

1A Low Dropout Positive Voltage Regulator

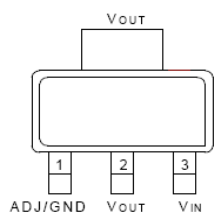
◆ Description

The ET1117 series of positive adjustable and fixed regulators are designed to provide 1A with high efficiency. All internal circuitry is designed to operate down to 1.4V input to output differential. On-chip trimming adjusts the reference voltage to 1%. Current limit the typical value of 1.5A allow to minimize the stress on both the regulator and the power source circuitry under overload conditions.

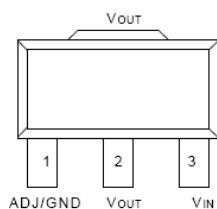
◆ Features

- Adjustable or Fixed output.
- Output Current of 1A.
- Low Dropout, 1.3V typical at 1A Output Current.
- 0.04% Line Regulation.
- 0.2% Load Regulation.
- 100% Thermal Limit Burn-In.
- Fast Transient Response.

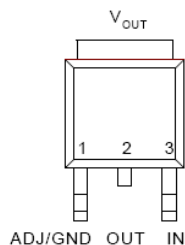
◆ Pin Description



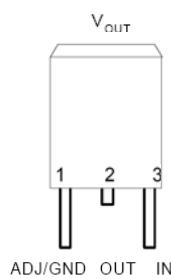
SOT-223 (Front View)



SOT-89 (Front View)



TO-252 (Top View)



TO-263 (Top View)

◆ Applications

- High Efficiency Linear Regulators.
- Post Regulators for Switching Supplies.
- Adjustable Power Supply

◆ Ordering Information

Part Number	Package	Packing
ET1117VI-XX	SOT-223	Reel
ET1117DI-XX	SOT-89	Reel
ET1117UI-XX	TO-252	Reel
ET1117GI-XX	TO-263	Reel

XX	Output	XX	Output
Blank	Adj.	30	3.0V
15	1.5V	33	3.3V
18	1.8V	35	3.5V
25	2.5V	50	5.0V
28	2.85V		

◆ Absolute Maximum Ratings

Symbol	Parameter	Value	Unit
V_{IN}	Input Voltage	20	V
$V_{IN}-V_{OUT}$	Voltage Difference	10	V
T_J	Operating Junction Temperature Range	-40 to 125	°C
T_{STG}	Storage Temperature	-65 to 150	°C
T_{LEAD}	Lead Temperature (Soldering, 10 sec.)	300	°C
V_{ESD}	Minimum ESD Rating (HBM)	2	KV

