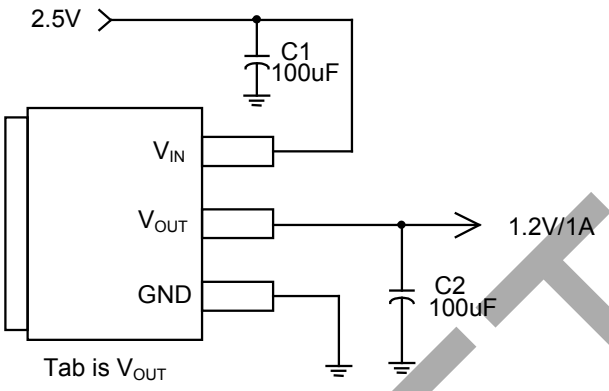
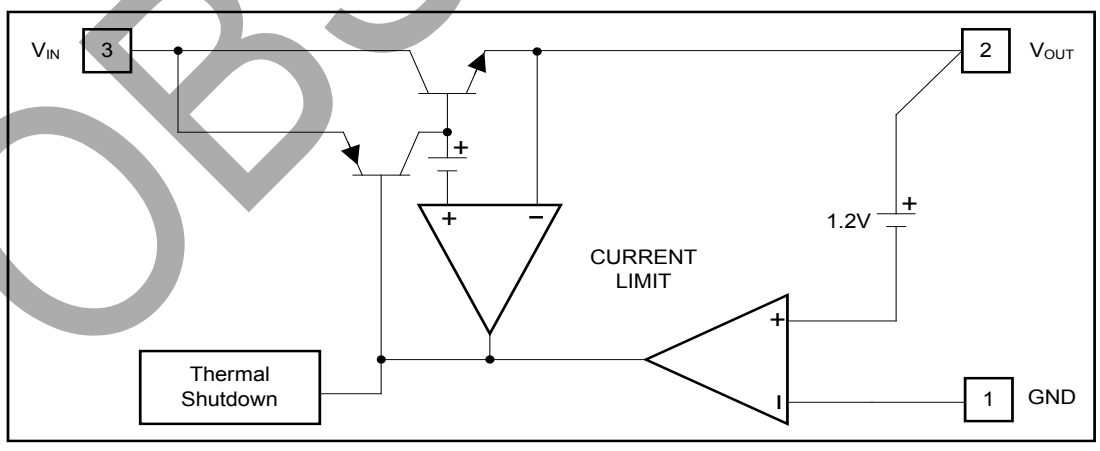
Typical Application Circuit



Pin Descriptions

Pin Name	I/O	Pin #	Description
GND	I	1	Ground Pin
V_{OUT}	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.
V_{IN}	I	3	The input pin of regulator. Typically a large storage capacitor 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.

Functional Block Diagram



Absolute Maximum Ratings

Symbol	Parameter	Rating	Unit
V_{IN}	DC Supply Voltage	-0.3 to 12	V
T_{ST}	Storage Temperature	-65 to +150	°C
T_{MJ}	Maximum Junction Temperature	150	°C

Recommended Operating Conditions

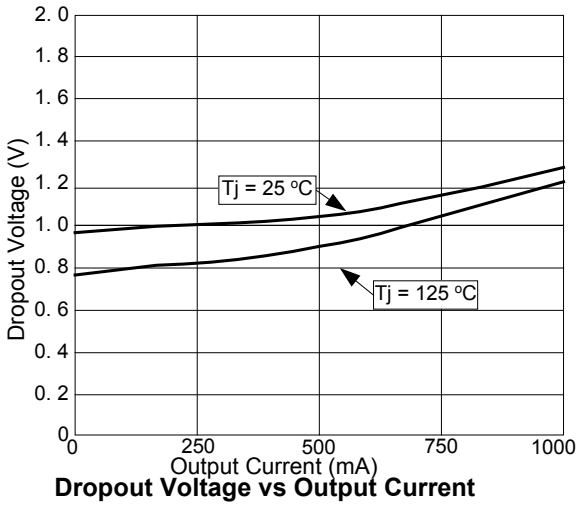
Symbol	Parameter	Min	Max	Unit
I_{OUT}	Output Current	-	1.0	A
T_{OP}	Operating Junction Temperature Range	0	125	°C

