sub>CB02</sub> = E21	u	40		"
	VCER2	121		"	"		100 μΑ	GND			μιτ							4	15 to 16	E22	"	V <sub>CER1</sub> = E22	"	40		"
	VCER2	122		"	"		μ.,			GND	100 μΑ							3,4	5 to 3	E23	"	V <sub>CER1</sub> = E23	u	40		"
	VCEO1	123					10 mA	GND			μ, ,							3	15 to 16	E24	"	V <sub>CEO1</sub> = E24	u	25		"
	VCEO1	124								GND	10 mA							3,4	5 to 3	E25	ű	V <sub>CEO1</sub> = E25	"	25		"
	VEBO	125				GND		100 μΑ										3,4	16 to	E26	"	V <sub>EBO</sub> = E26	u	5		"
	VEBO	126						F	GND		100 μΑ							4	3 to 4	E27	"	V <sub>EBO</sub> = E27	u	5		"

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TABLE III. Group A inspection for device type 06 – Continued.

Subgroup	Symbol	Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Notes	Measured	Test	limits	Unit
		•	G	1A	1Y	1B	1C	1E	GND	Sub	2E	2C	2B	2Y	2A	V <sub>CC</sub>		terminal	Min	Max	
9	tD	127				Α	В	GND		GND							See figure 8	5		15	ns
T <sub>A</sub> =	$t_D$	128								"	GND	В	Α				for test	10		15	"
+25°C	ts	129				Α	В	GND		"							circuit and	5		23	"
	ts	130								"	GND	В	Α				waveforms	10		23	"
	t <sub>R</sub>	131				Α	В	GND		"							"	5		20	"
	t <sub>R</sub>	132								"	GND	В	Α				"	10		20	"
	tF	133				Α	В	GND		"							"	5		15	"
	tϝ	134								"	GND	В	Α				"	10		15	"
	t <sub>PLH1</sub>	135	3 V	IN	OUT					"						4.5 V	See figure 6	2 to 3		30	"
	"	136	IN	3 V	OUT					"				0.17		"	for test	1 to 3		"	"
	"	137 138	3 V IN							"				OUT OUT	IN 3 V	"	circuit and waveforms	13 to 12 1 to 12		"	"
	t <sub>PHL1</sub>	139	3 V	IN	OUT					"				001	3 V	4.5 V	wavelolilis "	2 to 3		15	"
	PHL1	140	IN	3 V	OUT					"						"	u	1 to 3		"	"
	44	141	3 V							"				OUT	IN	"	"	13 to 12		**	"
	"	142	IN		0					"				OUT	3 V	u	и	1 to 12		**	"
	t <sub>PLH3</sub>	143	3 V	IN	Connect to 1B		OUT			"						4.5 V	See figure 7	2 to 5		65	
	"	144	IN	3 V	Connect to 1B		OUT			"						"	for test	1 to 5		"	"
	"	145	3 V							"		OUT		Connect to 2B	IN	"	circuit and	13 to 10		"	"
	"	146	IN							"		OUT		Connect to 2B	3 V	"	waveforms	1 to 10		"	"
	t <sub>PHL3</sub>	147	3 V	IN	Connect to 1B		OUT			"						4.5 V	u	2 to 5		50	"
	"	148	IN	3 V	Connect to 1B		OUT			"						"	u	1 to 5		"	"
	u	149	3 V		10 16					"		OUT		Connect	IN	"	u	13 to 10		"	44
	"	150	IN							"		OUT		to 2B Connect	3 V	"	u	1 to 10		"	"
					Connect									to 2B							
	t <sub>TLH2</sub>	151	3 V	IN	to 1B		OUT			"						"	и	5		20	"
	t <sub>TLH2</sub>	152	3 V							"		OUT		Connect to 2B	IN	44	u	10		"	44
	tTHL2	153	3 V	IN	Connect to 1B		OUT			"						"	u	5		"	"
	t <sub>THL2</sub>	154	3 V							"		OUT		Connect to 2B	IN	"	u	10		"	"

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TABLE III. Group A inspection for device type 06 – Continued.

Subgroup	Symbol	Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Notes	Measured	Test	limits	Unit
			G	1A	1Y	1B	1C	1E	GND	Sub	2E	2C	2B	2Y	2A	Vcc		terminal	Min	Max	
10	tD	155				Α	В	GND		GND							See figure 8	5		22.5	ns
T <sub>A</sub> =	t <sub>D</sub>	156								"	GND	В	Α				for test	10		22.5	"
+125°C	ts	157				Α	В	GND		"							circuit and	5		34.5	"
	ts	158								"	GND	В	Α				waveforms	10		34.5	"
	t <sub>R</sub>	159				Α	В	GND		"							"	5		30	"
	t <sub>R</sub>	160								"	GND	В	Α				"	10		30	"
	tF	161				Α	В	GND		"							"	5		22.5	"
	tF	162								"	GND	В	Α				"	10		22.5	"
	tPLH1	163	3 V	IN	OUT					"						4.5 V	See figure 6	2 to 3		45	"
	"	164	IN	3 V	OUT					"						"	for test	1 to 3		"	"
	"	165	3 V IN							"				OUT	IN	"	circuit and	13 to 12		"	"
		166 167	3 V	IN	OUT					"				OUT	3 V	4.5 V	waveforms "	1 to 12 2 to 3		22.5	"
	tPHL1	168	IN	3 V	OUT					"						4.5 V	u	1 to 3		22.5	"
	"	169	3 V	- V	001					"				OUT	IN	"	u	13 to 12		"	"
	"	170	IN							"				OUT	3 V	"	44	1 to 12		"	"
	t <sub>PLH3</sub>	171	3 V	IN	Connect to 1B		OUT			**						4.5 V	See figure 7	2 to 5		90	"
	"	172	IN	3 V	Connect to 1B		OUT			"						"	for test	1 to 5		"	"
	66	173	3 V		10.12					66		OUT		Connect to 2B	IN	"	circuit and	13 to 10		"	66
	44	174	IN							"		OUT		Connect to 2B	3 V	"	waveforms	1 to 10		"	"
	t <sub>PHL3</sub>	175	3 V	IN	Connect to 1B		OUT			u						4.5 V	"	2 to 5		75	и
	"	176	IN	3 V	Connect to 1B		OUT									66	u	1 to 5		"	"
	"	177	3 V							"		OUT		Connect to 2B	IN	"	"	13 to 10		"	"
	"	178	IN									OUT		Connect to 2B	3 V	66	u	1 to 10		"	44
	t <sub>TLH2</sub>	179	3 V	IN	Connect to 1B		OUT			"						££	"	5		30	44
	t <sub>TLH2</sub>	180	3 V							"		OUT		Connect to 2B	IN	66	"	10		"	44
	tTHL2	181	3 V	IN	Connect to 1B		OUT									66	u	5		"	44
	t <sub>THL2</sub>	182	3 V							"		OUT		Connect to 2B	IN	"	и	10		"	"

