Features

- 1.3V maximum dropout at full load current
- Fixed 1.2V± 2% output voltage
- Fast transient response
- Output current limiting
- Built-in thermal shutdown
- Good noise rejection
- Packages: SOT223, TO263, TO252, TO220, SOT89

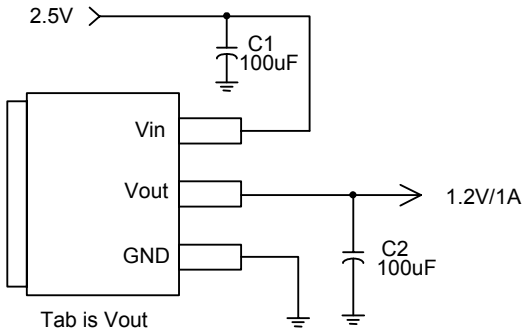
General Description

AP1122 is a low dropout positive fixed-mode regulator with 1A output current capability. The product is specifically designed to provide well-regulated supply for low voltage IC applications such as high-speed bus termination and low current 1.2V logic supply. AP1122 is also well suited for other applications such as VGA cards. AP1122 is guaranteed to have lower than 1.3V dropout at full load current making it ideal to provide well-regulated outputs of 1.2 output voltage with 2.5V input voltage supply.

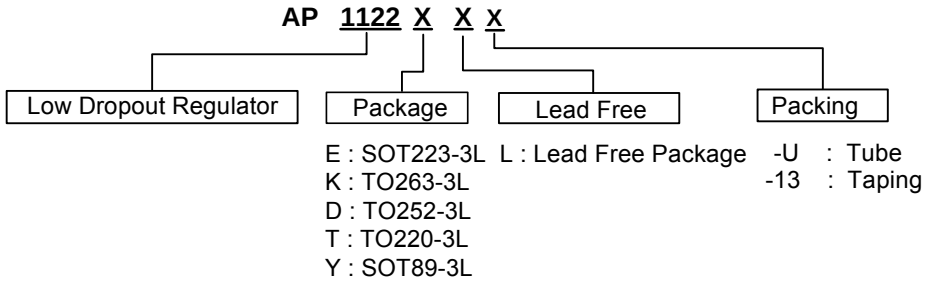
Applications

- PC peripheral
- Communication

Typical Circuit

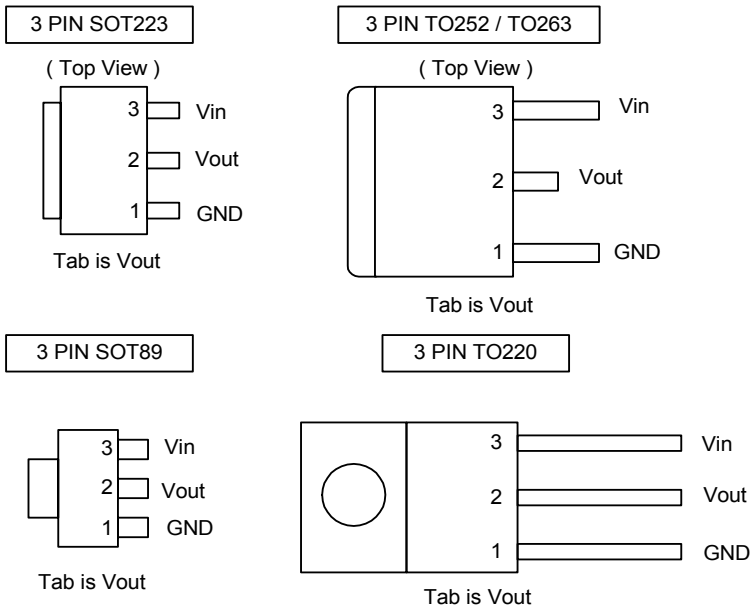


Ordering Information

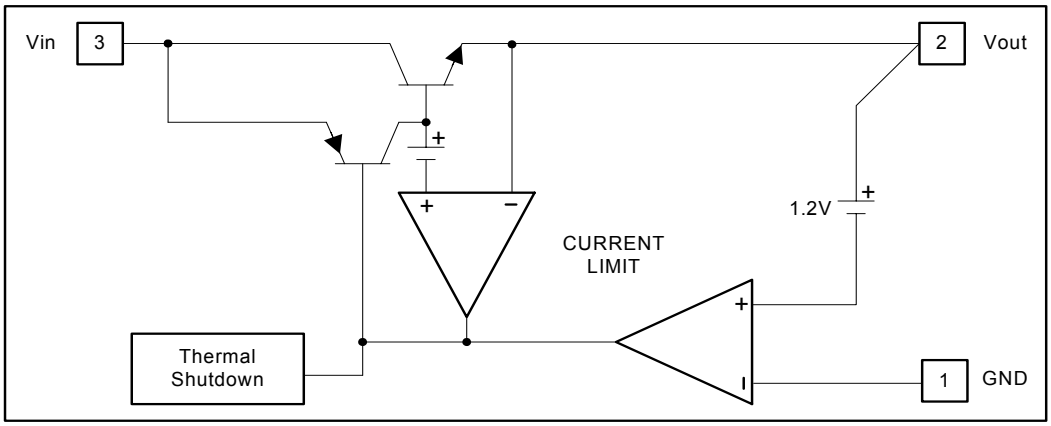


Device	Package Code	Packaging (Note 1)	Tube/Bulk		13" Tape and Reel	
			Quantity	Part Number Suffix	Quantity	Part Number Suffix
AP1122E	E	SOT223-3L	75	-U	2500/Tape & Reel	-13
AP1122K	K	TO263-3L	50	-U	800/Tape & Reel	-13
AP1122D	D	TO252-3L	80	-U	2500/Tape & Reel	-13
AP1122T	T	TO220-3L	50	-U	—	—
AP1122Y	Y	SOT89-3L	—	—	2500/Tape & Reel	-13

Connection Diagram



Block Diagram



Pin Descriptions

NAME	I/O	PIN #	FUNCTION
GND	I	1	Ground Pin
Vout	O	2	The output of the regulator. A minimum of 10uF capacitor (0.15Ω ≤ ESR ≤ 20Ω) must be connected from this pin to ground to insure stability.