Electrical Characteristics (Under Operating Conditions)

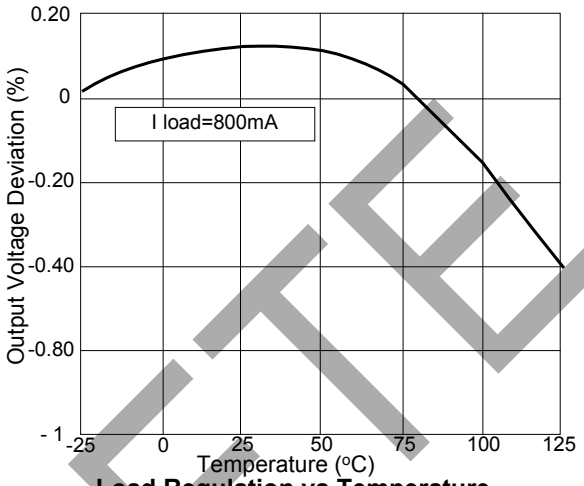
Parameter	Test Conditions	Min	Typ.	Max	Unit
Output Voltage	$2.5V \leqq V_{IN} \leqq 12V$, I_O=10mA, T_A=25°C	1.176	1.2	1.224	V
Line Regulation	$2.5V \leqq V_{IN} \leqq 12V$, I_O=10mA, T_A=25°C			0.2	%
Load Regulation	V_{IN}=2.5V~12V, 10mA<Io<1A, T_A=25°C (Note 2, 3)			1	%
Dropout Voltage (V_{IN}-V_{OUT})	I_{OUT} = 1A ,ΔV_{OUT} = 1%V_{OUT}			1.3	V
Current Limit	(V_{IN}-V_{OUT}) = 5V	1. 1			A
Minimum Load Current (Note 4)	$0°C \leqq T_J \leqq 125°C$		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	SOT89-3L: Control Circuitry/Power Transistor (Note 5) SOT223-3L: Control Circuitry/Power Transistor (Note 6) TO252-3L: Control Circuitry/Power Transistor (Note 5) TO220-3L: Control Circuitry/Power Transistor (Note 5) TO263-3L: Control Circuitry/Power Transistor (Note 5)		182 107 73 78 60		°C/W
θ_{JC} Thermal Resistance Junction-to-Case	SOT89-3L: Control Circuitry/Power Transistor (Note 5) SOT223-3L: Control Circuitry/Power Transistor (Note 6) TO252-3L: Control Circuitry/Power Transistor (Note 5) TO220-3L: Control Circuitry/Power Transistor (Note 5) TO263-3L: Control Circuitry/Power Transistor (Note 5)		42 16 12 3.5 3.5		°C/W

Notes:
2. 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.
3. 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.
4. 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.
5. Test conditions for SOT89-3L, TO252-3L, TO220-3L, and TO263-3L: Devices mounted on FR-4 substrate, single sided PC board, 2oz copper, with minimum recommended pad layout, no air flow.
6. Test condition for SOT223-3L: Device mounted on FR-4 substrate, single sided PC board, 2oz copper, with 5mmX5mm thermal pad layout, no air flow.