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TABLE III. Group A inspection for device type 06 – Continued.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Notes	Measured	Test	limits	Unit
			G	1A	1Y	1B	1C	1E	GND	Sub	2E	2C	2B	2Y	2A	Vcc		terminal	Min	Max	
11	tD	183				Α	В	GND		GND							See figure 8	5		22.5	ns
T <sub>A</sub> =	$t_D$	184								"	GND	В	Α				for test	10		22.5	44
-55°C	ts	185				Α	В	GND		"							circuit and	5		34.5	"
	ts	186								"	GND	В	Α				waveforms	10		34.5	"
	t <sub>R</sub>	187				Α	В	GND		"							"	5		30	44
	t <sub>R</sub>	188								"	GND	В	Α				"	10		30	44
	tF	189				Α	В	GND		"							"	5		22.5	44
	tF	190								"	GND	В	Α				ű	10		22.5	"
	tPLH1	191	3 V IN	IN 3 V	OUT					"						4.5 V	See figure 6	2 to 3		45 "	"
	"	192 193	3 V	3 V	OUT					"				OUT	IN	"	for test circuit and	1 to 3 13 to 12		"	"
	"	194	IN							"				OUT	3 V	"	waveforms	1 to 12		66	44
	t <sub>PHL1</sub>	195	3 V	IN	OUT					"						4.5 V	"	2 to 3		22.5	"
	"	196	IN	3 V	OUT					"				0.17		"	"	1 to 3		"	"
	"	197 198	3 V IN							"			OUT	OUT 3 V	IN	"	"	13 to 12 1 to 12		66	44
	t <sub>PLH3</sub>	199	3 V	IN	Connect		OUT			"						4.5 V	See figure 7	2 to 5		90	"
	4 LI 13	199	3 V	IIN	to 1B		001									4.5 V	See ligure 7	2 10 3		30	"
	_	200	IN	3 V	Connect to 1B		OUT			"						"	for test	1 to 5		"	-
	"	201	3 V		10 15					66		OUT		Connect	IN	"	circuit and	13 to 10		"	44
	"	201	3 V									001		to 2B Connect	IIN		circuit ariu	13 10 10			
		202	IN							"		OUT		to 2B	3 V	"	waveforms	1 to 10		"	"
	t <sub>PHL3</sub>	203	3 V	IN	Connect to 1B		OUT			"						4.5 V	u	2 to 5		75	u
	u	204	IN	3 V	Connect to 1B		OUT			"						"	u	1 to 5		"	"
	"	205	3 V		10 16					**		OUT		Connect	IN	66	u	13 to 10		66	44
	"													to 2B Connect							
		206	IN							66		OUT		to 2B	3 V	"	u	1 to 10		"	"
	t <sub>TLH2</sub>	207	3 V	IN	Connect to 1B		OUT			"						"	u	5		30	"
	t <sub>TLH2</sub>	208	3 V							"		OUT		Connect to 2B	IN	"	u	10		"	"
	tTHL2	209	3 V	IN	Connect to 1B		OUT			"				10 25		"	í.	5		"	"
	t <sub>THL2</sub>	210	3 V		10 15					"		OUT		Connect to 2B	IN	66	и	10		"	"

TABLE III. Group A inspection for device type 07.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	Notes	Measured	Test	limits	Unit
		no.	1A	1B	1Y	GND	2Y	2A	2B	Vcc		terminal	Min	Max	
1	V <sub>IC</sub>	1	-12 mA	4.5 V		GND				4.5 V	See figure	1 to 4		-1.5	V
T <sub>A</sub> =	"	2	4.5 V	-12 mA		66				u	5 for test	2 to 4		u	"
+25°C	"	3				66		-12 mA	4.5 V	"	circuit	6 to 4		££	"
	u	4				"		4.5 V	-12 mA	u	"	7 to 4		íí.	"
	l <sub>IH1</sub>	5	2.4 V	GND		"				5.5 V	"	1 to 4		40	μА
	"	6	GND	2.4 V		"				"	í.	2 to 4		££	
	u	7				"		2.4 V	GND	"	"	6 to 4		íí.	
	"	8				66		GND	2.4 V	"	í.	7 to 4		££	
	I <sub>IH2</sub>	9	5.5 V	GND		"				"	u	1 to 4		1	mA
	u	10	GND	5.5 V		"				u	"	2 to 4		íí.	"
	"	11				66		5.5 V	GND	"	í.	6 to 4		££	"
	"	12				66		GND	5.5 V	í,	í.	7 to 4		££	u
	I <sub>IL1</sub>	13	0.4 V	5.5 V		"				u	u u	1 to 4		-1.6	mA
	u	14	5.5 V	0.4 V		"				"	u	2 to 4		"	"
	u	15				66		0.4 V	5.5 V	u	"	6 to 4		íí.	"
	"	16				"		5.5 V	0.4 V	"	u	7 to 4		íí	"
	ICCH2	17	5.5 V	5.5 V		66		5.5 V	5.5 V	u	"	8		11	"
	I <sub>CCL5</sub>	18	GND	GND		66		GND	GND	"	"	8		76	"
	V <sub>OL1</sub>	19	0.8 V	0.8 V	100 mA	"				4.5 V	u .	3 to 4		0.5	V
	V <sub>OL1</sub>	20				"	100 mA	0.8 V	0.8 V	"	ű	5 to 4		0.5	ű
	V <sub>OL5</sub>	21	0.8 V	0.8 V	300 mA	"				66	"	3 to 4		0.8	u
	V <sub>OL5</sub>	22				"	300 mA	0.8 V	0.8 V	"	u	5 to 4		0.8	"
	IOH1	23	2 V	2 V	30 V	"				"	"	3		300	μА
	I <sub>OH1</sub>	24	_			66	30 V	2 V	2 V	u	"	5	_	300	"

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TABLE III. Group A inspection for device type 07 – Continued.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	Notes	Measured	Test	limits	Unit
		no.	1A	1B	1Y	GND	2Y	2A	2B	Vcc		terminal	Min	Max	
2	V <sub>IC</sub>	25	-12 mA	4.5 V		GND				4.5 V	See figure	1 to 4		-1.5	V
T <sub>A</sub> =	u	26	4.5 V	-12 mA		"				"	5 for test	2 to 4		"	"
+125°C	u	27				"		-12 mA	4.5 V	"	circuit	6 to 4		"	"
	u	28				"		4.5 V	-12 mA	ű	"	7 to 4		"	"
	l <sub>IH1</sub>	29	2.4 V	GND		"				5.5 V	u	1 to 4		40	μА
	"	30	GND	2.4 V		"				í,	u.	2 to 4		66	"
	"	31				"		2.4 V	GND	"	u u	6 to 4		"	"
	"	32				"		GND	2.4 V	"	ű	7 to 4		66	"
	I <sub>IH2</sub>	33	5.5 V	GND		"				"	ű	1 to 4		1	mA
	"	34	GND	5.5 V		"				"	ű	2 to 4		"	"
	"	35				"		5.5 V	GND	ű	"	6 to 4		"	"
	"	36				"		GND	5.5 V	ű	"	7 to 4		"	"
	I <sub>IL1</sub>	37	0.4 V	5.5 V		"				ű	íí	1 to 4		-1.6	mA
	"	38	5.5 V	0.4 V		"				íí	ű	2 to 4		"	"
	"	39				"		0.4 V	5.5 V	"	ű	6 to 4		"	"
	"	40				"		5.5 V	0.4 V	"	ű	7 to 4		"	"
	ICCH2	41	5.5 V	5.5 V		"		5.5 V	5.5 V	"	ű	8		11	"
	I <sub>CCL5</sub>	42	GND	GND		"		GND	GND	"	ű	8		76	"
	V <sub>OL1</sub>	43	0.8 V	0.8 V	100 mA	"				4.5 V	ű	3 to 4		0.5	V
	Vol1	44				"	100 mA	0.8 V	0.8 V	"	ű	5 to 4		0.5	"
	V <sub>OL5</sub>	45	0.8 V	0.8 V	300 mA	"				"	"	3 to 4		0.8	u
	V <sub>OL5</sub>	46				"	300 mA	0.8 V	0.8 V	ű	"	5 to 4		0.8	"
	IOH1	47	2 V	2 V	30 V	"				íí.	u	3		300	μА
	I <sub>OH1</sub>	48				"	30 V	2 V	2 V	íí.	"	5		300	u

