



**ABSOLUTE MAXIMUM RATINGS**

	105	305
Input Voltage	50V	40V
Input-Output Voltage Differential	40V	40V
Power Dissipation (Note 1)	500 mW	500 mW
Operating Junction Temperature Range	-55°C to +150°C	0°C to 70°C
Storage Temperature Range	-65°C to +150°C	-55°C to 125°C
Lead Temperature (Soldering, 60 sec)	300°C	300°C

**ELECTRICAL CHARACTERISTICS (Note 2)**

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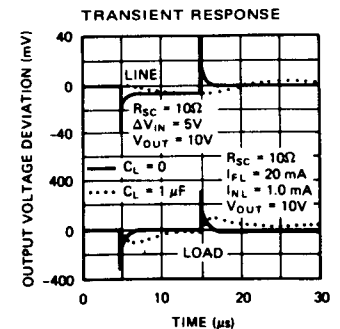
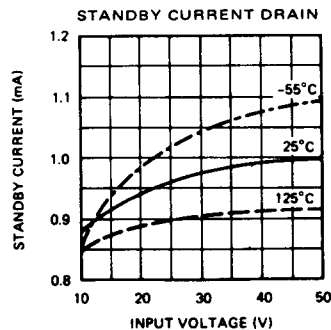
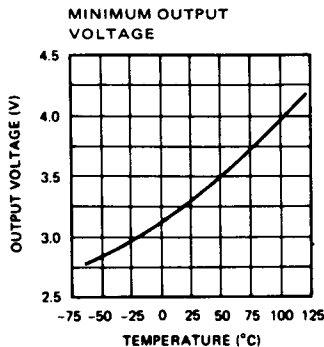
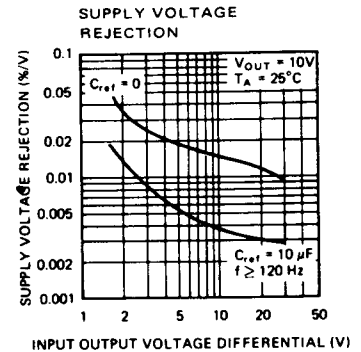
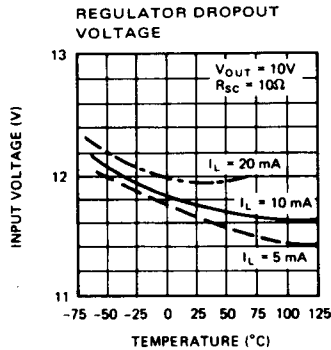
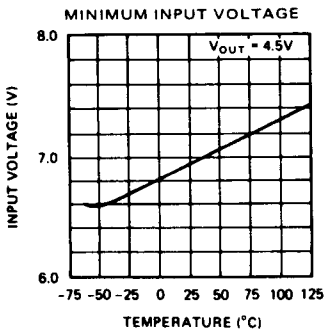
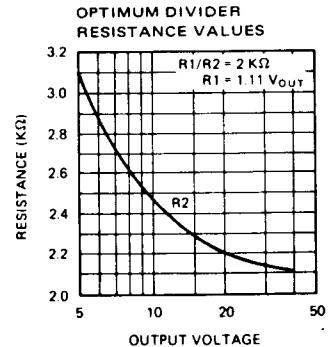
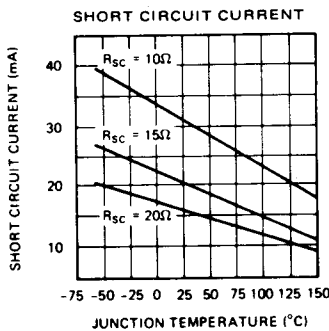
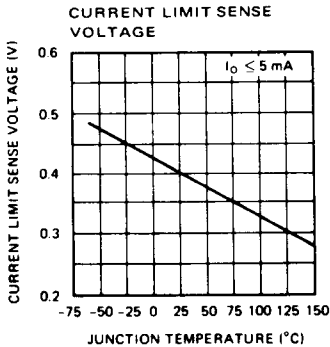
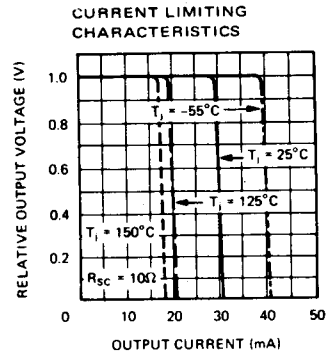
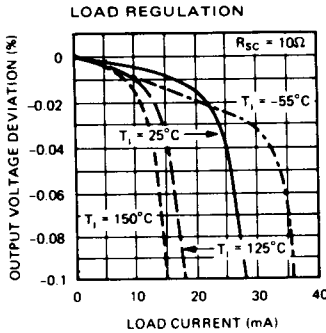
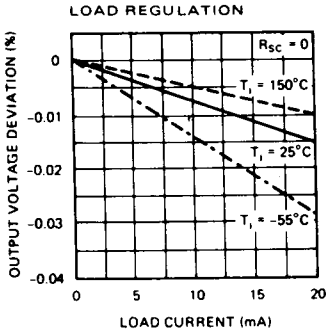
PARAMETER	CONDITIONS	105			305			UNITS
		MIN	TYP	MAX	MIN	TYP	MAX	
Input Voltage Range		8.5		50	8.0		40	V
Output Voltage Range		4.5		40	4.5		30	V
Output-Input Voltage Differential		3.0		30	3.0		30	V
Load Regulation (Note 3)	0 ≤ I <sub>O</sub> < 12 mA							
	R <sub>SC</sub> = 18Ω, T <sub>A</sub> = 25°C		0.02	0.05		0.02	0.05	%
	R <sub>SC</sub> = 10Ω, T <sub>A</sub> = 125°C		0.03	0.1				%
	R <sub>SC</sub> = 18Ω, T <sub>A</sub> = -55°C		0.03	0.1				%
	R <sub>SC</sub> = 15Ω, T <sub>A</sub> = 70°C					0.03	0.1	%
	R <sub>SC</sub> = 18Ω, T <sub>A</sub> = 0°C					0.03	0.1	%
Line Regulation	V <sub>IN</sub> - V <sub>OUT</sub> ≤ 5V		0.025	0.06		0.025	0.06	%/V
	V <sub>IN</sub> - V <sub>OUT</sub> > 5V		0.015	0.03		0.05	0.03	%/V
Temperature Stability	-55°C ≤ T <sub>A</sub> ≤ +125°C		0.3	1.0				%
	0°C ≤ T <sub>A</sub> ≤ 70°C					0.3	1.0	%
Feedback Sense Voltage			1.8			1.8		V
Output Noise Voltage	10 Hz ≤ f ≤ 10 kHz							
	C <sub>REF</sub> = 0		0.005			0.005		%
	C <sub>REF</sub> = 0.1 μF		0.002			0.002		%
Long Term Stability			0.1	1.0		0.1	1.0	%
Standby Current Drain	V <sub>IN</sub> = 50V		0.8	2.0				mA
	V <sub>IN</sub> = 40V					0.8	2.0	mA
Ripple Rejection	C <sub>REF</sub> = 10 μF, f = 120 Hz		0.003	0.01		0.003	0.01	%/V