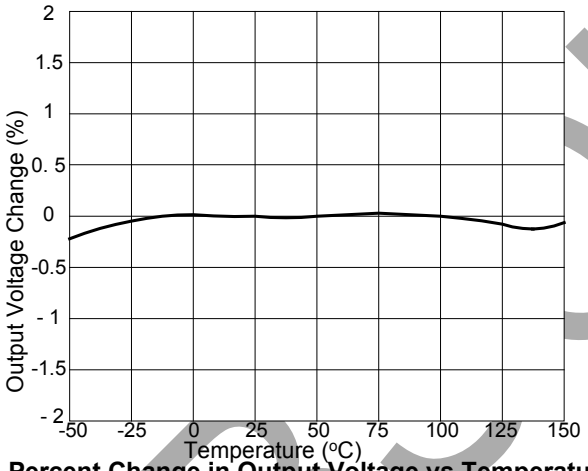
Typical Performance Characteristics



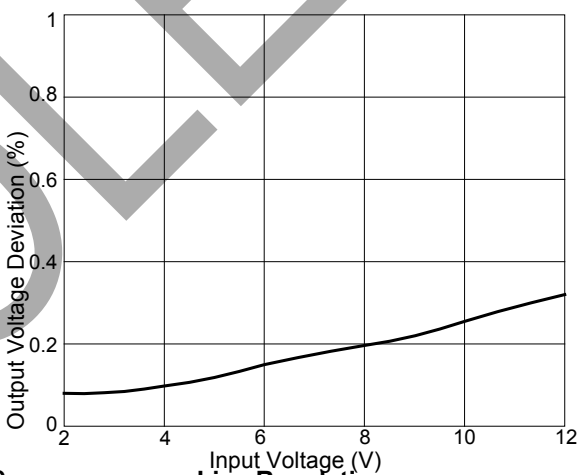
Dropout Voltage vs Output Current



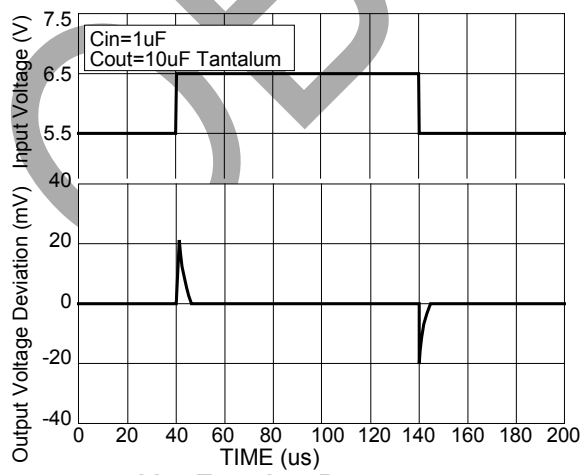
Load Regulation vs Temperature



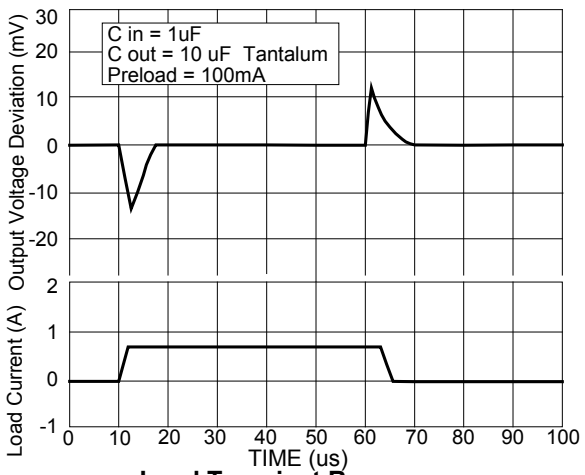
Percent Change in Output Voltage vs Temperature