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TABLE III. Group A inspection for device type 07 – Continued.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	Notes	Measured	Test	limits	Unit
		no.	1A	1B	1Y	GND	2Y	2A	2B	V <sub>CC</sub>		terminal	Min	Max	
3	V <sub>IC</sub>	49	-12 mA	4.5 V		GND				4.5 V	See figure	1 to 4		-1.5	V
T <sub>A</sub> =	"	50	4.5 V	-12 mA		"				u	5 for test	2 to 4		"	u
-55°C	"	51				"		-12 mA	4.5 V	££	circuit	6 to 4		u	í,
	"	52				"		4.5 V	-12 mA	u	"	7 to 4		"	"
	l <sub>IH1</sub>	53	2.4 V	GND		"				5.5 V	"	1 to 4		40	μА
	"	54	GND	2.4 V		"				££	44	2 to 4		"	í,
	"	55				"		2.4 V	GND	u	"	6 to 4		"	"
	"	56				"		GND	2.4 V	££	"	7 to 4		"	í,
	I <sub>IH2</sub>	57	5.5 V	GND		"				££	í,	1 to 4		1	mA
	"	58	GND	5.5 V		"				u	"	2 to 4		"	u
	"	59				"		5.5 V	GND	££	"	6 to 4		"	í,
	"	60				"		GND	5.5 V	££	44	7 to 4		"	í,
	I <sub>IL1</sub>	61	0.4 V	5.5 V		"				"	u	1 to 4		-1.6	mA
	"	62	5.5 V	0.4 V		"				"	u	2 to 4		"	"
	"	63				"		0.4 V	5.5 V	u	"	6 to 4		"	"
	"	64				"		5.5 V	0.4 V	u	"	7 to 4		"	"
	ICCH2	65	5.5 V	5.5 V		"		5.5 V	5.5 V	u	"	8		11	íí
	I <sub>CCL5</sub>	66	GND	GND		"		GND	GND	u	"	8		76	"
	V <sub>OL1</sub>	67	0.8 V	0.8 V	100 mA	"				4.5 V	ű.	3 to 4		0.5	V
	V <sub>OL1</sub>	68				"	100 mA	0.8 V	0.8 V	u	"	5 to 4		0.5	"
	V <sub>OL5</sub>	69	0.8 V	0.8 V	300 mA	"				"	u.	3 to 4		0.8	íí.
	V <sub>OL5</sub>	70				"	300 mA	0.8 V	0.8 V	"	ű	5 to 4		0.8	ű
	IOH1	71	2 V	2 V	30 V	"				"	u	3		300	μА
	I <sub>OH1</sub>	72		_		"	30 V	2 V	2 V	"	"	5		300	"

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TABLE III. <u>Group A inspection for device type 07</u> – Continued.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	Notes	Measured	Test	limits	Unit
		no.	1A	1B	1Y	GND	2Y	2A	2B	Vcc		terminal	Min	Max	
9	tpLH	73	IN	3 V	OUT	GND				4.5 V	See figure 9	1 to 3		55	ns
T <sub>A</sub> =	"	74	3 V	IN	OUT	"				"	for test	2 to 3		"	"
+25°C	"	75				"	OUT	IN	3 V	ű	circuit and	6 to 5		"	44
	"	76				"	OUT	3 V	IN	u	waveforms	7 to 5		"	"
	tpHL	77	IN	3 V	OUT	"				4.5 V	"	1 to 3		40	"
	"	78	3 V	IN	OUT	"				"	"	2 to 3		"	"
	"	79				"	OUT	IN	3 V	ű	"	6 to 5		"	"
	"	80				"	OUT	3 V	IN	ű	"	7 to 5		"	"
	tTLH	81	IN	IN	OUT	"				ű	"	3		20	"
	t <sub>TLH</sub>	82				"	OUT	IN	IN	ű	"	5		"	"
	tTHL	83	IN	IN	OUT	"				"	"	3		"	"
	t <sub>THL</sub>	84				"	OUT	IN	IN	"	"	5		"	"
10	t <sub>PLH</sub>	85	IN	3 V	OUT	GND				4.5 V	"	1 to 3		65	ns
T <sub>A</sub> =	"	86	3 V	IN	OUT	"				"	"	2 to 3		"	"
+125°C	"	87				"	OUT	IN	3 V	"	"	6 to 5		"	"
	"	88				"	OUT	3 V	IN	ű	"	7 to 5		"	"
	tpHL	89	IN	3 V	OUT	"				4.5 V	"	1 to 3		60	"
	"	90	3 V	IN	OUT	"				ű	"	2 to 3		"	"
	"	91				ű	OUT	IN	3 V	"	"	6 to 5		"	"
	"	92				"	OUT	3 V	IN	ű	"	7 to 5		"	"
	tTLH	93	IN	IN	OUT	66				"	"	3		26.5	"
	t <sub>TLH</sub>	94				"	OUT	IN	IN	"	"	5		26.5	"
	tTHL	95	IN	IN	OUT	66				u	"	3		25	"
	t <sub>THL</sub>	96				"	OUT	IN	IN	и	"	5		25	"

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TABLE III. Group A inspection for device type 07 - Continued.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	Notes	Measured	Test	limits	Unit
		no.	1A	1B	1Y	GND	2Y	2A	2B	Vcc		terminal	Min	Max	
11	t <sub>PLH</sub>	97	IN	3 V	OUT	GND				4.5 V	See figure 9	1 to 3		65	ns
T <sub>A</sub> =	u	98	3 V	IN	OUT	"				"	for test	2 to 3		"	u
-55°C	u	99				"	OUT	IN	3 V	"	circuit and	6 to 5		íí.	"
	u	100				"	OUT	3 V	IN	"	waveforms	7 to 5		"	"
	tPHL	101	IN	3 V	OUT	66				4.5 V	66	1 to 3		60	"
	"	102	3 V	IN	OUT	66				"	66	2 to 3		"	"
	66	103				"	OUT	IN	3 V	"	66	6 to 5		"	"
	"	104				"	OUT	3 V	IN	"	66	7 to 5		"	"
	t <sub>TLH</sub>	105	IN	IN	OUT	66				"	66	3		26.5	44
	tTLH	106				"	OUT	IN	IN	"	66	5		26.5	"
	tTHL	107	IN	IN	OUT	66				"	66	3		25	"
	t <sub>THL</sub>	108				44	OUT	IN	IN	"	66	5		25	"

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TABLE III. Group A inspection for device type 08.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	Notes	Measured	Test	limits	Unit
		no.	1A	1B	1Y	GND	2Y	2A	2B	V <sub>CC</sub>		terminal	Min	Max	
1	V <sub>IC</sub>	1	-12 mA	4.5 V		GND				4.5 V	See figure	1 to 4		-1.5	V
T <sub>A</sub> =	"	2	4.5 V	-12 mA		66				"	5 for test	2 to 4		"	"
+25°C	"	3				"		-12 mA	4.5 V	"	circuit	6 to 4		"	"
	"	4				66		4.5 V	-12 mA	"	í.	7 to 4		í,	"
	l <sub>IH1</sub>	5	2.4 V	GND		"				5.5 V	"	1 to 4		40	μА
	"	6	GND	2.4 V		"				í,	ű	2 to 4		"	"
	"	7				"		2.4 V	GND	"	u	6 to 4		"	"
	"	8				"		GND	2.4 V	"	u	7 to 4		"	"
	I <sub>IH2</sub>	9	5.5 V	GND		"				"	ű	1 to 4		1	mA
	"	10	GND	5.5 V		"				"	u	2 to 4		"	"
	"	11				"		5.5 V	GND	"	u	6 to 4		"	"
	"	12				"		GND	5.5 V	"	u	7 to 4		"	"
	I <sub>IL1</sub>	13	0.4 V	5.5 V		"				"	"	1 to 4		-1.6	mA
	"	14	5.5 V	0.4 V		"				í,	ű	2 to 4		"	"
	"	15				"		0.4 V	5.5 V	í,	ű	6 to 4		"	"
	"	16				"		5.5 V	0.4 V	"	"	7 to 4		"	"
	Ісснз	17	GND	GND		"		GND	GND	"	"	8		17	"
	I <sub>CCL6</sub>	18	5.5 V	5.5 V		"		5.5 V	5.5 V	"	u	8		76	"
	V <sub>OL2</sub>	19	2 V	2 V	100 mA	"				4.5 V	"	3 to 4		0.5	V
	VOL2	20				"	100 mA	2 V	2 V	"	"	5 to 4		0.5	"
	V <sub>OL6</sub>	21	2 V	2 V	300 mA	"				"	u	3 to 4		0.8	"
	V <sub>OL6</sub>	22				"	300 mA	2 V	2 V	"	"	5 to 4		0.8	"
	IOH2	23	0.8 V	4.5 V	30 V	"				"	u	3		300	μА
	I <sub>OH2</sub>	24				cs.	30 V	0.8 V	4.5 V	íí.	u	5		300	"