**NOTE 1:** The maximum junction temperature of the 105 is 150°C, while that of the 305 is 85°C. For operating at elevated temperatures devices in the TO-5 package must be derated based on a thermal resistance of 150°C/W, junction to ambient or 45°C/W, junction to case. For the flat package, the derating is based on thermal resistance of 185°C/W when mounted on a 1/16-inch-thick epoxy glass board with ten 0.03-inch-wide, 2-ounce copper conductors. Peak dissipations to 1W are allowable providing the dissipation rating is not exceeded with the power averaged over a five second interval.

**NOTE 2:** These specifications apply for a junction temperature between -55°C and +150°C, (105) 0°C and 70°C, (305) for input and output voltages within the ranges given, and for a divider impedance seen by the feedback terminal of 2 kΩ, unless otherwise specified. The load and line regulation specifications are for constant junction temperature. Temperature drift effects must be taken into account separately when the unit is operating under conditions of high dissipation.

**NOTE 3:** The output currents given, as well as the load regulation, can be increased by the addition of external transistors. The improvement factor will be roughly equal to the composite current gain of the added transistors.

**TYPICAL PERFORMANCE CHARACTERISTICS FOR 105,305\***



\*305 only guaranteed  $0^\circ\text{C} \leq T_A \leq 70^\circ\text{C}$ ,  $V_{IN} = 40\text{ V max}$ ,  $V_{OUT} = 30\text{ V max}$ .

