TECHNICAL DATA
DATA SHEET 4174, REV. -

HERMETIC ULTRA LOW DROPOUT LINEAR REGULATOR

DESCRIPTION/FEATURES:
7.0A, ULTRA LOW DROPOUT, ADJUSTABLE POSITIVE LINEAR REGULATOR IN HERMETIC MO-078 PACKAGE

- DROPOUT VOLTAGE: 540mV at 7A
- FAST TRANSIENT RESPONSE
- REMOTE SENSE
- 1mV TYPICAL LOAD REGULATION
- NO SUPPLY SEQUENCING PROBLEMS IN DUAL SUPPLY MODE

MAXIMUM RATINGS ALL RATINGS ARE @ T_C = 25 °C UNLESS OTHERWISE SPECIFIED.

RATING	SYMBOL	MAX.	UNITS
OUTPUT CURRENT	I_O	7	Amps
POWER INPUT VOLTAGE	V_{PWR}	6	Volts
CONTROL INPUT VOLTAGE	V_{CTRL}	13	Volts
POWER DISSIPATION T_C = 25 °C	P_D	20	W
THERMAL RESISTANCE, JUNCTION TO CASE	$R_{\theta JC}$	5.0	°C/W
OPERATING JUNCTION TEMPERATURE RANGE	T_J	-55 to +125	°C
STORAGE TEMPERATURE RANGE	Tstg	-65 to +150	°C
LEAD TEMPERATURE SOLDERING (10 SEC MAX.)	T_L	300	°C

ELECTRICAL CHARACTERISTICS [1,2]

PARAMETER	CONDITIONS	MIN.	TYP	MAX.	UNITS
Reference Voltage	V_{CTRL} = 2.75V, V_{PWR} = 2V, I_{LOAD} = 10mA	1.243	1.250	1.257	Volts
	V_{CTRL} = 2.7 to 12V, V_{PWR} = 1.75 to 5.5V, I_{LOAD} = 10mA to 7A [3]	1.232	1.250	1.263	Volts
Current Limit	V_{CTRL} = 2.75V, V_{PWR} = 2.05V, ΔV_{OUT} = 100mV	7.1	8		A
Line Regulation	V_{CTRL}=2.7 to 12V, V_{PWR}=1.75 to 5.5V, I_{LOAD}=10mA [3]	-	1	3	mV
Load Regulation	V_{CTRL} = 2.75V, V_{PWR} = 2.1V, I_{LOAD} = 10mA to 7A [3]	-	1	5	mV
Minimum Load Current [4]	V_{CTRL} = 5V, V_{PWR} = 3.3V [3]	-	5	10	mA
Adjust Pin Current	V_{CTRL} = 2.75V, V_{PWR} = 2.05V, I_{LOAD} = 10mA	-	50	120	µA
Control Pin Current [5]	V_{CTRL} = 2.75V, V_{PWR} = 2.05V, I_{LOAD} = 100mA	-	6	10	mA
	V_{CTRL} = 2.75V, V_{PWR} = 2.05V, I_{LOAD} = 4A	-	30	60	mA
	V_{CTRL} = 2.75V, V_{PWR} = 2.05V, I_{LOAD} = 7A	-	60	120	mA

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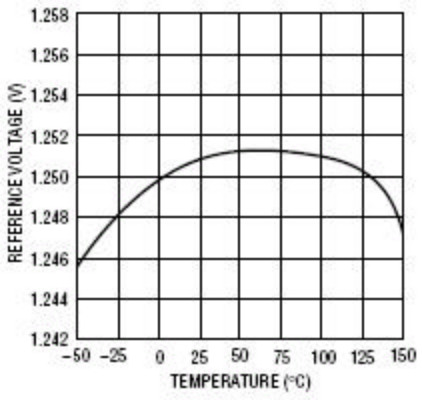
ELECTRICAL CHARACTERISTICS (continued) [1,2]