TABLE III. Group A inspection for device type 08 - Continued.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	Notes	Measured	Test	limits	Unit
		no.	1A	1B	1Y	GND	2Y	2A	2B	Vcc		terminal	Min	Max	
2	V <sub>IC</sub>	25	-12 mA	4.5 V		GND				4.5 V	See figure	1 to 4		-1.5	V
T <sub>A</sub> =	"	26	4.5 V	-12 mA		66				"	5 for test	2 to 4		"	"
+125°C	"	27				66		-12 mA	4.5 V	££	circuit	6 to 4		u	44
	"	28				66		4.5 V	-12 mA	"	"	7 to 4		"	"
	l <sub>IH1</sub>	29	2.4 V	GND		"				5.5 V	44	1 to 4		40	μΑ
	"	30	GND	2.4 V		"				"	66	2 to 4		"	"
	"	31				66		2.4 V	GND	66	44	6 to 4		u	u
	"	32				66		GND	2.4 V	"	66	7 to 4		"	"
	I <sub>IH2</sub>	33	5.5 V	GND		"				££	"	1 to 4		1	mA
	"	34	GND	5.5 V		"				í,	44	2 to 4		u	"
	"	35				66		5.5 V	GND	££	44	6 to 4		u	"
	"	36				66		GND	5.5 V	"	66	7 to 4		"	66
	I <sub>IL1</sub>	37	0.4 V	5.5 V		"				í,	44	1 to 4		-1.6	mA
	"	38	5.5 V	0.4 V		"				"	66	2 to 4		"	66
	"	39				66		0.4 V	5.5 V	"	66	6 to 4		"	"
	"	40				66		5.5 V	0.4 V	í,	44	7 to 4		u	u
	Ісснз	41	GND	GND		66		GND	GND	££	"	8		17	"
	I <sub>CCL6</sub>	42	5.5 V	5.5 V		66		5.5 V	5.5 V	"	66	8		76	66
	V <sub>OL2</sub>	43	2 V	2 V	100 mA	66				4.5 V	44	3 to 4		0.5	V
	V <sub>OL2</sub>	44				66	100 mA	2 V	2 V	í,	66	5 to 4		0.5	u
	V <sub>OL6</sub>	45	2 V	2 V	300 mA	"				"	44	3 to 4		0.8	ű
	V <sub>OL6</sub>	46				66	300 mA	2 V	2 V	u	"	5 to 4		0.8	ű
	I <sub>OH2</sub>	47	0.8 V	4.5 V	30 V	"				í,	44	3		300	μА
	I <sub>OH2</sub>	48				"	30 V	0.8 V	4.5 V	"	u	5		300	"

TABLE III. Group A inspection for device type 08 - Continued.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	Notes	Measured	Test	limits	Unit
		no.	1A	1B	1Y	GND	2Y	2A	2B	V <sub>C</sub> C	·	terminal	Min	Max	
3	V <sub>IC</sub>	49	-12 mA	4.5 V		GND				4.5 V	See figure	1 to 4		-1.5	V
T <sub>A</sub> =	"	50	4.5 V	-12 mA		66				"	5 for test	2 to 4		££	"
-55°C	"	51				66		-12 mA	4.5 V	"	circuit	6 to 4		££	"
	u	52				66		4.5 V	-12 mA	u	u.	7 to 4		íí.	"
	l <sub>IH1</sub>	53	2.4 V	GND		"				5.5 V	"	1 to 4		40	μА
	"	54	GND	2.4 V		"				í,	í.	2 to 4		££	u
	"	55				66		2.4 V	GND	"	í.	6 to 4		"	u
	"	56				**		GND	2.4 V	"	"	7 to 4		"	"
	I <sub>IH2</sub>	57	5.5 V	GND		"				"	"	1 to 4		1	mA
	"	58	GND	5.5 V		"				"	44	2 to 4		"	"
	"	59				**		5.5 V	GND	"	"	6 to 4		"	"
	"	60				**		GND	5.5 V	"	"	7 to 4		"	"
	I <sub>IL1</sub>	61	0.4 V	5.5 V		u				u	u	1 to 4		-1.6	mA
	u	62	5.5 V	0.4 V		"				u	u.	2 to 4		u	"
	"	63				66		0.4 V	5.5 V	í,	í.	6 to 4		££	u
	u	64				"		5.5 V	0.4 V	u	u	7 to 4		íí.	"
	Ісснз	65	GND	GND		66		GND	GND	"	íí.	8		17	ű
	I <sub>CCL6</sub>	66	5.5 V	5.5 V		66		5.5 V	5.5 V	"	í.	8		76	u
	V <sub>OL2</sub>	67	2 V	2 V	100 mA	"				4.5 V	и	3 to 4		0.5	V
	V <sub>OL2</sub>	68				66	100 mA	2 V	2 V	íí	u	5 to 4		0.5	"
	V <sub>OL6</sub>	69	2 V	2 V	300 mA	"				"	íí.	3 to 4		0.8	"
	V <sub>OL6</sub>	70				66	300 mA	2 V	2 V	u	u	5 to 4		0.8	"
	I <sub>OH2</sub>	71	0.8 V	4.5 V	30 V	66				íí	u	3		300	μΑ
	I <sub>OH2</sub>	72				66	30 V	0.8 V	4.5 V	"	44	5		300	"

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TABLE III. Group A inspection for device type 08 - Continued.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	Notes	Measured	Test	limits	Unit
		no.	1A	1B	1Y	GND	2Y	2A	2B	Vcc		terminal	Min	Max	
9	tpLH	73	IN	3 V	OUT	GND				4.5 V	See figure 9	1 to 3		65	ns
T <sub>A</sub> =	"	74	3 V	IN	OUT	"				"	for test	2 to 3		66	"
+25°C	"	75				"	OUT	IN	3 V	"	circuit and	6 to 5		"	44
	"	76				"	OUT	3 V	IN	"	waveforms	7 to 5		66	"
	tpHL	77	IN	3 V	OUT	"				4.5 V	"	1 to 3		50	44
	"	78	3 V	IN	OUT	"				"	66	2 to 3		"	"
	"	79				"	OUT	IN	3 V	"	"	6 to 5		66	"
	"	80				"	OUT	3 V	IN	"	"	7 to 5		44	"
	tTLH	81	IN	IN	OUT	"				"	66	3		25	"
	tTLH	82				"	OUT	IN	IN	u	"	5		25	"
	tTHL	83	IN	IN	OUT	"				"	"	3		20	"
	tTHL	84				"	OUT	IN	IN	"	66	5		20	"
10	tpLH	85	IN	3 V	OUT	GND				4.5 V	u u	1 to 3		95	ns
$T_A =$	"	86	3 V	IN	OUT	"				и	"	2 to 3		"	"
+125°C	"	87				"	OUT	IN	3 V	и	"	6 to 5		"	"
	"	88				"	OUT	3 V	IN	"	"	7 to 5		"	"
	tpHL	89	IN	3 V	OUT	"				4.5 V	"	1 to 3		75	"
	"	90	3 V	IN	OUT	"				u	66	2 to 3		66	"
	"	91				"	OUT	IN	3 V	и	"	6 to 5		"	"
	"	92				"	OUT	3 V	IN	u	"	7 to 5		66	"
	t <sub>TLH</sub>	93	IN	IN	OUT	"				"	66	3		33.5	ű
	tTLH	94				"	OUT	IN	IN	"	"	5		33.5	u
	tTHL	95	IN	IN	OUT	"				"	66	3		35	"
	t <sub>THL</sub>	96				"	OUT	IN	IN	"	í,	5		35	"