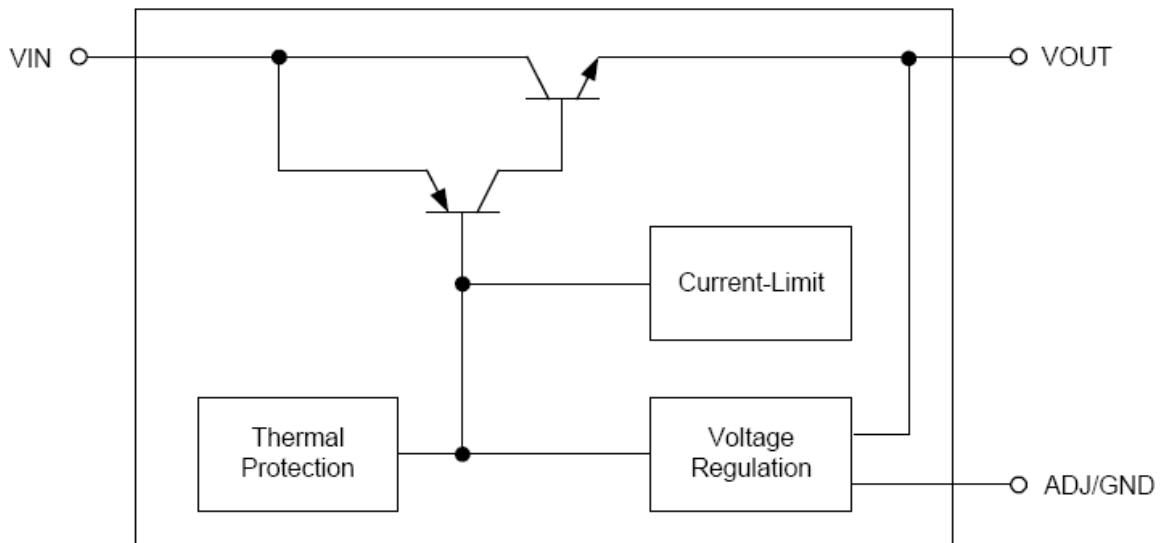
◆ Thermal Characteristics

Symbol	Parameter	Package	Typical Value	Unit
θ_{JA}	Thermal Resistance From Junction to Ambient in Free Air. (Measured with the component mounted on a high effective thermal conductivity test board in free air.)	SOT-223	70	°C/W
		TO-252	55	
		TO-263	50	

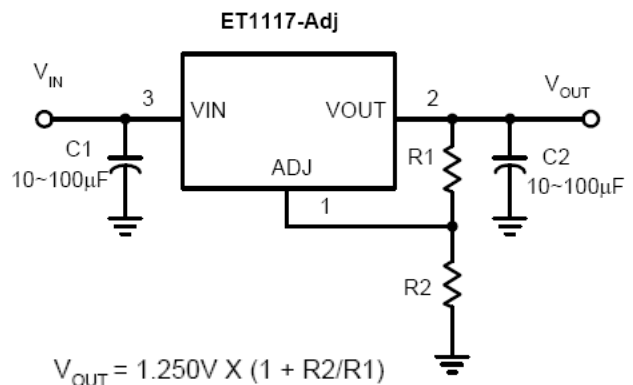
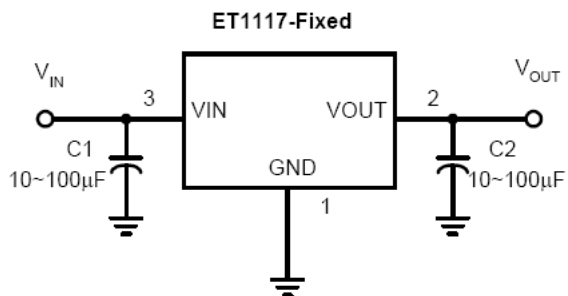
◆ Electrical Characteristics ($T_a=25\text{ }^\circ\text{C}$, $V_{KA}=V_{REF}$, $I_K=10\text{mA}$ unless otherwise noted.)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
V_{REF}	Reference Voltage	$V_{IN}=5\text{V}$, $I_{LOAD}=10\text{mA}$	1.232	1.25	1.268	V
		$V_{IN}=2.65\text{V}$ to 13V , $V_{IN}-V_{OUT}\leq 10\text{V}$, $I_{LOAD}=10\text{mA}$ to 1A	1.225	1.25	1.275	V
V_{OUT}	Output Voltage (All fixed versions)	$V_{IN}=V_{OUT}+1.5\text{V}$, Variator from nominal V_{OUT}	-1.5	-	+1.5	%
V_D	Dropout Voltage	$I_{LOAD}=1\text{A}$	-	1.3	1.4	V
REG_{LINE}	Line Regulation	$I_{LOAD}=10\text{mA}$, $1.5\text{V}\leq V_{IN}-V_{OUT}\leq 10\text{V}$	-	0.04	0.2	%
REG_{LOAD}	Load Regulation	$V_{IN}=V_{OUT}+1.5\text{V}$, $I_{LOAD}=10\text{mA}$ to 1A	-	0.2	0.4	%
I_O	Minimum Load Current	$V_{IN}=5\text{V}$, $V_{ADJ}=0\text{V}$	-	2	7	mA
I_Q	Quiescent Current	$V_{IN}=V_{OUT}+1.5\text{V}$, $I_{LOAD}=10\text{mA}$ to 1A	-	3.5	10	mA
I_{Adj}	Adjust Pin Current	$1.5\text{V}\leq V_{IN}-V_{OUT}\leq 10\text{V}$, $I_{LOAD}=10\text{mA}$	-	35	60	uA
I_{LIMIT}	Current Limit	$V_{IN}-V_{OUT}=1.5\text{V}$	1	1.5	2	A
PSRR	Ripple Rejection	$V_{IN}-V_{OUT}=1.5\text{V}$, $I_{LOAD}=1\text{A}$	60	-	-	dB