Line Regulation

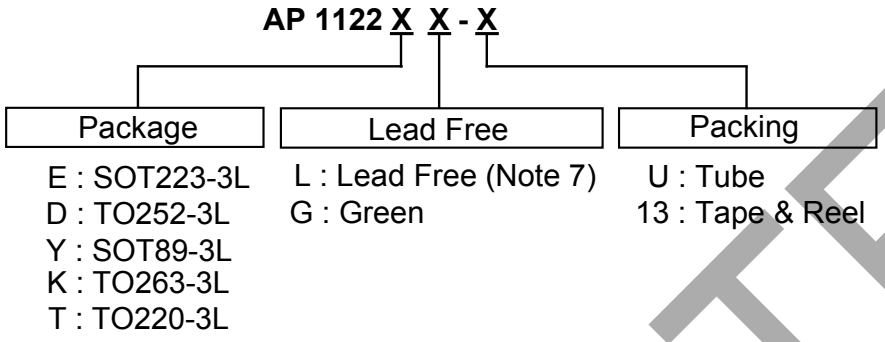


Line Transient Response



Load Transient Response

Ordering Information

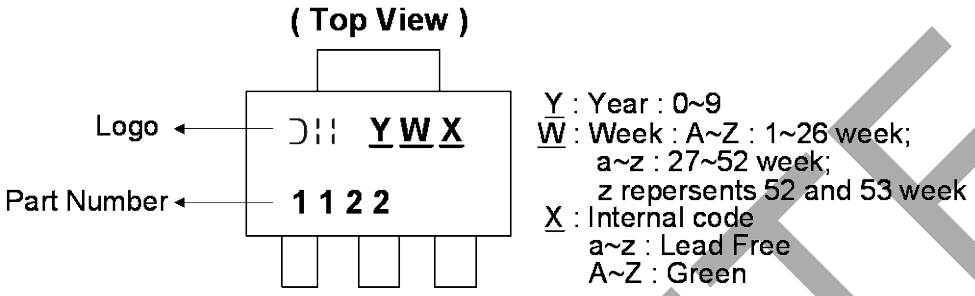


Device	Package Code	Packaging (Note 8)	Tube		13" Tape and Reel	
			Quantity	Part Number Suffix	Quantity	Part Number Suffix
AP1122EL-13	E	SOT223-3L	NA	NA	2500/Tape & Reel	-13
AP1122EG-13	E	SOT223-3L	NA	NA	2500/Tape & Reel	-13
AP1122DL-13	D	TO252-3L	NA	NA	2500/Tape & Reel	-13
AP1122DG-13	D	TO252-3L	NA	NA	2500/Tape & Reel	-13
AP1122YL-13	Y	SOT89-3L	NA	NA	2500/Tape & Reel	-13
AP1122YG-13	Y	SOT89-3L	NA	NA	2500/Tape & Reel	-13
AP1122KL-13	K	TO263-3L	NA	NA	800/Tape & Reel	-13
AP1122TL-U	T	TO220-3L	50	-U	NA	NA

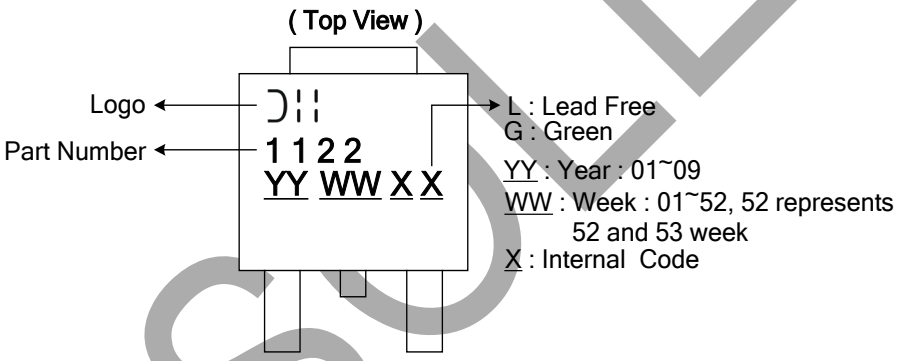
Notes: 7. TO263-3L and TO220-3L are available in "Lead Free" products only.
8. Pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at http://www.diodes.com/datasheets/ap02001.pdf

