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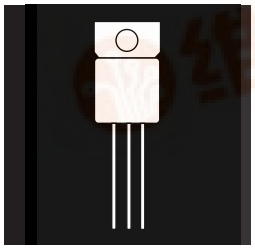
(COTS) COMMERCIAL OFF-THE-SHELF 1.5 AMP POSITIVE ADJUSTABLE VOLTAGE REGULATOR, HIGH VOLTAGE



Three Terminal, Precision Adjustable
Positive Voltage Regulator In TO-257 Package

FEATURES

- High Voltage / 60 Volt
- Built In Thermal Overload Protection
- Short Circuit Current Limiting

DESCRIPTION

These three terminal positive regulators are supplied in hermetically sealed packages. All protective features are designed into the circuit, including thermal shutdown, current-limiting, and safe-area control. With heat sinking, these devices can deliver up to 1.5 amps of output current. The unit also features output voltages that can be fixed from 1.2 volts to 57 volts using external resistors.

ABSOLUTE MAXIMUM RATINGS T_C @ 25°C

Power Dissipation
TO-257 . . . . . 20 W Input - Output Voltage Differential . . . . . 60 V Operating Junction Temperature Range . . . . . -55°C to + 150°C Storage Temperature Range . . . . . -65°C to + 150°C Lead Temperature (Soldering 10 seconds) . . . . . 300°C Thermal Resistance, Junction to Case . . . . . 4.2°C/W Maximum Output Current: . . . . . 1.5 A

Recommended Operating Conditions:

Output Voltage Range . . . . . 1.2 to 37 VDC

Ambient Operating Temperature Range (T_A). . . . . -55°C to + 125°C

Input Voltage Range . . . . . 4.25 to 41.25 VDC

3.3

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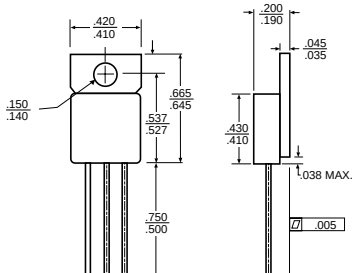
ELECTRICAL CHARACTERISTICS -55°C T_A 125°C, I_L = 8mA (unless otherwise specified)

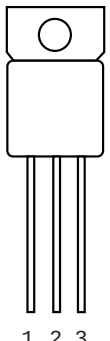
Parameter	Symbol	Test Conditions		Min.	Max.	Unit
Reference Voltage	V_{REF}	V_{DIFF} = 3.0V, T_A = 25°C		1.20	1.30	
		V_{DIFF} = 3.3V	•	1.20	1.30	V
		V_{DIFF} = 40V	•	1.20	1.30	
		V_{DIFF} = 60V	•	1.20	1.30	
Line Regulation	R_{LINE}	3.0V V_{DIFF} 40V, V_{out} = V_{ref}, T_A = 25°C		-9	9	
(Note 1)		3.3V V_{DIFF} 40V, V_{out} = V_{ref}	•	-23	23	mV
		40V V_{DIFF} 60V, V_{out} = V_{ref}, T_A = 25°C		-5	5	
		40V V_{DIFF} 60V, V_{out} = V_{ref}	•	-10	10	
Load Regulation	R_{LOAD}	V_{DIFF} = 3.0V, 10mA I_L 1.5A, T_A = 25°C		-15	15	
(Note 1)		V_{DIFF} = 3.3V, 10mA I_L 1.5A	•	-15	15	mV
		V_{DIFF} = 40V, 10mA I_L 300mA, T_A = 25°C		-15	15	
		V_{DIFF} = 40V, 10mA I_L 195mA	•	-15	15	
		V_{DIFF} = 60V, 10mA I_L 30mA	•	-15	15	
Thermal Regulation	V_{RTH}	V_{in} = 14.0V, I_L = 1.5A		-16	16	mV
		P_d = 20 Watts, t = 20 ms, T_A = 25°C				
Ripple Rejection	R_N	f = 120 Hz, V_{out} = V_{ref}	•	66		dB
(Note 2)		C_{Adj} = 10 µF, I_{out} = 100 mA				
Adjustment Pin Current	I_{Adj}	V_{DIFF} = 3.0V, T_A = 25°C			100	
		V_{DIFF} = 3.3V	•		100	µA
		V_{DIFF} = 40V	•		100	
		V_{DIFF} = 60V	•		100	
Adjustment Pin	I_{Adj}	V_{DIFF} = 3.0V, 10mA I_L 1.5A, T_A = 25°C		-5	5	
Current Change		V_{DIFF} = 3.3V, 10mA I_L 1.5A	•	-5	5	
		V_{DIFF} = 40V, 10mA I_L 300mA, T_A = 25°C		-5	5	
		V_{DIFF} = 40V, 10mA I_L 195mA	•	-5	5	µA
		3.0V V_{DIFF} 40V, T_A = 25°C		-5	5	
		3.3V V_{DIFF} 40V	•	-5	5	
		3.3V V_{DIFF} 60V	•	-5	5	
Miminum Load Current	I_{Lmin}	V_{DIFF} = 3.0V, V_{out} = 1.4V (forced)			5.0	
		V_{DIFF} = 3.3V, V_{out} = 1.4V (forced)	•		5.0	mA
		V_{DIFF} = 40V, V_{out} = 1.4V (forced)	•		5.0	
		V_{DIFF} = 60V, V_{out} = 1.4V (forced)	•		7.0	
Current Limit	I_{CL}	V_{DIFF} = 5V	•	1.5	3.5	
(Note 2)		V_{DIFF} = 40V, T_A = 25°C		0.3	1.5	A
		V_{DIFF} = 60V, T_A = 25°C		0.05	0.50	

Notes:
1. Load and Line Regulation are specified at a constant junction temperature. Pulse testing with low duty cycle is used. Changes in output voltage due to heating effects must be taken into account separately.
2. If not tested, shall be guaranteed to the specified limits.
3. The • denotes the specifications which apply over the full operating temperature range.

MECHANICAL OUTLINE
TO-257AA



PIN CONNECTION



Front View
Pin 1: Adjust
Pin 2: Output
Pin 3: Input
Tab: Isolated