◆ Block Diagram

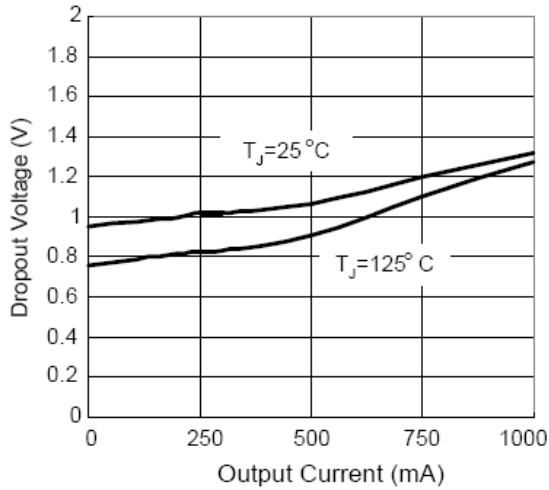
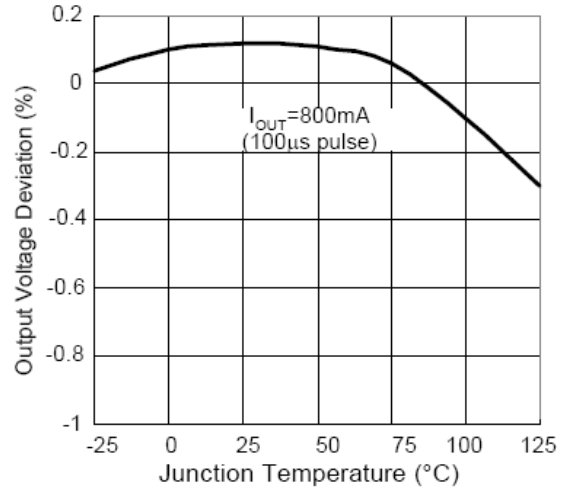
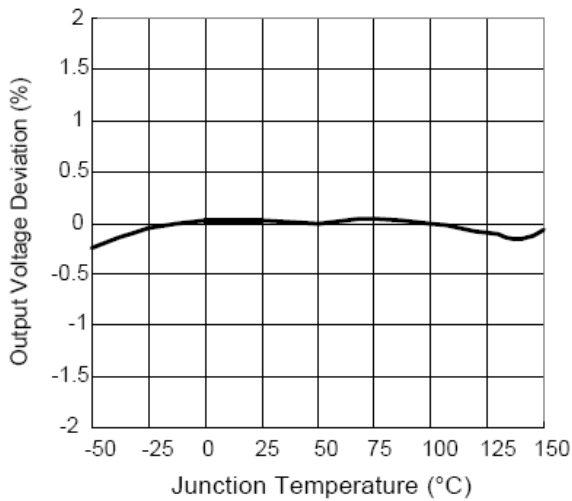
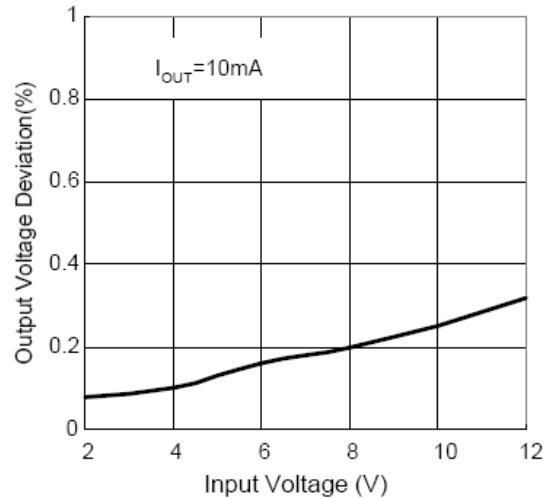
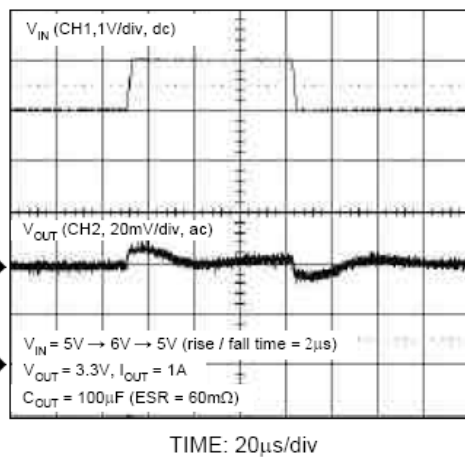
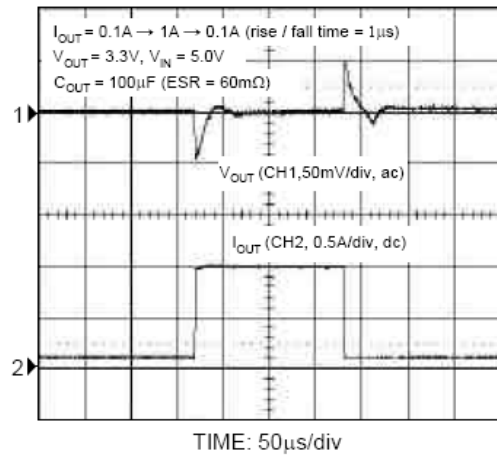