Marking Information

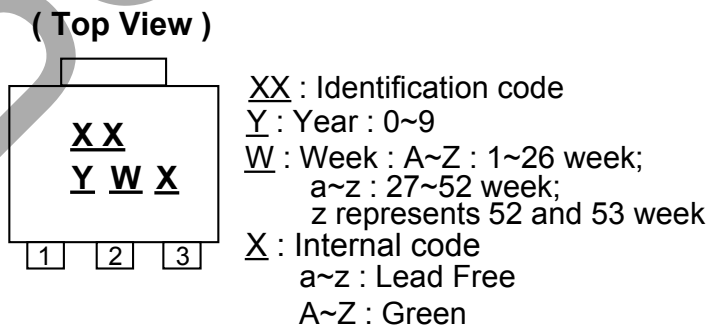
(1) SOT223-3L



(2) TO252-3L



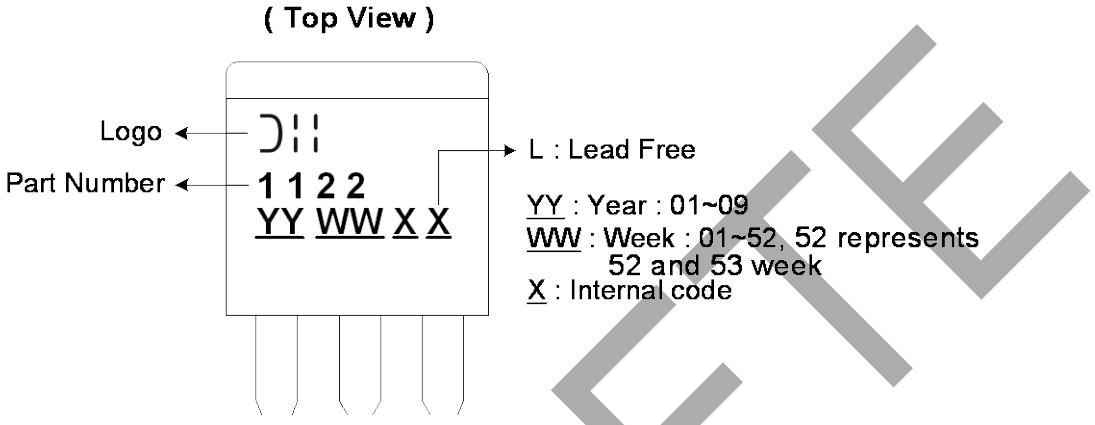
(3) SOT89-3L



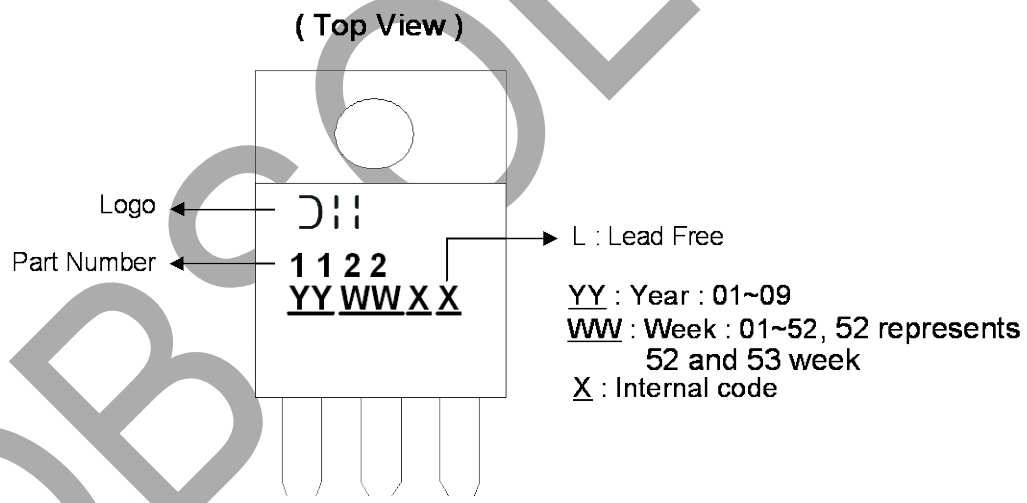
Part Number	Package	Identification Code
AP1122	SOT89-3L	JB

