FAIRCHILD
SEMICONDUCTOR™

6-PIN PHOTOTRANSISTOR OPTOCOUPLERS

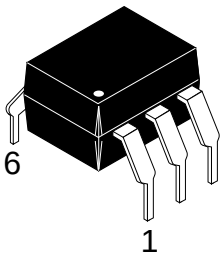
CNX82A.W, CNX83A.W, SL5582.W & SL5583.W

DESCRIPTION

The CNX82A.W, CNX83A.W, SL5582.W AND SL5583.W, consist of a gallium arsenide infrared emitting diode driving a silicon phototransistor in a 6-pin dual in-line package.

FEATURES

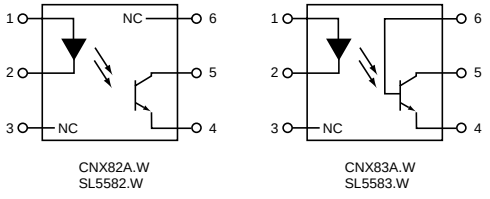
- Input/Output pin distance 10.16 mm
- UL recognized (File # E90700)



APPLICATIONS

- Power supply regulators
- Digital logic inputs
- Microprocessor inputs

SCHEMATIC



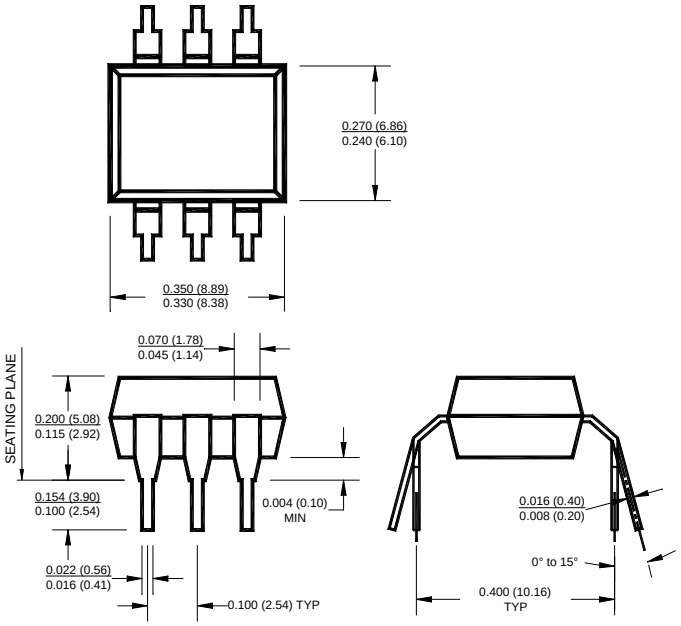
CNX82A.W
SL5582.W

PIN 1. ANODE
2. CATHODE
3. NO CONNECTION
4. EMITTER
5. COLLECTOR
6. NO CONNECTION

CNX83A.W
SL5583.W

PIN 1. ANODE
2. CATHODE
3. NO CONNECTION
4. EMITTER
5. COLLECTOR
6. BASE

PACKAGE DIMENSIONS



NOTE
All dimensions are in inches (millimeters)

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Units
TOTAL DEVICE			
Storage Temperature	T_{STG}	-55 to +150	°C
Operating Temperature	T_{OPR}	-55 to +100	°C
Lead Solder Temperature	T_{SOL}	260 for 10 sec	°C
Junction Temperature	T_J	125	°C
Total Device Power Dissipation @ T_A = 25°C	P_D	250	mW
EMITTER			
DC/Average Forward Input Current	I_F	100	mA
Reverse Input Voltage	V_R	5.0	V
Forward Current - Peak (1µs pulse, 300pps)	I_F(pk)	3.0	A
LED Power Dissipation @ T_A = 25°C	P_D	140	mW
Derate above 25°C		1.33	mW/°C
DETECTOR			
Collector-Emitter Voltage	V_{CEO}	50	V
Collector-Base Voltage (CNX83A)	V_{CBO}	70	V
Emitter-Collector Voltage	V_{ECO}	7	V
Continuous Collector Current	I_C	100	mA
Detector Power Dissipation @ T_A = 25°C	P_D	150	mW
Derate above 25°C		2.0	mW/°C

CNX82A.W, CNX83A.W, SL5582.W & SL5583.W

ELECTRICAL CHARACTERISTICS (T_A = 25°C Unless otherwise specified.)