◆ Typical Application Circuits



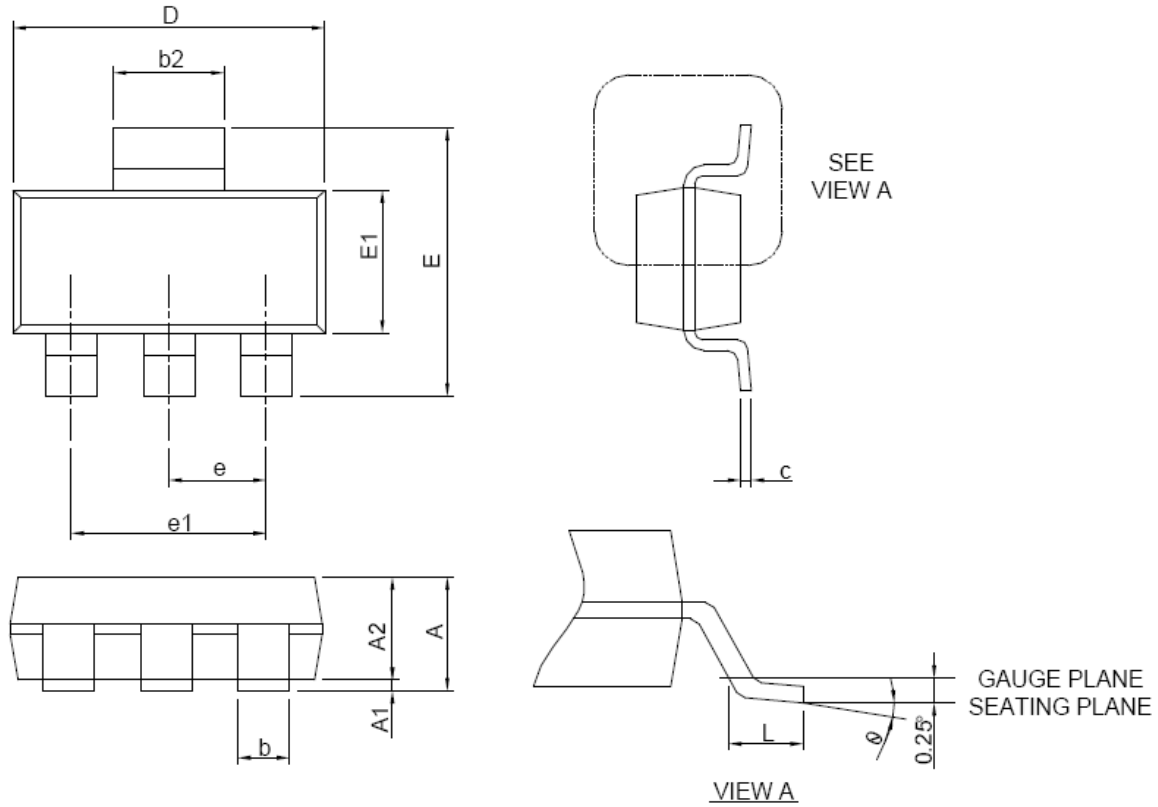
$$V_{OUT} = 1.250V \times (1 + R2/R1)$$

$V_{REF} / R2$ must be greater than 10mA

◆ Typical Characteristics
Dropout Voltage vs. Output Current

Load Regulation vs. Junction Temperature

Output Voltage vs. Junction Temperature

Line Regulation

Line Transient Response

Load Transient Response


◆ Package Information

SOT-223

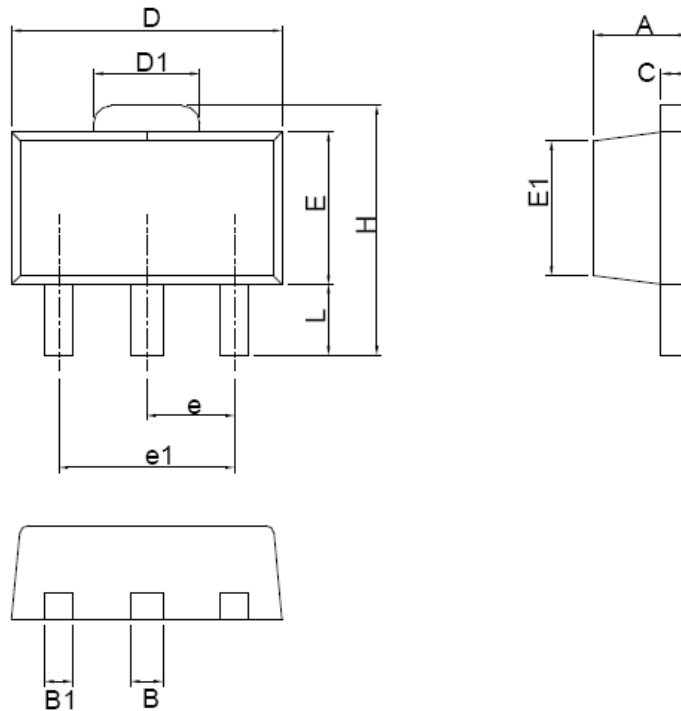


Symbol	SOT-223			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A		1.80		0.071
A1	0.02	0.10	0.001	0.004
A2	1.50	1.70	0.059	0.067
b	0.66	0.84	0.026	0.033
b2	2.90	3.10	0.114	0.122
c	0.23	0.33	0.009	0.013
D	6.30	6.70	0.248	0.264
E	6.70	7.30	0.264	0.287
E1	3.30	3.70	0.130	0.146
e	2.30 BSC		0.091 BSC	
e1	4.60 BSC		0.181 BSC	
L	0.75		0.030	
θ	0°	10°	0°	10°

- Note : 1. Follow from JEDEC TO-261 AA.
 2. Dimension D and E1 are determined at the outermost extremes of the plastic exclusive of mold flash, tie bar burrs, gate burrs, and interlead flash, but including any mismatch between the top and bottom of the plastic body.