Marking Information (Continued)

(4) TO263-3L

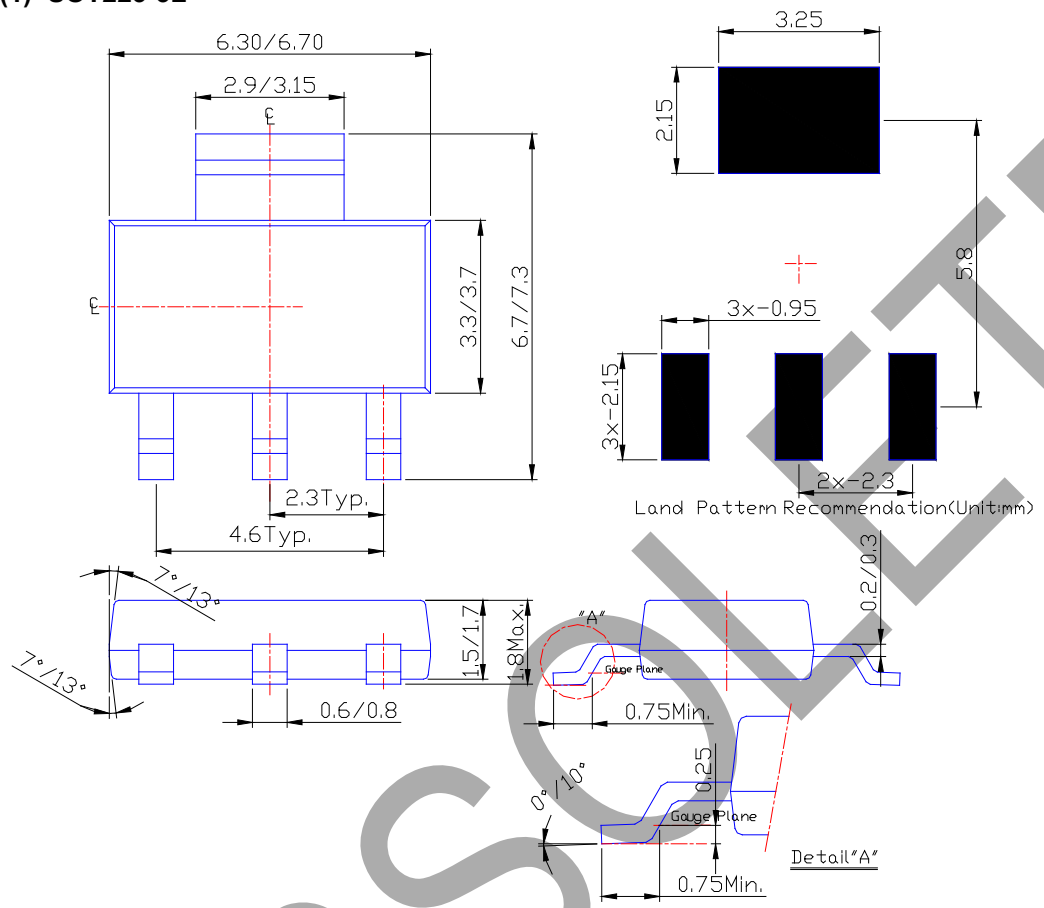


(5) TO220-3L



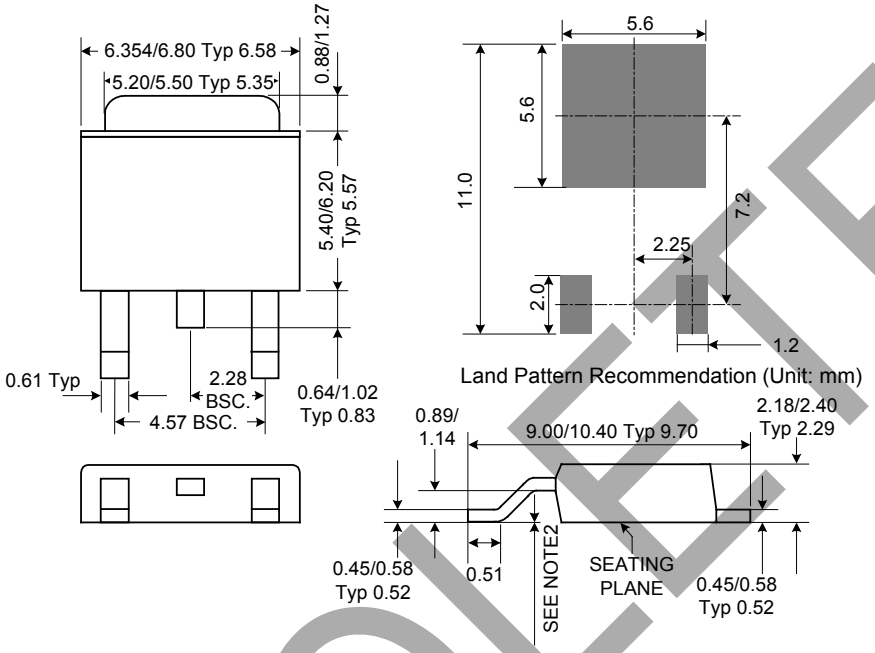