Vin	I	3	The input pin of regulator. Typically a large storage capacitor (0.15Ω ≤ ESR ≤ 20Ω) is connected from this pin to ground to insure that the input voltage does not sag below the minimum dropout voltage during the load transient response. This pin must always be 1.3V higher than Vout in order for the device to regulate properly.

Absolute Maximum Ratings

Symbol	Parameter	Rating	Unit
Vin	DC Supply Voltage	-0.3 to 12	V
P_D	Power Dissipation	Internally Limited	
T_{ST}	Storage Temperature	-65 to +150	°C
T_{OP}	Operating Junction Temperature Range	0 to +150	°C

Electrical Characteristics (Under Operating Conditions)

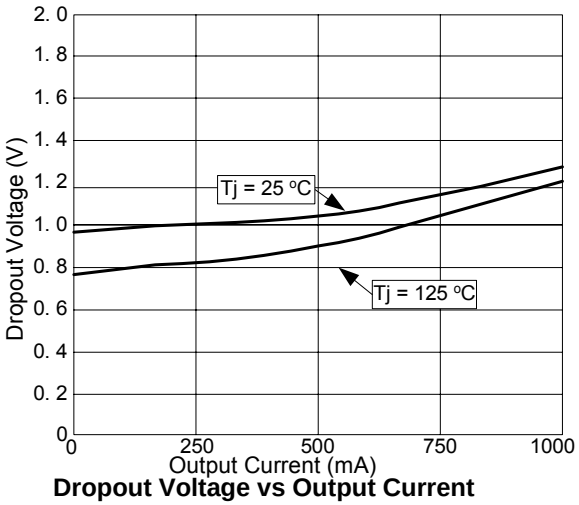
PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	2.5V≦VIN≦12V, T_A=25°C	1.176	1.2	1.224	V
Line Regulation	I_O=10mA, 2.5V<V_{IN}<12V, T_A=25°C			0.2	%
Load Regulation	V_{IN}=2.5V~12V,Vadj=0,0mA<Io<1A, T_A=25°C (Note 1,2)			1	%
Dropout Voltage (V_{IN}-V_{OUT})	I_{OUT} = 1A ,ΔV_{OUT}=0.1%V_{OUT}		1.3	1.4	V
Current Limit	(V_{IN}-V_{OUT}) = 5V	1. 1			A
Minimum Load Current(Note 3)	0°C≦Tj≦125°C		5	10	mA
Thermal Regulation	T_A=25°C, 30ms pulse		0.008	0.04	%/W
Ripple Rejection	F=120Hz,C_{OUT}=25uF Tantalum, I_{OUT}=1A, V_{IN}=V_{OUT}+3V		60	70	dB
Temperature Stability	I_O=10mA		0.5		%
θ_{JA} Thermal Resistance Junction-to-Ambient (No heat sink ;No air flow)	SOT89 SOT-223 TO-252 TO-220/263		300 117 92 85		°C/W
θ_{JC} Thermal Resistance Junction-to-Case	SOT89 : Control Circuitry/Power Transistor SOT-223 : Control Circuitry/Power Transistor TO-263 : Control Circuitry/Power Transistor TO-252 : Control Circuitry/Power Transistor TO-220 : Control Circuitry/Power Transistor		100 15 0.65/2.7 10 0.65/2.7		°C/W