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TABLE III. Group A inspection for device type 08 - Continued.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	Notes	Measured	Test	limits	Unit
		no.	1A	1B	1Y	GND	2Y	2A	2B	Vcc		terminal	Min	Max	
11	t <sub>PLH</sub>	97	IN	3 V	OUT	GND				4.5 V	See figure 9	1 to 3		95	ns
T <sub>A</sub> =	u	98	3 V	IN	OUT	"				"	for test	2 to 3		"	"
-55°C	66	99				££	OUT	IN	3 V	u	circuit and	6 to 5		"	"
	66	100				"	OUT	3 V	IN	"	waveforms	7 to 5		"	íí.
	tPHL	101	IN	3 V	OUT	66				4.5 V	"	1 to 3		75	"
	"	102	3 V	IN	OUT	66				"	66	2 to 3		"	"
	"	103				"	OUT	IN	3 V	"	"	6 to 5		"	"
	"	104				"	OUT	3 V	IN	"	"	7 to 5		"	"
	t <sub>TLH</sub>	105	IN	IN	OUT	66				"	66	3		33.5	"
	t <sub>TLH</sub>	106				"	OUT	IN	IN	"	"	5		33.5	"
	tTHL	107	IN	IN	OUT	"				u	ű	3		35	"
	t <sub>THL</sub>	108				"	OUT	IN	IN	"	"	5		35	"

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|V||E-|V|-303||0/||E9D

TABLE III. Group A inspection for device type 09.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	Notes	Measured	Test	limits	Unit
		no.	1A	1B	1Y	GND	2Y	2A	2B	V <sub>CC</sub>		terminal	Min	Max	
1	V <sub>IC</sub>	1	-12 mA	4.5 V		GND				4.5 V	See figure	1 to 4		-1.5	V
T <sub>A</sub> =	"	2	4.5 V	-12 mA		66				u	5 for test	2 to 4		u	u
+25°C	"	3				66		-12 mA	4.5 V	££	circuit	6 to 4		tt.	"
	u	4				66		4.5 V	-12 mA	"	u	7 to 4		"	u
	l <sub>IH1</sub>	5	2.4 V	GND		"				5.5 V	u	1 to 4		40	μА
	u	6	GND	2.4 V		"				u	"	2 to 4		u	u
	u	7				66		2.4 V	GND	"	u	6 to 4		"	u
	u	8				66		GND	2.4 V	u	"	7 to 4		u	u
	I <sub>IH2</sub>	9	5.5 V	GND		"				££	"	1 to 4		1	mA
	"	10	GND	5.5 V		"				"	44	2 to 4		"	"
	"	11				66		5.5 V	GND	££	44	6 to 4		tt.	"
	"	12				66		GND	5.5 V	tt.	44	7 to 4		tt.	"
	I <sub>IL1</sub>	13	0.4 V	GND		"				"	u	1 to 4		-1.6	mA
	u	14	GND	0.4 V		"				"	"	2 to 4		u	"
	"	15				66		0.4 V	GND	££	44	6 to 4		tt.	"
	"	16				66		GND	0.4 V	"	44	7 to 4		"	"
	ICCH2	17	5.5 V	5.5 V		66		5.5 V	5.5 V	tt.	"	8		11	í,
	I <sub>CCL5</sub>	18	GND	GND		66		GND	GND	££	44	8		76	"
	V <sub>OL3</sub>	19	0.8 V	0.8 V	100 mA	66				4.5 V	44	3 to 4		0.5	V
	V <sub>OL3</sub>	20				66	100 mA	0.8 V	0.8 V	66	66	5 to 4		0.5	"
	V <sub>OL7</sub>	21	0.8 V	0.8 V	300 mA	"				66	44	3 to 4		0.8	"
	V <sub>OL7</sub>	22				66	300 mA	0.8 V	0.8 V	"	u	5 to 4		0.8	u
	ЮНЗ	23	2 V	GND	30 V	"				"	u	3		300	μА
	Іонз	24				66	30 V	2 V	GND	"	"	5		300	u

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TABLE III. Group A inspection for device type 09 - Continued.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	Notes	Measured	Test	limits	Unit
		no.	1A	1B	1Y	GND	2Y	2A	2B	Vcc	*	terminal	Min	Max	
2	V <sub>IC</sub>	25	-12 mA	4.5 V		GND				4.5 V	See figure	1 to 4		-1.5	V
T <sub>A</sub> =	"	26	4.5 V	-12 mA		"				u	5 for test	2 to 4		u	"
+125°C	"	27				"		-12 mA	4.5 V	"	circuit	6 to 4		u	"
	u	28				"		4.5 V	-12 mA	u	"	7 to 4		u	"
	l <sub>IH1</sub>	29	2.4 V	GND		"				5.5 V	44	1 to 4		40	μΑ
	"	30	GND	2.4 V		"				"	"	2 to 4		"	"
	"	31				"		2.4 V	GND	"	44	6 to 4		"	"
	"	32				**		GND	2.4 V	"	"	7 to 4		"	"
	I <sub>IH2</sub>	33	5.5 V	GND		"				"	"	1 to 4		1	mA
	"	34	GND	5.5 V		"				"	44	2 to 4		"	"
	"	35				**		5.5 V	GND	"	"	6 to 4		"	"
	"	36				"		GND	5.5 V	íí	ű	7 to 4		"	ıı.
	I <sub>IL1</sub>	37	0.4 V	GND		"				"	11	1 to 4		-1.6	mA
	"	38	GND	0.4 V		"				"	"	2 to 4		"	"
	"	39				**		0.4 V	GND	"	"	6 to 4		"	u
	"	40				"		GND	0.4 V	"	44	7 to 4		íí.	u
	ICCH2	41	5.5 V	5.5 V		"		5.5 V	5.5 V	"	u	8		11	u
	I <sub>CCL5</sub>	42	GND	GND		**		GND	GND	"	"	8		76	"
	V <sub>OL3</sub>	43	0.8 V	0.8 V	100 mA	"				4.5 V	44	3 to 4		0.5	V
	V <sub>OL3</sub>	44				66	100 mA	0.8 V	0.8 V	"	44	5 to 4		0.5	"
	V <sub>OL7</sub>	45	0.8 V	0.8 V	300 mA	"				"	66	3 to 4		0.8	"
	V <sub>OL7</sub>	46				66	300 mA	0.8 V	0.8 V	"	44	5 to 4		0.8	"
	Іонз	47	2 V	GND	30 V	"				"	66	3		300	μА
	Іонз	48				66	30 V	2 V	GND	66	u.	5		300	"