Package Outline Dimensions (All Dimensions in mm)

(1) SOT223-3L

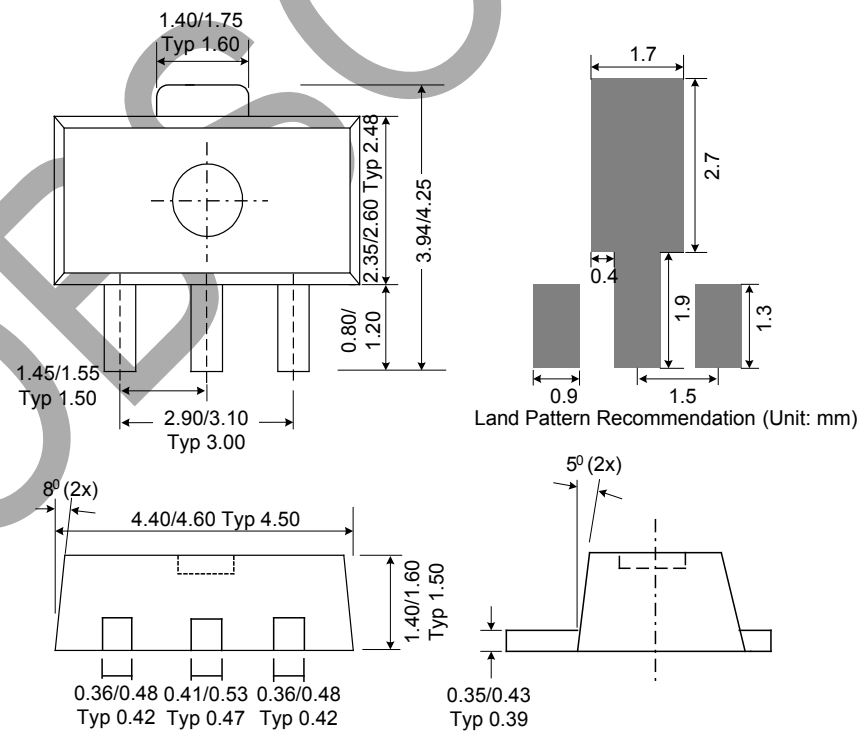


Package Outline Dimensions (Continued)