Note1: See thermal regulation specifications for changes in output voltage due to heating effects. Line and load regulation are measured at a constant junction temperature by low duty cycle pulse testing. Load regulation is measured at the output lead = 1/18" from the package.

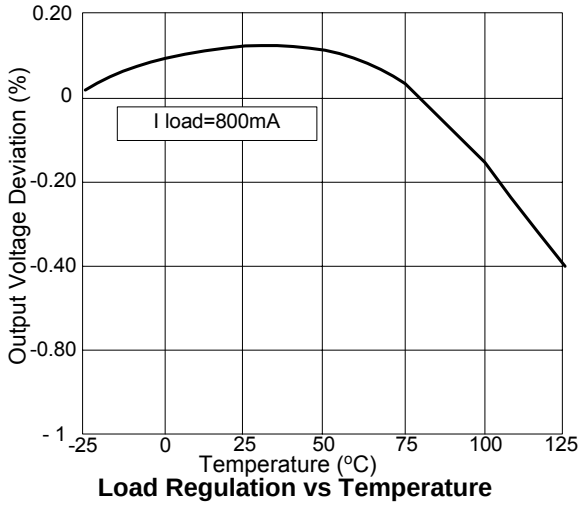
Note2: Line and load regulation are guaranteed up to the maximum power dissipation of 15W. Power dissipation is determined by the difference between input and output differential and the output current. Guaranteed maximum power dissipation will not be available over the full input/output range.

Note3: Quiescent current is defined as the minimum output current required in maintaining regulation. At 12V input/output differential the device is guaranteed to regulate if the output current is greater than 10mA.