◆ Package Information

SOT-89

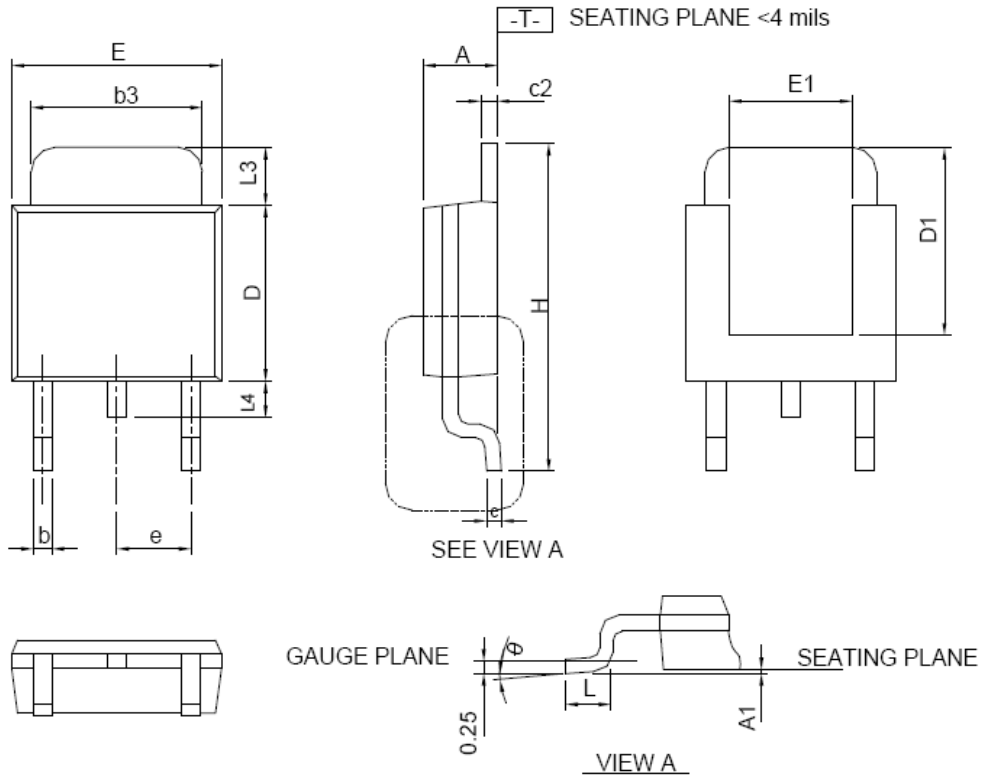


SYMBOL	SOT-89			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	1.40	1.60	0.055	0.063
B	0.44	0.56	0.017	0.022
B1	0.36	0.48	0.014	0.019
C	0.35	0.44	0.014	0.017
D	4.40	4.60	0.173	0.181
D1	1.62	1.83	0.064	0.072
E	2.29	2.60	0.090	0.102
E1	2.13	2.29	0.084	0.090
e	1.50 BSC		0.059 BSC	
e1	3.00 BSC		0.118 BSC	
H	3.94	4.25	0.155	0.167
L	0.89	1.20	0.035	0.047

Note : Follow from JEDEC TO-243 AA.