INDIVIDUAL COMPONENT CHARACTERISTICS

Parameter	Test Conditions	Symbol	Device	Min	Typ**	Max	Unit
EMITTER							
Input Forward Voltage	(I_F = 10 mA)	V_F	ALL		1.2	1.50	V
Reverse Leakage Current	(V_R = 5.0 V)	I_R	ALL		0.001	10	µA
DETECTOR							
Collector-Emitter Breakdown Voltage	(I_C = 1.0 mA, I_F = 0)	BV_{CEO}	ALL	50	100		V
Collector-Base Breakdown Voltage	(I_C = 100 µA, I_F = 0)	BV_{CBO}	CNX83A.W SL5583.W	70	120		V
Emitter-Collector Breakdown Voltage	(I_E = 100 µA, I_F = 0)	BV_{ECO}	ALL	7	10		V
Collector-Emitter Dark Current	(V_{CE} = 10 V, I_F = 0)	I_{CEO}	ALL		0.001	0.050	µA
	(V_{CE} = 10 V, I_F = 0) (T_A = 70°C)		CNX82A.W CNX83A.W		0.5	10	
			SL5582.W SL5583.W			0.5	
	(V_{CE} = 10 V, I_F = 0) (T_A = 100°C)		SL5582.W SL5583.W			50	
Collector-Base Dark Current	(V_{CB} = 10 V)	I_{CBO}	CNX83A.W SL5583.W			20	nA
Capacitance	(V_{CE} = 0 V, f = 1 MHz)	C_{CE}	ALL		8		pF

Note
** Typical values at T_A = 25°C

CNX82A.W, CNX83A.W, SL5582.W & SL5583.W

TRANSFER CHARACTERISTICS (T_A = 25°C Unless otherwise specified.)

DC Characteristic	Test Conditions	Symbol	Device	Min	Typ**	Max	Units
Current Transfer Ratio, Collector-Emitter	(I_F = 10 mA, V_{CE} = 0.4 V)	CTR	ALL	40			%
	(I_F = 10 mA, V_{CE} = 5 V)		CNX82A.W CNX83A.W	40		250	
			SL5582.W SL5583.W	40		320	
	(I_F = 10 mA, V_{CE} = 5 V) (T_A = 100°C)		SL5582.W SL5583.W	25		320	
	(I_F = 1 mA, V_{CE} = 5 V)		CNX82A.W CNX83A.W	10		100	
	(I_F = 2 mA, V_{CE} = 5 V)		SL5582.W SL5583.W	20			
	(I_F = 2 mA, V_{CE} = 5 V) (T_A = 100°C)		SL5582.W SL5583.W	15			
Saturation Voltage	(I_F = 10 mA, I_C = 4 mA)	$V_{CE(sat)}$	ALL		0.19	0.4	V
Turn-on Time	(I_C = 2 mA, V_{CC} = 5 V, R_L = 100 Ω)	t_{on}	ALL		3		µs
	(I_C = 2 mA, V_{CC} = 5 V, R_L = 1 kΩ)		ALL		12		
	(I_F = 16 mA, V_{CC} = 5 V, R_L = 1 kΩ)		SL5582.W SL5583.W			20	
Turn-off Time	(I_C = 2 mA, V_{CC} = 5 V, R_L = 100 Ω)	t_{off}	ALL		3		µs
	(I_C = 2 mA, V_{CC} = 5 V, R_L = 1 kΩ)		ALL		12		
	(I_F = 16 mA, V_{CC} = 5 V, R_L = 1 kΩ)		SL5582.W SL5583.W			50	

ISOLATION CHARACTERISTICS

Characteristic	Test Conditions	Symbol	Min	Typ**	Max	Units
Input-Output Isolation Voltage	(I_{I-O} ≤ 1 µA, 1 min.)	V_{ISO}	5300			Vac(rms)
Isolation Resistance	(V_{I-O} = 500 VDC)	R_{ISO}	10^{11}			Ω
Isolation Capacitance	(V_{I-O} = ∅, f = 1 MHz)	C_{ISO}		0.5		pf
External air gap (clearance)			9.6			mm
External tracking path (creepage)			8.0			mm
Internal plastic gap (clearance)			1.0			mm