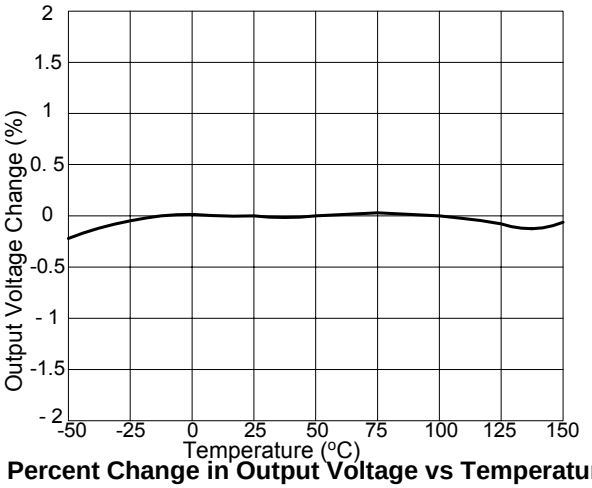
Typical Performance Characteristics



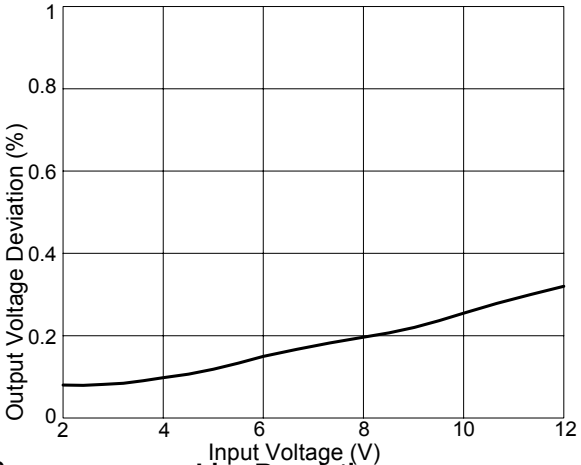
Dropout Voltage vs Output Current



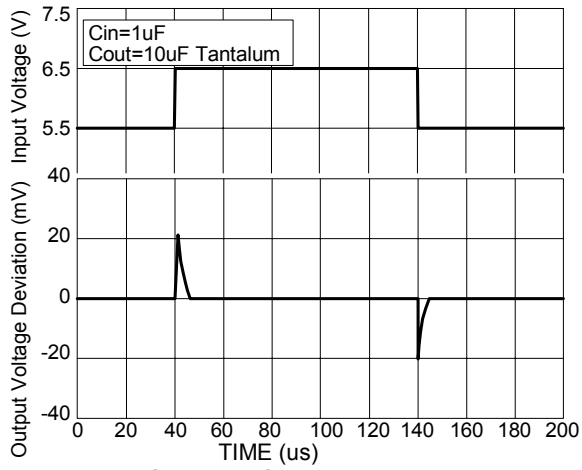
Load Regulation vs Temperature



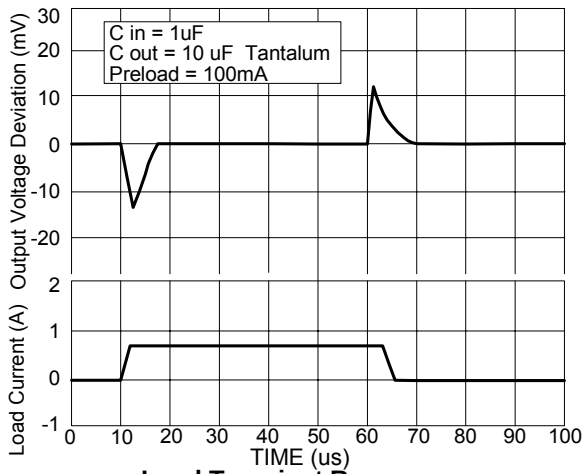
Percent Change in Output Voltage vs Temperature



