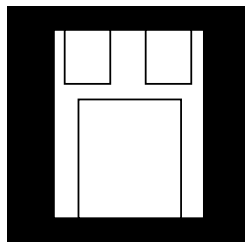


# SURFACE MOUNT NEGATIVE ADJUSTABLE VOLTAGE REGULATOR



**Three Terminal, Adjustable Voltage, 1.0 Amp Precision Negative Regulator In A Hermetic Surface Mount Package**

## FEATURES

- Surface Mount Hermetic Package
- Adjustable Output Voltage
- Built-In Thermal Overload Protection
- Short Circuit Current Limiting
- Product Is Available Hi-Rel Screened
- Electrically Similar To Industry Standard Type LM137

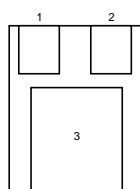
## DESCRIPTION

This three terminal negative regulator is supplied in a hermetically sealed surface mount package. All protective features are designed into the circuit, including thermal shutdown, current limiting and safe-area control. With heat sinking, they can deliver over 1.5 amp of output current. This unit features output voltages that can be trimmed using external resistors, from -1.2 volts to -37 volts.

## ABSOLUTE MAXIMUM RATINGS

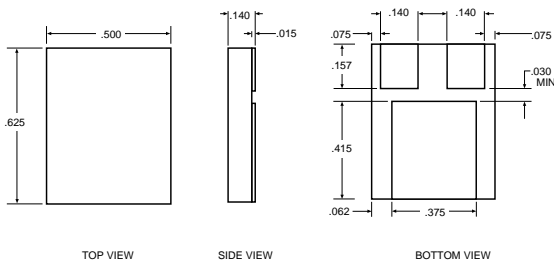
Input to Output Voltage Differential .....	40 V
Operating Junction Temperature Range .....	- 55°C to + 150°C
Storage Temperature Range .....	- 55°C to + 150°C
Typical Power/Thermal Characteristics:	
Rated Power @ 25°C	
$T_C$ .....	17.5W
$T_A$ .....	3W
Thermal Resistance:	
$\theta_{JC}$ .....	3.5°C/W
$\theta_{JA}$ .....	42°C/W
Lead Temperature at Case (5 sec) .....	225°C

## PIN CONNECTION



Pin 1: Adjust  
Pin 2:  $V_{OUT}$   
Pin 3:  $V_{IN}$

## MECHANICAL OUTLINE



3.5

**ELECTRICAL CHARACTERISTICS**  $-55^{\circ}\text{C} \leq T_A \leq 125^{\circ}\text{C}$ ,  $I_L = 8\text{mA}$  (unless otherwise specified)

Parameter	Symbol	Test Conditions	Min.	Max.	Unit
Reference Voltage	$V_{REF}$	$ V_{DIFF}  = 3.0\text{V}$ , $T_A = 25^{\circ}\text{C}$	-1.275	-1.225	V
		$ V_{DIFF}  = 3.0\text{V}$	• -1.30	-1.20	
		$ V_{DIFF}  = 40\text{V}$ , $T_A = 25^{\circ}\text{C}$	-1.275	-1.225	
		$ V_{DIFF}  = 40\text{V}$	• -1.30	-1.20	
Line Regulation (Note 1)	$R_{LINE}$	$3.0\text{V} \leq  V_{DIFF}  \leq 40\text{V}$ , $T_A = 25^{\circ}\text{C}$	-9	9	mV
		$3.0\text{V} \leq  V_{DIFF}  \leq 40\text{V}$	• -23	23	
Load Regulation (Note 1)	$R_{LOAD}$	$ V_{DIFF}  = 5.0\text{V}$ , $8\text{mA}$ , $I_L = 1.5\text{A}$	• -25	25	mV
		$ V_{DIFF}  = 12\text{V}$ , $8\text{mA}$ , $I_L = 1.5\text{A}$ , $T_A = 25^{\circ}\text{C}$	-25	25	
		$ V_{DIFF}  = 40\text{V}$ , $8\text{mA}$ , $I_L = 200\text{mA}$ , $T_A = 25^{\circ}\text{C}$	-25	25	
		$ V_{DIFF}  = 40\text{V}$ , $8\text{mA}$ , $I_L = 100\text{mA}$	• -25	25	
Thermal Regulation	$V_{RTH}$	$V_{in} = -14.6\text{V}$ , $I_L = 1.5\text{A}$ $P_d = 20\text{ Watts}$ , $t = 20\text{ ms}$ , $T_A = 25^{\circ}\text{C}$	-5	5	mV
Ripple Rejection (Note 2)	$R_N$	$f = 120\text{ Hz}$ , $V_{out} = V_{ref}$ $C_{Adj} = 10\text{ }\mu\text{F}$	• 66		dB
Adjustment Pin Current	$I_{Adj}$	$ V_{DIFF}  = 3.0\text{V}$	•	100	$\mu\text{A}$
		$ V_{DIFF}  = 40\text{V}$	•	100	
Adjustment Pin Current Change	$I_{Adj}(\text{Line})$	$3.0\text{V} \leq  V_{DIFF}  \leq 40\text{V}$	• -5	5	$\mu\text{A}$
	$I_{Adj}(\text{Load})$	$ V_{DIFF}  = 5\text{V}$ , $8\text{mA}$ , $I_L = 1.5\text{A}$	• -5	5	$\mu\text{A}$
Minimum Load Current	$I_{Lmin}$	$ V_{DIFF}  = 3.0\text{V}$ , $V_{out} = -1.4\text{V}$ (forced)	•	3.0	mA
		$ V_{DIFF}  = 10\text{V}$ , $V_{out} = -1.4\text{V}$ (forced)	•	3.0	
		$ V_{DIFF}  = 40\text{V}$ , $V_{out} = -1.4\text{V}$ (forced)	•	5.0	
Current Limit (Note 2)	$I_{CL}$	$ V_{DIFF}  = 5\text{V}$	• 1.5	3.5	A
		$ V_{DIFF}  = 40\text{V}$ , $T_A = 25^{\circ}\text{C}$	0.24	1.2	

**Notes:**

- 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.
- If not tested, shall be guaranteed to the specified limits.
- The • denotes the specifications which apply over the full operating temperature range.