Note
** Typical values at T_A = 25°C

ORDERING INFORMATION

Option	Order Entry Identifier	Description
300	.300W	VDE 0884

TYPICAL CHARACTERISTICS

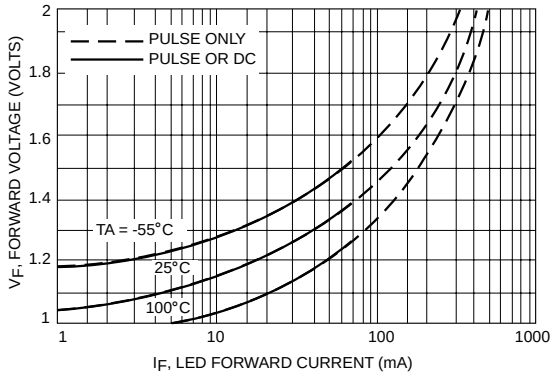


Figure 1. LED Forward Voltage versus Forward Current

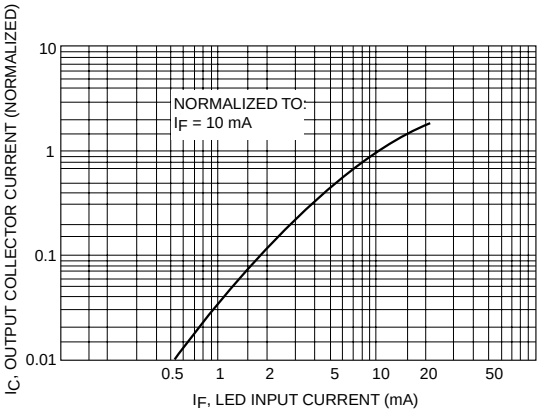


Figure 2. Output Current versus Input Current

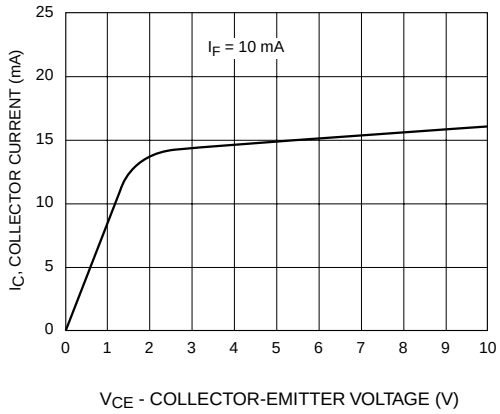


Figure 3. Collector Current versus Collector-Emitter Voltage

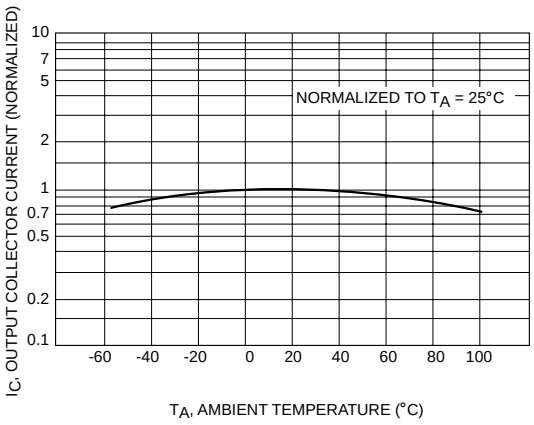


Figure 4. Output Current versus Ambient Temperature

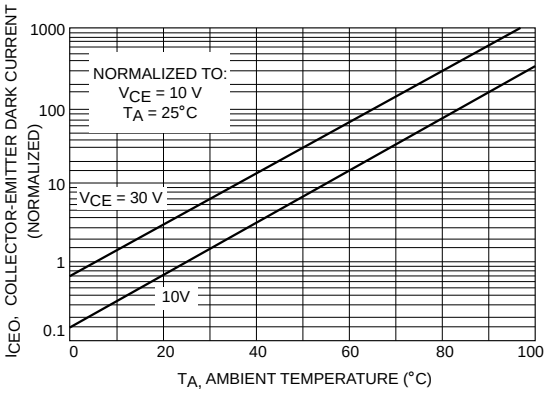


Figure 5. Dark Current versus Ambient Temperature

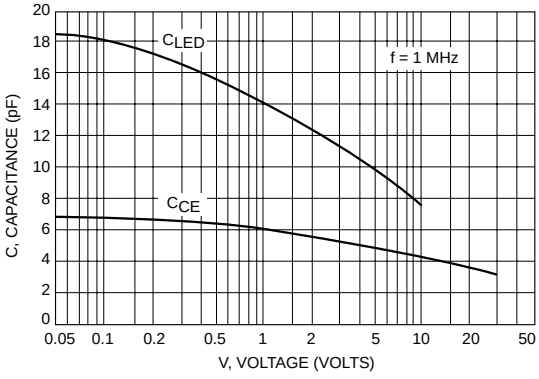


Figure 6. Capacitance versus Voltage

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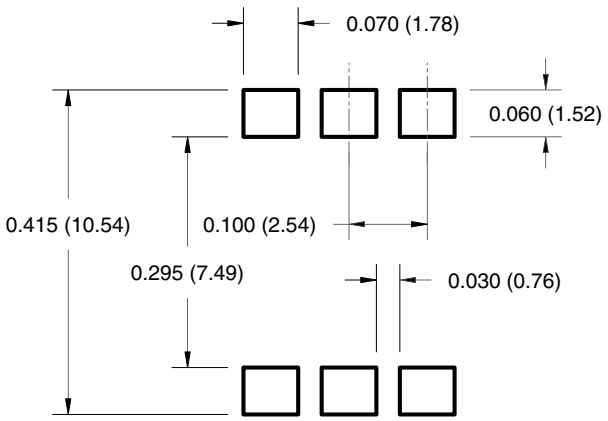
Recommended Pad Layout for Surface Mount Leadform