Line Regulation



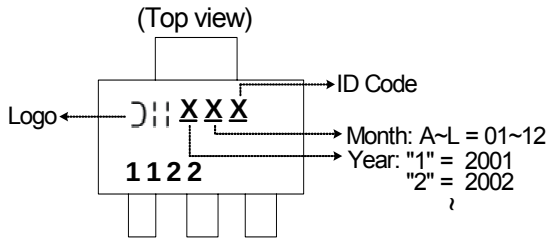
Line Transient Response



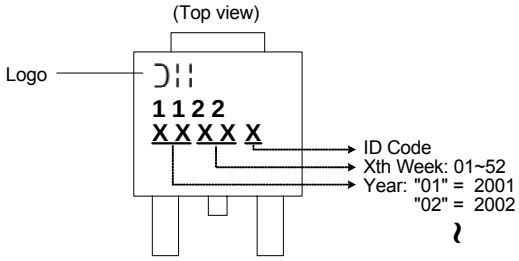
Load Transient Response

Marking Information

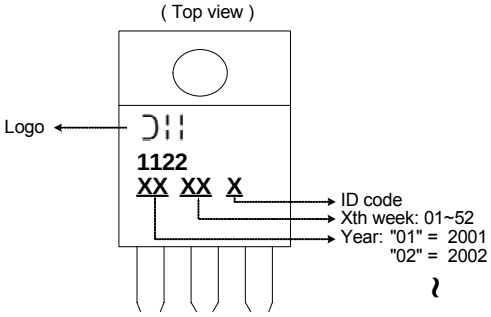
(1) SOT223-3L



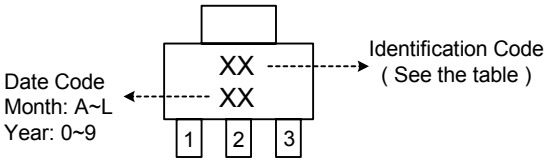
(2) TS252-3L



(3) TO220-3L

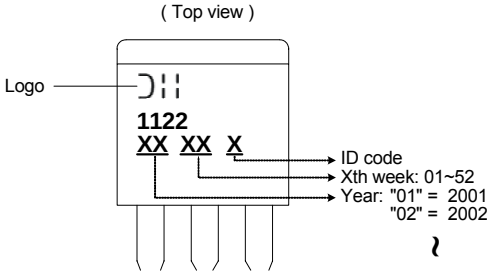


(4) SOT89-3L



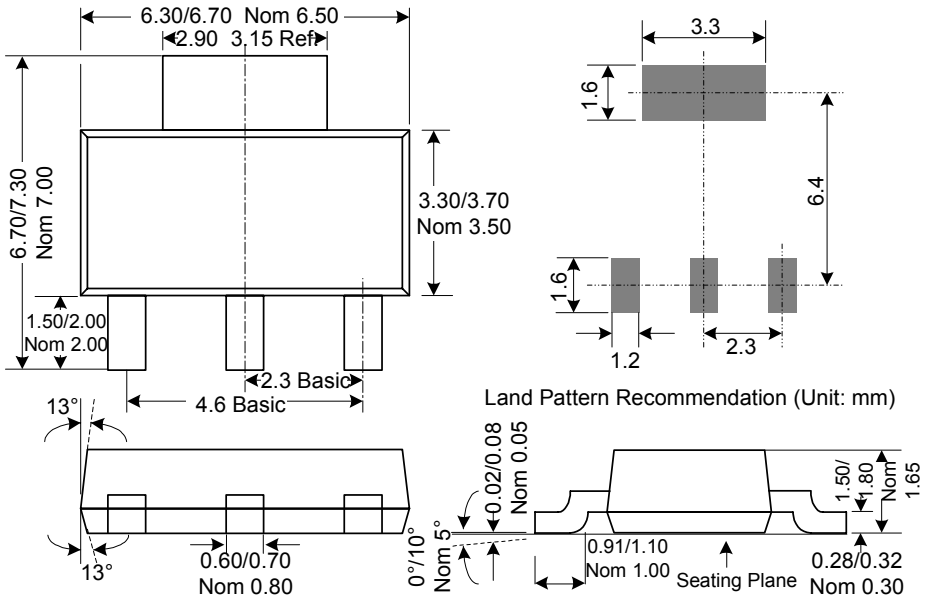
Identification code	Output version
JB	AP1122