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TABLE III. Group A inspection for device type 09 - Continued.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	Notes	Measured	Test	limits	Unit
		no.	1A	1B	1Y	GND	2Y	2A	2B	V <sub>CC</sub>	·	terminal	Min	Max	
3	V <sub>IC</sub>	49	-12 mA	4.5 V		GND				4.5 V	See figure	1 to 4		-1.5	V
T <sub>A</sub> =	"	50	4.5 V	-12 mA		66				"	5 for test	2 to 4		u	íí
-55°C	"	51				66		-12 mA	4.5 V	"	circuit	6 to 4		tt.	"
	u	52				66		4.5 V	-12 mA	"	u	7 to 4		íí.	"
	l <sub>IH1</sub>	53	2.4 V	GND		"				5.5 V	"	1 to 4		40	μΑ
	"	54	GND	2.4 V		"				u	"	2 to 4		tt.	"
	u	55				66		2.4 V	GND	66	u	6 to 4		íí.	íí
	"	56				66		GND	2.4 V	u	"	7 to 4		tt.	"
	I <sub>IH2</sub>	57	5.5 V	GND		"				"	"	1 to 4		1	mA
	"	58	GND	5.5 V		"				"	"	2 to 4		"	"
	"	59				66		5.5 V	GND	66	"	6 to 4		"	u
	"	60				"		GND	5.5 V	"	"	7 to 4		"	u
	I <sub>IL1</sub>	61	0.4 V	GND		"				"	"	1 to 4		-1.6	mA
	"	62	GND	0.4 V		"				"	"	2 to 4		"	"
	"	63				66		0.4 V	GND	66	"	6 to 4		"	"
	"	64				66		GND	0.4 V	"	"	7 to 4		"	"
	ICCH2	65	5.5 V	5.5 V		66		5.5 V	5.5 V	u	"	8		11	"
	I <sub>CCL5</sub>	66	GND	GND		66		GND	GND	66	"	8		76	"
	V <sub>OL3</sub>	67	0.8 V	0.8 V	100 mA	66				4.5 V	"	3 to 4		0.5	V
	V <sub>OL3</sub>	68				66	100 mA	0.8 V	0.8 V	66	"	5 to 4		0.5	u
	V <sub>OL7</sub>	69	0.8 V	0.8 V	300 mA	"				66	"	3 to 4		0.8	u
	V <sub>OL7</sub>	70				66	300 mA	0.8 V	0.8 V	"	u	5 to 4		0.8	"
	Іонз	71	2 V	GND	30 V	"				66	"	3		300	μΑ
	Іонз	72				"	30 V	2 V	GND	"	ű	5		300	"

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TABLE III. Group A inspection for device type 09 - Continued.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	Notes	Measured	Test	limits	Unit
		no.	1A	1B	1Y	GND	2Y	2A	2B	Vcc		terminal	Min	Max	
9	tpLH	73	IN	GND	OUT	GND				4.5 V	See figure 9	1 to 3		55	ns
T <sub>A</sub> =	"	74	GND	IN	OUT	"				"	for test	2 to 3		££	"
+25°C	"	75				"	OUT	IN	GND	"	circuit and	6 to 5		"	"
	"	76				"	OUT	GND	IN	"	waveforms	7 to 5		"	u
	tpHL	77	IN	GND	OUT	"				4.5 V	"	1 to 3		40	"
	"	78	GND	IN	OUT	"				"	"	2 to 3		"	"
	"	79				"	OUT	IN	GND	"	"	6 to 5		"	"
	"	80				"	OUT	GND	IN	"	"	7 to 5		44	"
	tTLH	81	IN	IN	OUT	"				"	"	3		25	"
	tTLH	82				"	OUT	IN	IN	"	"	5		"	"
	tTHL	83	IN	IN	OUT	"				ű	"	3		"	"
	tTHL	84				"	OUT	IN	IN	"	"	5		"	"
10	tpLH	85	IN	GND	OUT	GND				4.5 V	"	1 to 3		70	ns
$T_A =$	"	86	GND	IN	OUT	"				"	"	2 to 3		"	"
+125°C	"	87				"	OUT	IN	GND	ű	"	6 to 5		"	"
	"	88				"	OUT	GND	IN	"	"	7 to 5		"	"
	tPHL	89	IN	GND	OUT	"				4.5 V	"	1 to 3		60	"
	"	90	GND	IN	OUT	"				ű	"	2 to 3		"	"
	"	91				"	OUT	IN	GND	"	"	6 to 5		"	"
	"	92				"	OUT	GND	IN	"	"	7 to 5		"	"
	tTLH	93	IN	IN	OUT	"				"	"	3		33.5	"
	t <sub>TLH</sub>	94				ű	OUT	IN	IN	ű	"	5		33.5	"
	tTHL	95	IN	IN	OUT	"				"	"	3		25	"
	t <sub>THL</sub>	96				"	OUT	IN	IN	u	"	5		25	"

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TABLE III. Group A inspection for device type 09 - Continued.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	Notes	Measured	Test	limits	Unit
		no.	1A	1B	1Y	GND	2Y	2A	2B	Vcc		terminal	Min	Max	
11	t <sub>PLH</sub>	97	IN	GND	OUT	GND				4.5 V	See figure 9	1 to 3		70	ns
T <sub>A</sub> =	"	98	GND	IN	OUT	"				"	for test	2 to 3		"	и
-55°C	"	99				££	OUT	IN	GND	"	circuit and	6 to 5		"	"
	"	100				"	OUT	GND	IN	"	waveforms	7 to 5		u	и
	tPHL	101	IN	GND	OUT	££				4.5 V	"	1 to 3		60	"
	"	102	GND	IN	OUT	66				"	"	2 to 3		"	44
	"	103				"	OUT	IN	GND	"	"	6 to 5		"	44
	"	104				££	OUT	GND	IN	"	"	7 to 5		"	"
	tTLH	105	IN	IN	OUT	66				"	"	3		33.5	"
	tTLH	106				"	OUT	IN	IN	"	"	5		33.5	и
	tTHL	107	IN	IN	OUT	££				"	"	3		25	"
	t <sub>THL</sub>	108				"	OUT	IN	IN	"	ű	5		25	"

TABLE III. Group A inspection for device type 10.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	Notes	Measured	Test	limits	Unit
		no.	1A	1B	1Y	GND	2Y	2A	2B	Vcc	*	terminal	Min	Max	
1	V <sub>IC</sub>	1	-12 mA	4.5 V		GND				4.5 V	See figure	1 to 4		-1.5	V
T <sub>A</sub> =	"	2	4.5 V	-12 mA		"				ii .	5 for test	2 to 4		u	u
+25°C	"	3				"		-12 mA	4.5 V	66	circuit	6 to 4		u	u
	"	4				"		4.5 V	-12 mA	"	"	7 to 4		íí	ű
	l <sub>IH1</sub>	5	2.4 V	GND		"				5.5 V	"	1 to 4		40	μΑ
	"	6	GND	2.4 V		"				"	u u	2 to 4		íí.	"
	"	7				66		2.4 V	GND	"	u u	6 to 4		íí.	ű
	"	8				66		GND	2.4 V	"	u u	7 to 4		íí.	"
	I <sub>IH2</sub>	9	5.5 V	GND		"				66	u u	1 to 4		1	mA
	"	10	GND	5.5 V		"				"	"	2 to 4		ű	"
	"	11				66		5.5 V	GND	66	u u	6 to 4		íí.	"
	"	12				66		GND	5.5 V	"	u u	7 to 4		íí.	"
	I <sub>IL1</sub>	13	0.4 V	GND		"				"	"	1 to 4		-1.6	mA
	"	14	GND	0.4 V		"				"	"	2 to 4		"	ű
	"	15				"		0.4 V	GND	"	"	6 to 4		"	ű
	"	16				"		GND	0.4 V	"	"	7 to 4		íí	ű
	ICCH5	17	GND	GND		"		GND	GND	"	"	8		19	"
	I <sub>CCL8</sub>	18	5.5 V	5.5 V		"		5.5 V	5.5 V	"	"	8		85	ű
	V <sub>OL4</sub>	19	2 V	2 V	100 mA	"				4.5 V	"	3 to 4		0.5	V
	V <sub>OL4</sub>	20				"	100 mA	2 V	2 V	"	"	5 to 4		0.5	ű
	V <sub>OL8</sub>	21	2 V	2 V	300 mA	"				"	"	3 to 4		0.8	u
	V <sub>OL8</sub>	22				"	300 mA	2 V	2 V	"	"	5 to 4		0.8	ű
	IOH4	23	0.8 V	0.8 V	30 V	"				"	"	3		300	μА
	I <sub>OH4</sub>	24				"	30 V	0.8 V	0.8 V	"	"	5		300	ű