Note
All dimensions are in inches (millimeters)

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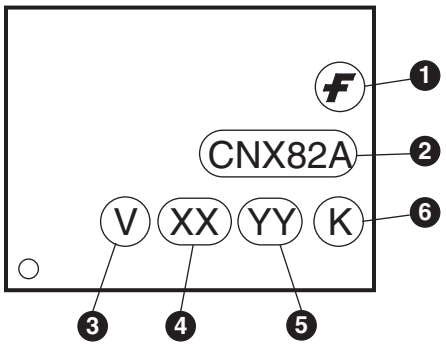
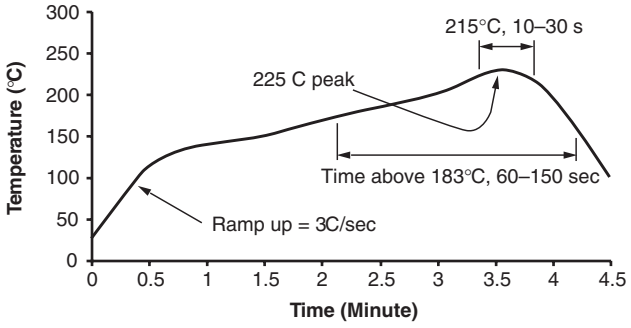
SEMICONDUCTOR®

MARKING INFORMATION



Definitions	
1	Fairchild logo
2	Device number
3	VDE mark (Note: Only appears on parts ordered with VDE option – See order entry table)
4	Two digit year code, e.g., ‘03’
5	Two digit work week ranging from ‘01’ to ‘53’
6	Assembly package code

Reflow Profile (Black Package, No Suffix)



- Peak reflow temperature: 225°C (package surface temperature)
- Time of temperature higher than 183°C for 60–150 seconds
- One time soldering reflow is recommended

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CROSSVOLT™	GlobalOptoisolator™	MicroPak™	QFET®	SuperSOT™-8
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E^2CMOS™	I^2C™	MSXPro™	Quiet Series™	TINYOPTO™
EnSigna™	*i-Lo*™	OCX™	RapidConfigure™	TruTranslation™
FACT™	ImpliedDisconnect™	OCXPro™	RapidConnect™	UHC™
FACT Quiet Series™		OPTOLOGIC®	μSerDes™	UltraFET®
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The Power Franchise®		PACMAN™	SMART START™	
Programmable Active Droop™		POP™	SPM™	

PRODUCT STATUS DEFINITIONS

Definition of Terms

Datasheet Identification	Product Status	Definition
Advance Information	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
Preliminary	First Production	This datasheet contains preliminary data, and supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
No Identification Needed	Full Production	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
Obsolete	Not In Production	This datasheet contains specifications on a product that has been discontinued by Fairchild semiconductor. The datasheet is printed for reference information only.

SL5583.W

6-Pin DIP Phototransistor Output Optocoupler

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- Support
- Sales support
- Quality and reliability
- Design center

General description

The CNX82A.W, CNX83A.W, SL5582.W and SL5583.W consist of a gallium arsenide infrared emitting diode driving a silicon phototransistor in a 6-pin dual-in-line package.

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Features

- Input/Output pin distance 10.16 mm
- UL recognized (File #E90700)

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Applications

- Power supply regulators
- Digital logic inputs
- Microprocessor inputs

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Ordering information

The following options can be ordered with this part:

Option	Order Entry Identifier	Description
300	.300	VDE 0884

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Product status/pricing/packaging BUY

Product	Product status	Pb-free Status	Package type	Leads	Packing method
SL5583300W	Lifetime Buy		DIP-B	6	BULK
SL5583W	Lifetime Buy		DIP-B	6	BULK

Indicates product with Pb-free second-level interconnect. For more information click here.

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Safety agency certificates

Certificate	Agency	
E90700, Vol. 1 (936 K)	UL (1577)	Underwriters Laboratories Inc.
E90700, Vol. 1 (936 K)	C-UL	Underwriters Laboratories Inc.
0122085 (677 K)	SEMKO	SEMKO
P01101067 (1638 K)	NEMKO	NEMKO
FI 16812 (964 K)	FIMKO	FIMKO
310684-02 (623 K)	DEMKO	DEMKO Testing & Certification
1027742 (2305 K)	CSA	Canadian Standards Association
94766 (1673 K)	VDE	VDE Pruf-und Zertifizierungsinstitut
0128055 (24287 K)	SEMKO	SEMKO

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Qualification Support

Click on a product for detailed qualification data

Product
SL5583300W
SL5583W

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