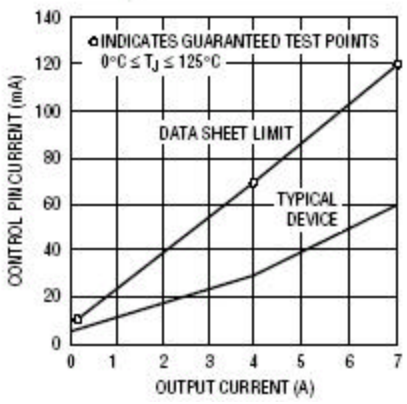
PARAMETER	CONDITIONS	MIN.	TYP	MAX.	UNITS
Ripple Rejection	V_{CTRL} = V_{PWR} = 3.75V (Avg), V_{RIPPLE} = 1V_{P-P}, f_{RIPPLE} = 120Hz, I_{LOAD} = 4A	60	80	-	dB
Thermal Regulation	V_{PWR} = 5V, I_{LOAD} = 7A, P_D > 20W, 30ms Pulse	-	-	0.02	%/W
Dropout Voltage	Dropout voltage is caused by either minimum control voltage or minimum power voltage. Both parameters are specified with respect to the output voltage. The specifications represent the minimum input/output voltage required to maintain 1% regulation.				
Minimum Control Voltage V_{CTRL} - V_{OUT}	V_{PWR} = 2.05V, I_{LOAD} = 100mA	-	1	1.15	V
	V_{PWR} = 2.05V, I_{LOAD} = 1A	-	1	1.15	V
	V_{PWR} = 2.05V, I_{LOAD} = 4A	-	1.06	1.2	V
	V_{PWR} = 2.05V, I_{LOAD} = 7A	-	1.15	1.3	V
Minimum Power Voltage V_{PWR} - V_{OUT}	V_{CTRL} = 2.75V, I_{LOAD} = 100mA [3]	-	0.10	0.17	V
	V_{CTRL} = 2.75V, I_{LOAD} = 1A [3]	-	0.15	0.22	V
	V_{CTRL} = 2.75V, I_{LOAD} = 4A [3]	-	0.34	0.50	V
	V_{CTRL} = 2.75V, I_{LOAD} = 7A	-	0.70	0.80	V

1 T_C = 25 °C Unless Otherwise Specified
2 V_{SENSE} = V_{OUT}, V_{ADJ} = 0V Unless Otherwise Specified
3 Denotes specifications which apply over the full operating temperature range
4 The minimum load current is required to maintain regulation. Normally the current in the resistor divider used to set the output voltage is selected to meet the minimum load current requirement
5 The control pin current is the drive current required for the output transistor. It is roughly 1% of the output current. The minimum value is equal to the quiescent current.

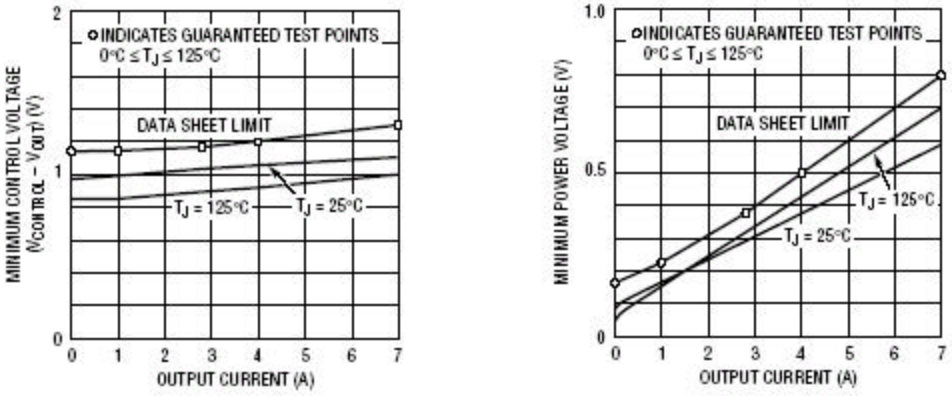
Typical Reference Voltage vs Temperature

