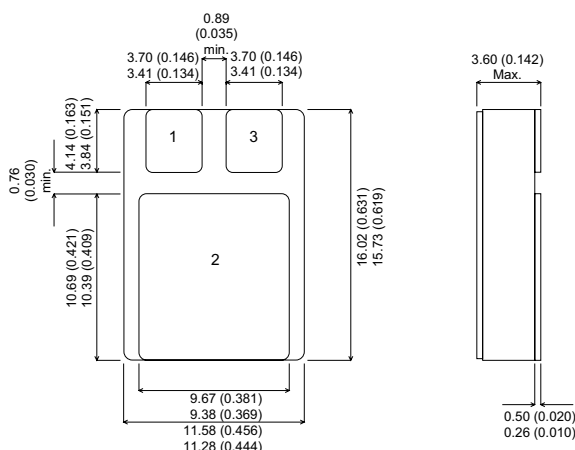
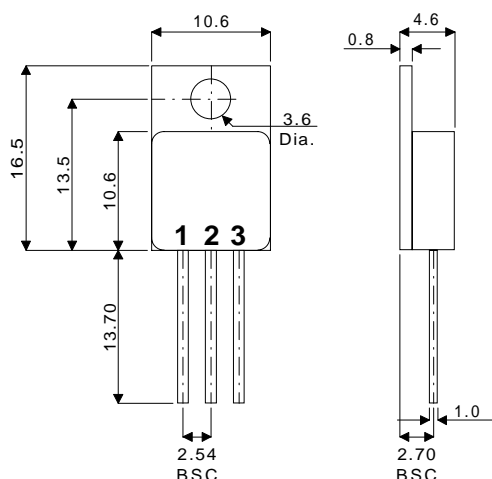


**MECHANICAL DATA**

Dimensions in mm

**NEGATIVE  
VOLTAGE REGULATOR  
TO 220 M**



PIN 1 - Ground      PIN 2 - Input      PIN 3 - Output

**TO220M**      -TO220 Metal Package - Isolated  
**SMD1**        - Ceramic Surface Mount Package

**FEATURES**

- HERMETIC TO220 METAL OR CERAMIC SURFACE MOUNT PACKAGES
- SCREENING OPTIONS AVAILABLE
- ALL LEADS ISOLATED FROM CASE (METAL PACKAGE)
- OUTPUT CURRENT UP TO 1.5A
- OUTPUT VOLTAGES OF -5, -12, -15, -24V
- THERMAL OVERLOAD PROTECTION
- SHORT CIRCUIT PROTECTION
- OUTPUT TRANSISTOR SOA PROTECTION
- 1% VOLTAGE TOLERANCE OPTION

**ABSOLUTE MAXIMUM RATINGS** ( $T_{case} = 25^{\circ}C$  unless otherwise stated)

$V_I$	DC input voltage	(for $V_O = -5$ to $-15V$ ) (for $V_O = -24V$ )	-35V -40V
$I_O$	Output current		Internally limited
$P_D$	Power dissipation		Internally limited
$T_j$	Junction temperature		150°C
$T_{stg}$	Storage temperature		-65 to 150°C

**ELECTRICAL CHARACTERISTICS** ( $T_{case} = 25^{\circ}C$  unless stated)

OUTPUT VOLTAGE		-5	-12	-15	-24									
INPUT VOLTAGE (unless otherwise specified)		-10	-19	-23	-33									
Parameter	Test Conditions	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Unit
$V_O$ Output Voltage	$T_j = 25^{\circ}C$	-4.8	-5	-5.2	-11.5	-12	-12.5	-14.4	-15	-15.6	-23	-24	-25	V
	$I_O = 5mA$ to 1A $P_O \leq 15W$	-4.75	-5	-5.25	-11.4	-12	-12.6	-14.3	-15	-15.7	-22.8	-24	-25.2	
$\Delta V_O$ Line Regulation	$T_j = 25^{\circ}C$			100			240			300			480	mV
		$(V_I = -7$ to $-25V)$			50			120			150			
$\Delta V_O$ Load Regulation	$T_j = 25^{\circ}C$ $I_O = 5mA$ to 1.5A $I_O = 250$ to 750 mA			100			240			300			480	mV
		$(V_I = -8$ to $-12V)$			50			120			150			
$I_d$ Quiescent Current	$T_j = 25^{\circ}C$			2			3			3			3	mA
$\Delta I_d$ Quiescent Current Change	$I_O = 5mA$ to 1A			0.5			0.5			0.5			0.5	mA
		$(V_I = -8$ to $-25V)$			1.3			1			1			
$\frac{\Delta V_O}{\Delta T}$ Output Voltage Drift	$I_O = 5mA$			-0.4			-0.8			-0.9			-1	mV / $^{\circ}C$
$e_N$ Output Noise Voltage	$T_j = 25^{\circ}C$ $B = 10Hz$ to 100kHz			100			200			250			400	$\mu V$
SVR Supply Voltage Rejection	$f = 100Hz$ $\Delta V_O = 100mV$	54	60		54	60		54	60		54	60		dB
$V_d$ Dropout Voltage	$T_j = 25^{\circ}C$ $I_O = 1A$ $\Delta V_O = 100mV$			2			1.1			1.1			1.1	V
$I_{sc}$ Short Circuit Current	$T_j = 25^{\circ}C$ $V_I = 35V$			2.1			1.5			1.3			1.1	mA
$I_{scp}$ Short Circuit Peak Current	$T_j = 25^{\circ}C$			2.5			2.5			2.2			2.2	A

**THERMAL DATA** (for TO220M and SMD1)

$R_{THj-case}$	Thermal Resistance Junction – Case	Max. $3^{\circ}C / W$
$R_{THj-amb}$	Thermal Resistance Junction – Ambient	Max. $50^{\circ}C / W$