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TABLE III. Group A inspection for device type 10 - Continued.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	Notes	Measured	Test	limits	Unit
		no.	1A	1B	1Y	GND	2Y	2A	2B	V <sub>C</sub> C		terminal	Min	Max	
2	V <sub>IC</sub>	25	-12 mA	4.5 V		GND				4.5 V	See figure	1 to 4		-1.5	V
T <sub>A</sub> =	"	26	4.5 V	-12 mA		66				í,	5 for test	2 to 4		££	u
+125°C	"	27				66		-12 mA	4.5 V	"	circuit	6 to 4		££	u
	"	28				66		4.5 V	-12 mA	u	"	7 to 4		"	"
	l <sub>IH1</sub>	29	2.4 V	GND		"				5.5 V	"	1 to 4		40	μА
	"	30	GND	2.4 V		"				u	"	2 to 4		cc cc	"
	"	31				66		2.4 V	GND	"	"	6 to 4		"	"
	"	32				66		GND	2.4 V	í,	u	7 to 4		££	u
	I <sub>IH2</sub>	33	5.5 V	GND		**				"	u	1 to 4		1	mA
	"	34	GND	5.5 V		"				u	"	2 to 4		cc cc	"
	"	35				"		5.5 V	GND	"	"	6 to 4		cc cc	"
	"	36				66		GND	5.5 V	í,	u	7 to 4		££	u
	I <sub>IL1</sub>	37	0.4 V	GND		"				"	u .	1 to 4		-1.6	mA
	"	38	GND	0.4 V		"				"	u	2 to 4		"	"
	"	39				66		0.4 V	GND	"	"	6 to 4		"	"
	"	40				66		GND	0.4 V	u	"	7 to 4		"	"
	ICCH5	41	GND	GND		66		GND	GND	"	"	8		19	"
	I <sub>CCL8</sub>	42	5.5 V	5.5 V		66		5.5 V	5.5 V	u	"	8		85	"
	V <sub>OL4</sub>	43	2 V	2 V	100 mA	"				4.5 V	u u	3 to 4		0.5	V
	V <sub>OL4</sub>	44				66	100 mA	2 V	2 V	u	"	5 to 4		0.5	"
	V <sub>OL8</sub>	45	2 V	2 V	300 mA	"				íí.	er .	3 to 4		0.8	u
	V <sub>OL8</sub>	46				"	300 mA	2 V	2 V	"	ű	5 to 4		0.8	u
	IOH4	47	0.8 V	0.8 V	30 V	"				"	"	3		300	μА
	I <sub>OH4</sub>	48	-			66	30 V	0.8 V	0.8 V	u	"	5	_	300	"

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TABLE III. Group A inspection for device type 10 - Continued.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	Notes	Measured	Test	limits	Unit
		no.	1A	1B	1Y	GND	2Y	2A	2B	V <sub>CC</sub>	•	terminal	Min	Max	
3	V <sub>IC</sub>	49	-12 mA	4.5 V		GND				4.5 V	See figure	1 to 4		-1.5	V
T <sub>A</sub> =	"	50	4.5 V	-12 mA		66				"	5 for test	2 to 4		"	"
-55°C	"	51				66		-12 mA	4.5 V	66	circuit	6 to 4		"	"
	"	52				"		4.5 V	-12 mA	"	66	7 to 4		"	"
	l <sub>IH1</sub>	53	2.4 V	GND		"				5.5 V	"	1 to 4		40	μΑ
	"	54	GND	2.4 V		"				"	u	2 to 4		"	"
	"	55				"		2.4 V	GND	"	"	6 to 4		"	"
	"	56				"		GND	2.4 V	"	"	7 to 4		"	"
	I <sub>IH2</sub>	57	5.5 V	GND		"				"	u	1 to 4		1	mA
	"	58	GND	5.5 V		"				"	"	2 to 4		"	"
	"	59				"		5.5 V	GND	"	u	6 to 4		"	"
	"	60				"		GND	5.5 V	"	u	7 to 4		"	"
	I <sub>IL1</sub>	61	0.4 V	GND		"				"	"	1 to 4		-1.6	mA
	"	62	GND	0.4 V		"				"	"	2 to 4		"	u
	"	63				"		0.4 V	GND	"	u	6 to 4		"	44
	"	64				"		GND	0.4 V	"	"	7 to 4		"	"
	ICCH5	65	GND	GND		"		GND	GND	"	ű	8		19	"
	I <sub>CCL8</sub>	66	5.5 V	5.5 V		"		5.5 V	5.5 V	"	"	8		85	"
	V <sub>OL4</sub>	67	2 V	2 V	100 mA	"				4.5 V	"	3 to 4		0.5	V
	Vol4	68				"	100 mA	2 V	2 V	"	u	5 to 4		0.5	44
	V <sub>OL8</sub>	69	2 V	2 V	300 mA	"				"	u	3 to 4		0.8	"
	V <sub>OL8</sub>	70				"	300 mA	2 V	2 V	"	u	5 to 4		0.8	"
	Іон4	71	0.8 V	0.8 V	30 V	"				"	u	3		300	μА
	I <sub>OH4</sub>	72				"	30 V	0.8 V	0.8 V	"	44	5		300	"

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TABLE III. Group A inspection for device type 10 – Continued.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	Notes	Measured	Test	limits	Unit
		no.	1A	1B	1Y	GND	2Y	2A	2B	Vcc		terminal	Min	Max	
9	tpLH	73	IN	GND	OUT	GND				4.5 V	See figure 9	1 to 3		65	ns
T <sub>A</sub> =	"	74	GND	IN	OUT	££				"	for test	2 to 3		££	"
+25°C	"	75				££	OUT	IN	GND	"	circuit and	6 to 5		66	"
-	"	76				"	OUT	GND	IN	"	waveforms	7 to 5		"	"
	tpHL	77	IN	GND	OUT	66				4.5 V	"	1 to 3		50	"
	"	78	GND	IN	OUT	"				"	"	2 to 3		"	"
	"	79				"	OUT	IN	GND	"	"	6 to 5		"	"
	"	80				"	OUT	GND	IN	"	"	7 to 5		"	"
	t <sub>TLH</sub>	81	IN	IN	OUT	66				"	"	3		20	"
	t <sub>TLH</sub>	82				"	OUT	IN	IN	"	"	5		"	"
	tTHL	83	IN	IN	OUT	"				"	"	3		"	"
	t <sub>THL</sub>	84				££	OUT	IN	IN	"	66	5		66	"
10	tpLH	85	IN	GND	OUT	GND				4.5 V	"	1 to 3		90	ns
$T_A =$	"	86	GND	IN	OUT	"				"	"	2 to 3		"	"
+125°C	"	87				££	OUT	IN	GND	"	66	6 to 5		66	"
	"	88				"	OUT	GND	IN	"	"	7 to 5		66	"
	tPHL	89	IN	GND	OUT	££				4.5 V	"	1 to 3		75	"
	"	90	GND	IN	OUT	££				"	66	2 to 3		66	"
	"	91				"	OUT	IN	GND	"	"	6 to 5		"	"
	"	92				66	OUT	GND	IN	"	66	7 to 5		66	"
	tTLH	93	IN	IN	OUT	66				"	66	3		26.5	"
	tTLH	94				"	OUT	IN	IN	"	"	5		26.5	"
	tTHL	95	IN	IN	OUT	66				"	66	3		25	"
	t <sub>THL</sub>	96				"	OUT	IN	IN	"	"	5		25	"

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TABLE III. Group A inspection for device type 10 - Continued.