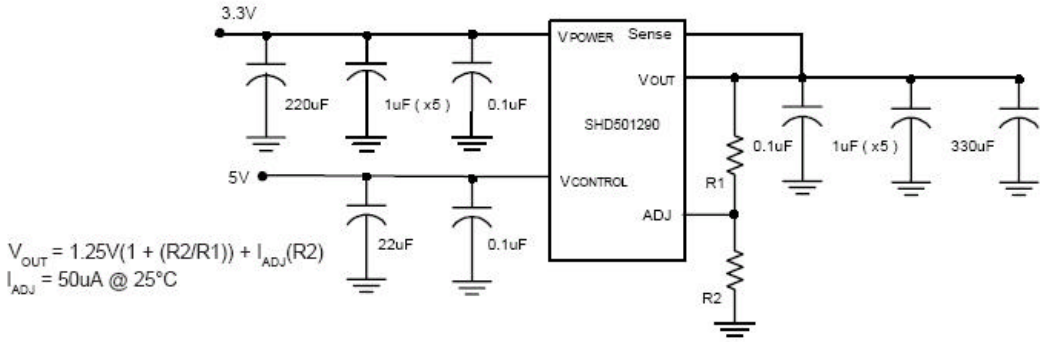


Typical Control Pin Current vs Output Current



Typical Minimum Control Voltage vs Output Current Typical Dropout (Minimum Power) Voltage vs Output Voltage





Typical Application

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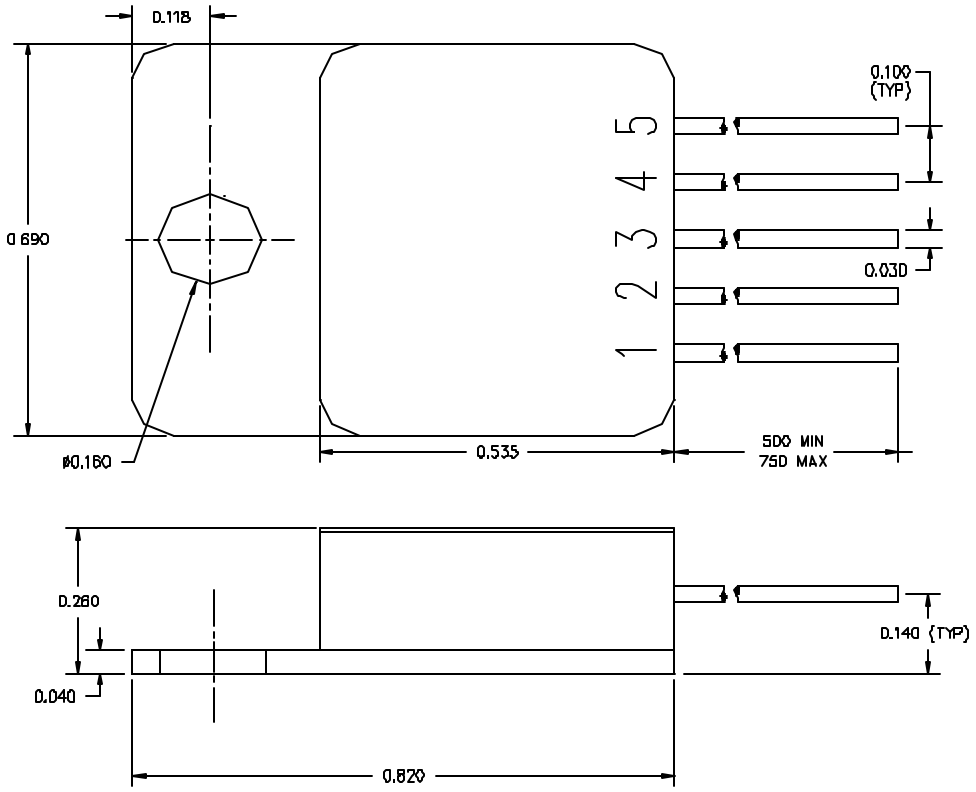
MECHANICAL DIMENSIONS
MO-078 5 Leads



PINOUT TABLE

PIN 1	PIN 2	PIN 3	PIN 4	PIN 5
OUT	SENSE	ADJ	POWER	CONTROL

TECHNICAL DATA

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