(2) TO252-3L

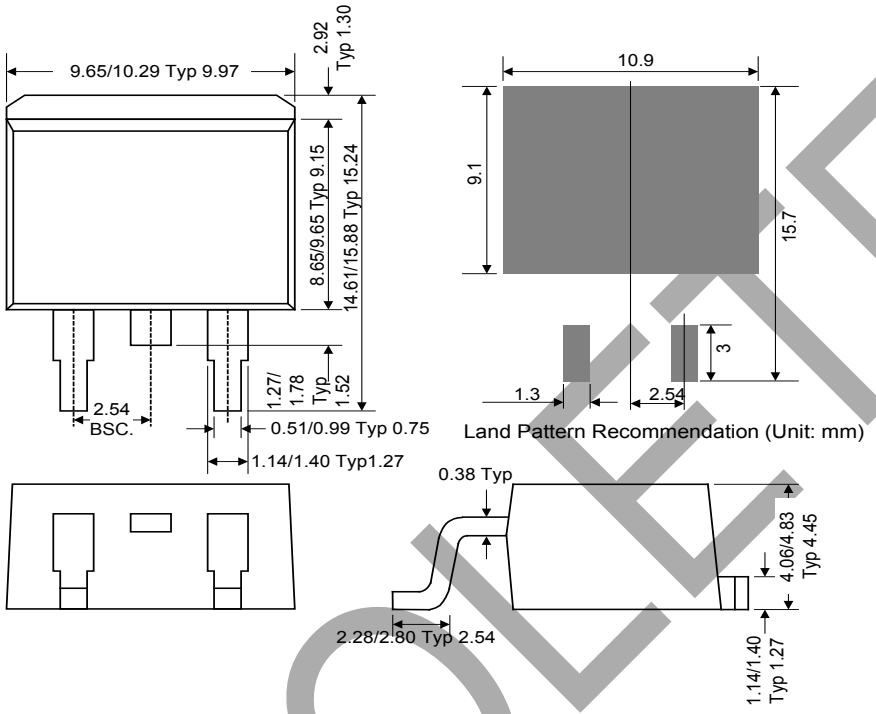


(3) SOT89-3L

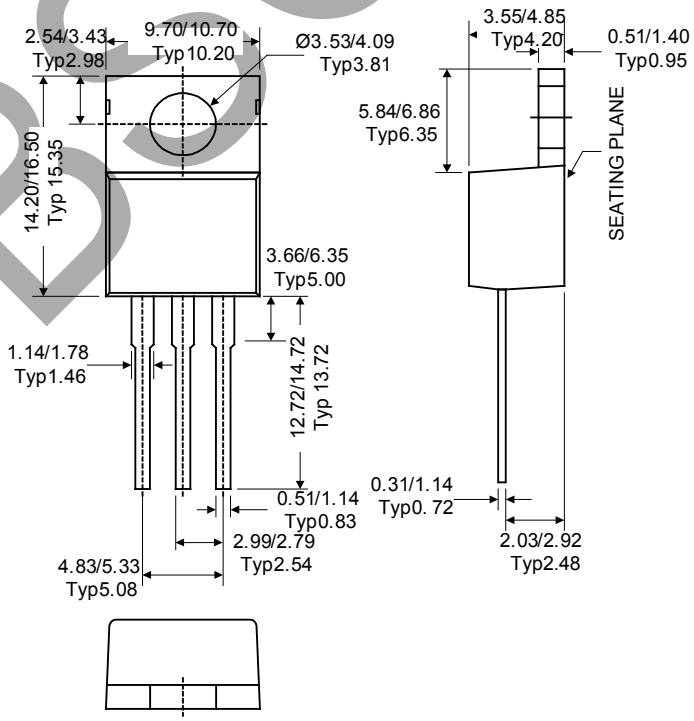


Package Outline Dimensions (Continued)

(4) TO263-3L



(5) TO220-3L



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