(5) TO263-3L

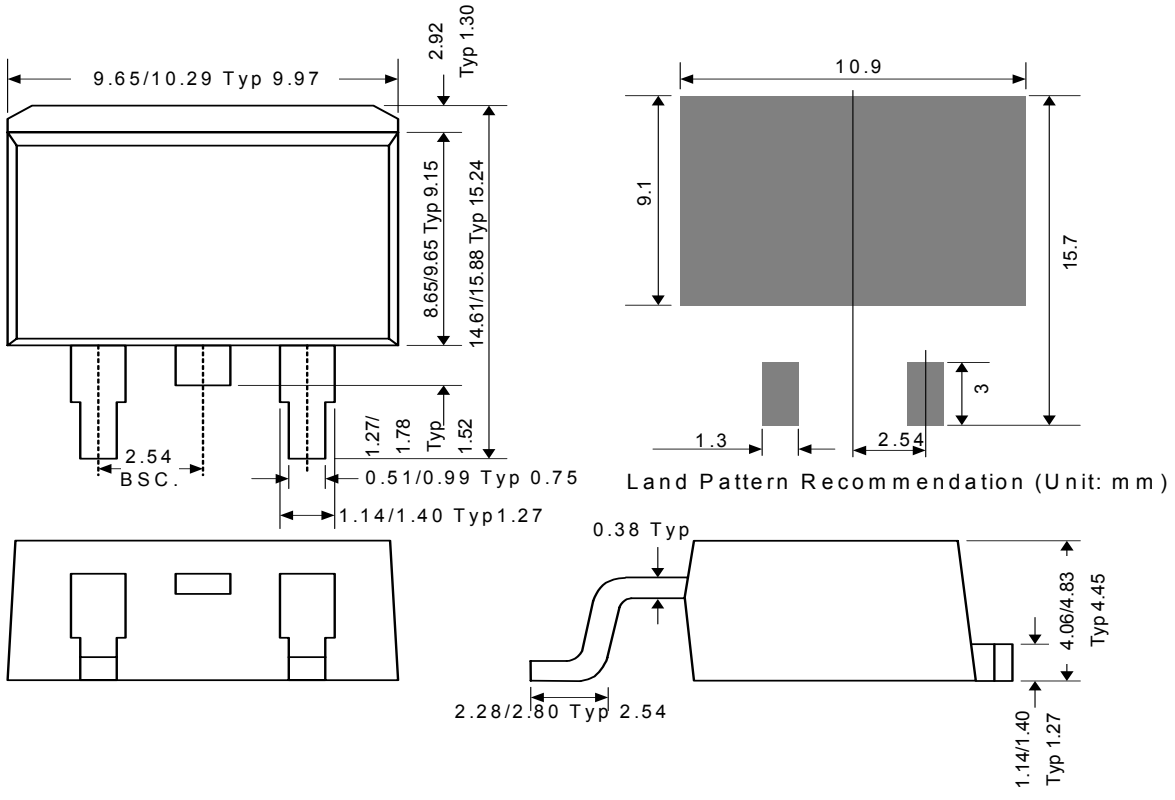


Package Information

(1) SOT223

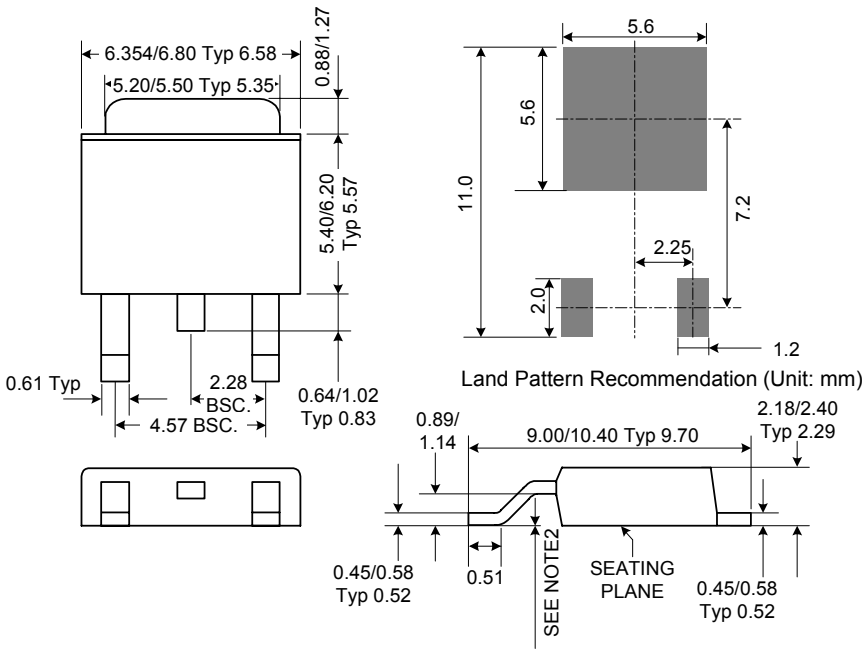


(2) TO263



Package Information (Continued)

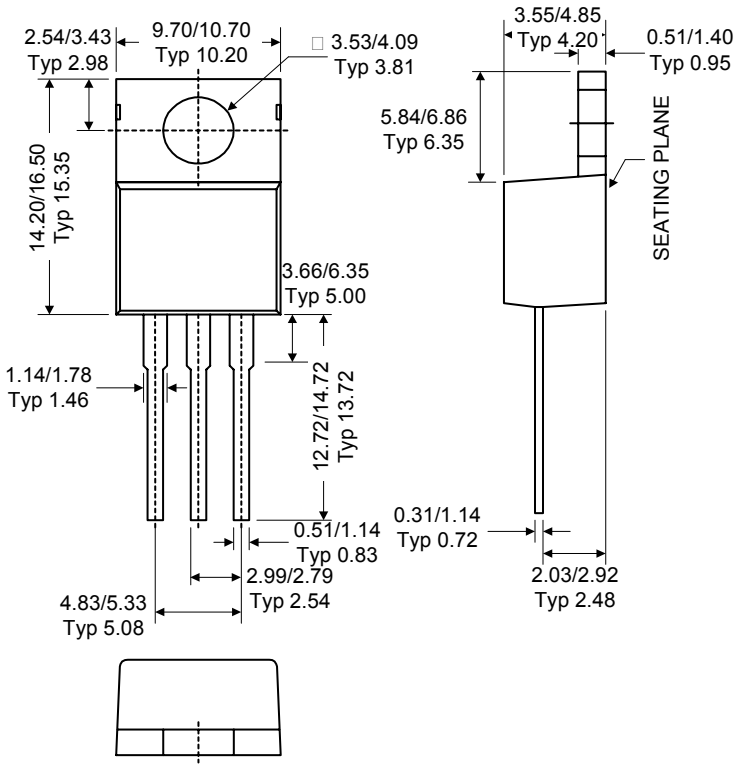
(3) TO252



Notes:

1. JEDEC Outline: TO-252 AB
   Mils suggested for positive contact at mounting.

(4) TO220



Package Information (Continued)

(5) SOT89