Subgroup	Symbol	Test	1	2	3	4	5	6	7	8	Notes	Measured	Test	limits	Unit
		no.	1A	1B	1Y	GND	2Y	2A	2B	Vcc		terminal	Min	Max	
11	t <sub>PLH</sub>	97	IN	GND	OUT	GND				4.5 V	See figure9	1 to 3		90	ns
$T_A =$	u	98	GND	IN	OUT	íí				"	for test	2 to 3		"	"
-55°C	"	99				í,	OUT	IN	GND	££	circuit and	6 to 5		"	"
	"	100				"	OUT	GND	IN	66	waveforms	7 to 5		"	"
	tPHL	101	IN	GND	OUT	66				4.5 V	"	1 to 3		75	íí.
	"	102	GND	IN	OUT	"				"	"	2 to 3		"	44
	"	103				"	OUT	IN	GND	"	"	6 to 5		"	44
	"	104				"	OUT	GND	IN	"	"	7 to 5		"	"
	tTLH	105	IN	IN	OUT	66				"	"	3		26.5	"
	tTLH	106				"	OUT	IN	IN	"	"	5		26.5	u
	tTHL	107	IN	IN	OUT	44				44	"	3		25	"
	t <sub>THL</sub>	108				"	OUT	IN	IN	"	"	5		25	"

- 4.4 <u>Technology Conformance inspection (TCI)</u>. Technology conformance inspection shall be in accordance with MIL-PRF-38535 and herein for groups A, B, C, and D inspections (see 4.4.1 through 4.4.4).
  - 4.4.1 Group A inspection. Group A inspection shall be in accordance with table III of MIL-PRF-38535 and as follows:
    - a. Tests shall be as specified in table II herein.
    - b. Subgroups 4, 5, 6, 7, and 8 in table I shall be omitted.
  - 4.4.2 Group B inspection. Group B inspection shall be in accordance with table II of MIL-PRF-38535.
  - 4.4.3 Group C inspection. Group C inspection shall be in accordance with table IV of MIL-PRF-38535 and as follows:
    - a. End point electrical parameters shall be as specified in table II herein.
    - b. The steady-state life test duration, test condition, and test temperature, or approved alternatives shall be as specified in the device manufacturer's QM plan in accordance with MIL-PRF-38535. The burn-in test circuit shall be maintained under document control by the device manufacturer's Technology Review Board (TRB) in accordance with MIL-PRF-38535 and shall be made available to the acquiring or preparing activity upon request. The test circuit shall specify the inputs, outputs, biases, and power dissipation, as applicable, in accordance with the intent specified in test method 1005 of MIL-STD-883.
- 4.4.4 <u>Group D inspection</u>. Group D inspection shall be in accordance with table V of MIL-PRF-38535. End point electrical parameters shall be as specified in table II herein.
  - 4.5 Methods of inspection. Methods of inspection shall be specified and as follows.
- 4.5.1 <u>Voltage and current</u>. All voltage values given are referenced to the ground terminal of the device under test (DUT). Currents values given are for conventional current and are positive when flowing into the referenced terminal.

## 5. PACKAGING

5.1 <u>Packaging requirements.</u> For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of materiel is to be performed by DoD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department of Defense Agency, or within the Military Department's System Command. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

# TABLE IV. Group C end-point electrical parameters.

 $\pm V_{CC} = \pm 4.5 \text{ V}, T_A = +25^{\circ}\text{C}$ 

(Device types 01 through 10)

Test	Lin	nits	Delta	Unit
	Min	Max		
Іон		300	±50	μΑ

### 6. NOTES

- 6.1 <u>Intended use.</u> Microcircuits conforming to this specification are intended for original equipment design applications and logistic support of existing equipment.
  - 6.2 Acquisition requirements. Acquisition documents should specify the following:
    - a. Title, number, and date of the specification.
    - b. Pin and compliance identifier, if applicable (see 1.2).
    - c. Requirements for delivery of one copy of the conformance inspection data pertinent to the device inspection lot to be supplied with each shipment by the device manufacturer, if applicable.
    - d. Requirements for certificate of compliance, if applicable.
    - Requirements for notification of change of product or process to acquiring activity in addition to notification of the qualifying activity, if applicable.
    - f. Requirements for failure analysis (including required test condition of MIL-STD-883, method 5003), corrective action and reporting of results, if applicable.
    - g. Requirements for product assurance options.
    - h. Requirements for special carriers, lead lengths, or lead forming, if applicable. These requirements should not affect the part number. Unless otherwise specified, these requirements will not apply to direct purchase by or direct shipment to the Government.
    - i. Requirements for "JAN" marking.
    - j. Packaging requirements (see 5.1).
- 6.3 <u>Superseding information</u>. The requirements of MIL-M-38510 have been superseded to take advantage of the available Qualified Manufacturer Listing (QML) system provided by MIL-PRF-38535. Previous references to MIL-M-38510 in this document have been replaced by appropriate references to MIL-PRF-38535. All technical requirements now consist of this specification and MIL-PRF-38535. The MIL-M-38510 specification sheet number and PIN have been retained to avoid adversely impacting existing government logistics systems and contractor's parts lists.
- 6.4 <u>Qualification</u>. With respect to products requiring qualification, awards will be made only for products which are, at the time of award of contract, qualified for inclusion in Qualified Manufacturers List QML-38535 whether or not such products have actually been so listed by that date. The attention of the contractors is called to these requirements, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts or purchase orders for the products covered by this specification. Information pertaining to qualification of products may be obtained from DSCC-VQ, 3990 E. Broad Street, Columbus, Ohio 43218-3990.

6.5 <u>Abbreviations, symbols, and definitions</u>. The abbreviations, symbols, and definitions used herein are defined in MIL-PRF-38535, MIL-STD-1331, and as follows:

Input clamp voltage. Vic Ιн High level input current ( $V_{IN} = 2.4 \text{ or } 5.5 \text{ V}$ ). Low level input current ( with  $V_{IN} = 0.4$  ). IJΕ High level supply current. This is the supply current with the output high. Іссн Low level supply current. This is the supply current with the output low. **ICCL** Low level output voltage. This at rated load for the TTL gates. Vol High level output current. Юн High level output voltage, TTL gate. Vон Short circuit output current TTL gate. los Collector base breakdown voltage, separate transistor. **V**CBO **VCER** Collector base breakdown voltage with RBE = 500 ohms. Collector emitter breakdown voltage. **VCEO** Emitter base breakdown voltage. **VBEO** Static forward current transfer ratio. hFE Base emitter voltage.  $V_{\mathsf{BF}}$ Collector emitter saturation voltage. VCE(SAT) Delay time. tn Rise time.  $t_R$ Storage time. ts Fall time. tF Propagation delay time (low to high level output transition). **t**PLH Propagation delay time (high to low level output transition). t<sub>PHL</sub> Transition time (low to high level output transition). t<sub>TLH</sub> Transition time (high to low level output transition). t<sub>THL</sub>

- 6.6 <u>Logistic support.</u> Lead materials and finishes (see 3.3) are interchangeable. Unless otherwise specified, microcircuits acquired for Government logistic support will be acquired to device class B (see 1.2.2), lead material and finish A (see 3.4). Longer length leads and lead forming should not affect the part number.
- 6.7 <u>Substitutability</u>. The cross-reference information below is presented for the convenience of users. Microcircuits covered by this specification will functionally replace the listed generic-industry type. Generic-industry microcircuit types may not have equivalent operational performance characteristics across military temperature ranges or reliability factors equivalent to MIL-M-38510 device types and may have slight physical variations in relation to case size. The presence of this information should not be deemed as permitting substitution of generic-industry types for MIL-M-38510 types or as a waiver of any of the provisions of MIL-PRF-38535.

Military device type	Generic-industry type
01	55450
02	55451
03	55452
04	55453
05	55454
06	55460
07	55461
08	55462
09	55463
10	55464

6.8 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue, due to the extensiveness of the changes.

Custodians:

Army – CR Navy - EC Air Force - 11

NASA - NA DLA – CC

Preparing activity:

DLA - CC

Project 5962-2081

Review activities:

Army - MI, SM Navy - AS, CG, SH, TD

Air Force – 03, 19, 99

NOTE: The activities listed above were interested in this document as of this date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at http://assist.daps.dla.mil.