◆ Package Information

TO-252

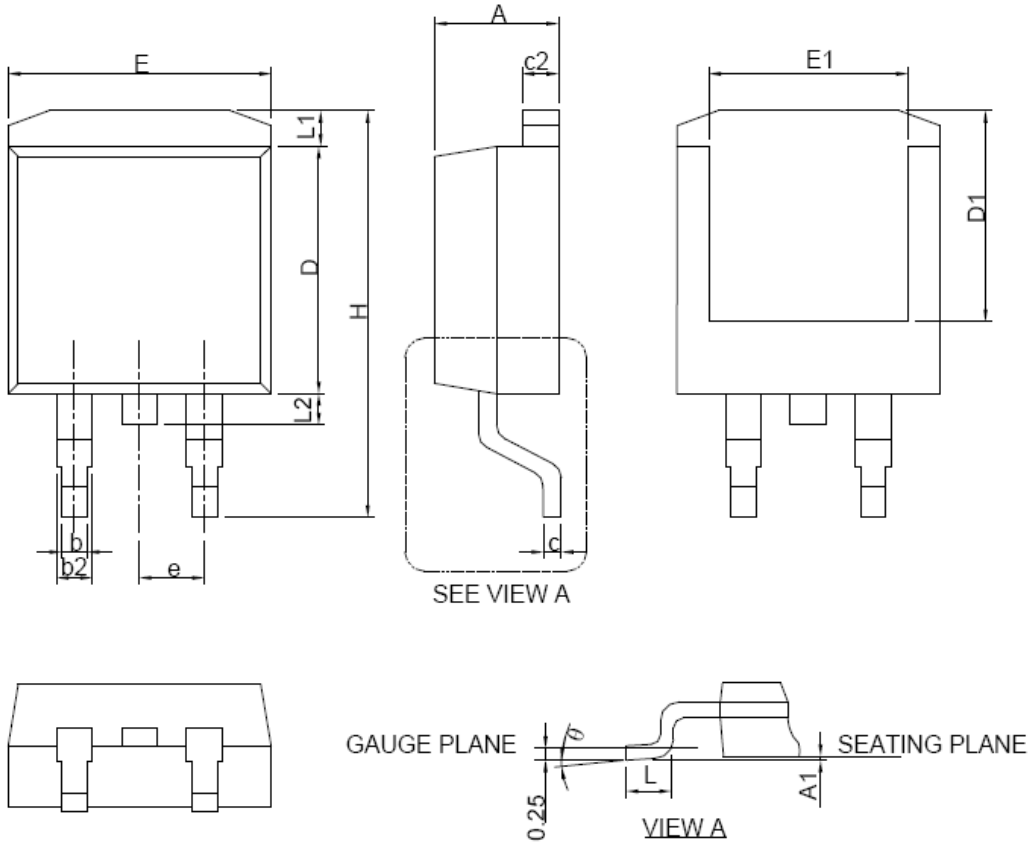


DIMENSIONS	TO-252			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	2.18	2.39	0.086	0.094
A1		0.13		0.005
b	0.50	0.89	0.020	0.035
b3	4.95	5.46	0.195	0.215
c	0.46	0.61	0.018	0.024
c2	0.46	0.89	0.018	0.035
D	5.33	6.22	0.210	0.245
D1	4.57	6.00	0.180	0.236
E	6.35	6.73	0.250	0.265
E1	3.81	6.00	0.150	0.236
e	2.29 BSC		0.090 BSC	
H	9.40	10.41	0.370	0.410
L	0.90	1.78	0.035	0.070
L3	0.89	2.03	0.035	0.080
L4		1.02		0.040
θ	0°	8°	0°	8°

Note : Follow JEDEC TO-252 .

◆ Package Information

TO-263



SYMBOL	TO-263			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	4.06	4.83	0.160	0.190
A1	0.00	0.25	0.000	0.010
b	0.51	0.99	0.020	0.039
b2	1.14	1.78	0.045	0.070
c	0.38	0.74	0.015	0.029
c2	1.14	1.65	0.045	0.065
D	8.38	9.65	0.330	0.380
D1	6.00	9.00	0.236	0.354
E	9.65	11.43	0.380	0.450
E1	6.22	9.00	0.245	0.354
e	2.54 BSC		0.100 BSC	
H	14.61	15.88	0.575	0.625
L	1.78	2.79	0.070	0.110
L1		1.68		0.066
L2		1.78		0.070
θ	0°	8°	0°	8°

Note : Follow JEDEC TO-263 AB.