

## 1.5V 1A Regulator

### Features

- Output current in excess of 1A
- Output voltage accuracy  $\pm 2.0\%$
- Quiescent current, typically 0.54mA
- Internal short circuit current limit
- Internal over temperature protection

### Applications

- PC motherboard
- ADSL/Cable Modem
- Set-Top-Box
- LAN switch/Hub
- Broad band access

### General Description

The G957 positive 1.5V voltage regulator features the ability to source 1A of output current. The typical quiescent current is 0.54mA.

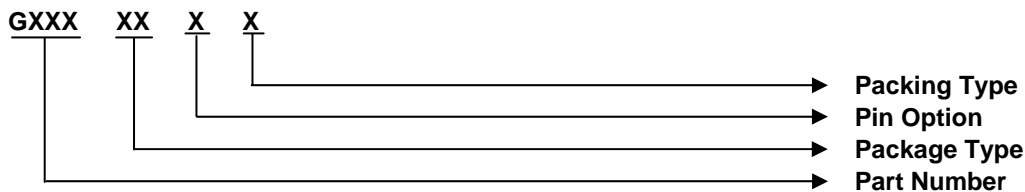
Familiar regulator features such as over temperature and over current protection circuits are provided to prevent it from being damaged by abnormal operating conditions.

### Ordering Information

ORDER NUMBER	ORDER NUMBER (Pb free)	MARKING	TEMP. RANGE	PACKAGE	PIN OPTION		
					1	2	3
G957T35T	G957T35Tf	957T35	-40°C~85°C	TO-220	V <sub>IN</sub>	GND	V <sub>OUT</sub>
G957T45U	G957T45Uf	957T45	-40°C~85°C	TO-252	V <sub>IN</sub>	GND	V <sub>OUT</sub>
G957T65U	G957T65Uf	957T65	-40°C~85°C	SOT-223	V <sub>IN</sub>	GND	V <sub>OUT</sub>

\* For other package types and pin options, please contact us at sales@gmt.com.tw

### Order Number Identification



#### PACKAGE TYPE

T3: TO-220  
T4: TO-252  
T6: SOT-223

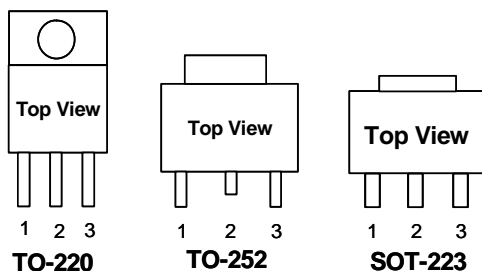
#### PIN OPTION

1	2	3
1: V <sub>OUT</sub>	GND	V <sub>IN</sub>
2: V <sub>OUT</sub>	V <sub>IN</sub>	GND
3: GND	V <sub>OUT</sub>	V <sub>IN</sub>
4: GND	V <sub>IN</sub>	V <sub>OUT</sub>
5: V <sub>IN</sub>	GND	V <sub>OUT</sub>
6: V <sub>IN</sub>	V <sub>OUT</sub>	GND

#### PACKING

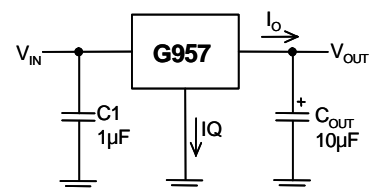
U: Tape & Reel  
T: Tube

### Package Type



### Typical Application

[Note 4]: Type of C<sub>OUT</sub>





<b>Absolute Maximum Ratings</b>	(Note 1)
Input Voltage	7V
Power Dissipation Internally Limited	(Note 2)
Maximum Junction Temperature	150°C
Storage Temperature Range	-65°C ≤ T <sub>J</sub> ≤ +150°C
Reflow Temperature (soldering, 10sec)	260°C
Thermal Resistance Junction to Ambient, (θ <sub>JA</sub> )	
SOT-223	148°C/W
TO-220	76°C/W
TO-252	124°C/W
Thermal Resistance Junction to Case, (θ <sub>JC</sub> )	
SOT-223	22°C/W
TO-252	7°C/W

<b>Operating Conditions</b>	(Note 1)
Input Voltage	2.7V~6.5V
Temperature Range	-40°C ≤ T <sub>A</sub> ≤ 85°C

## Electrical Characteristics

V<sub>IN</sub> = 3.3V, I<sub>O</sub> = 1A, C<sub>IN</sub> = 1μF, C<sub>OUT</sub> = 10μF, All specifications apply for T<sub>A</sub> = T<sub>J</sub> = 25°C. [Note 3]

PARAMETER	CONDITION		MIN	TYP	MAX	UNIT	
Output Voltage	10mA ≤ I <sub>O</sub> ≤ 1A		1.47	1.5	1.53	V	
Line Regulation	3V ≤ V <sub>IN</sub> ≤ 6.5V, I <sub>O</sub> = 10mA		---	6	30	mV	
Load Regulation	10mA ≤ I <sub>O</sub> ≤ 1A		---	19	50	mV	
Output Impedance	200mA DC and 100mA AC, f <sub>o</sub> = 120Hz		---	80	---	mΩ	
Quiescent Current	V <sub>IN</sub> = 3V		---	0.54	1	mA	
Ripple Rejection	f <sub>i</sub> = 120Hz, V <sub>ripple</sub> = 1V <sub>P-P</sub> , I <sub>O</sub> = 100mA		---	54	---	dB	
Dropout Voltage	I <sub>O</sub> = 0A		---	1.13	---	V	
	I <sub>O</sub> = 100mA		---	1.14	---		
	I <sub>O</sub> = 500mA		---	1.21	---		
	I <sub>O</sub> = 1A		---	1.32	1.5		
Output Current	Continuous Test, T <sub>A</sub> = 25°C, T <sub>J</sub> 150°C, V <sub>OUT</sub> within ±2%	V <sub>IN</sub> = 3V(SOT-223)	Minimum footprint (0.0625 square inch)	660	---	---	mA
		V <sub>IN</sub> = 3.3V(SOT-223)	Mounted on 0.53 square inch pcb area	1	---	---	A
Short Circuit Current			---	1.6	---	A	
Over Temperature			---	150	---	°C	

**Note 1:** Absolute Maximum Ratings are limits beyond which damage to the device may occur. Operating Conditions are conditions under which the device functions but the specifications might not be guaranteed. For guaranteed specifications and test conditions see the Electrical Characteristics.

**Note2:** The maximum power dissipation is a function of the maximum junction temperature, T<sub>Jmax</sub>; total thermal resistance, θ<sub>JA</sub>, and ambient temperature T<sub>A</sub>. The maximum allowable power dissipation at any ambient temperature is T<sub>Jmax</sub>-T<sub>A</sub>/θ<sub>JA</sub>. If this dissipation is exceeded, the die temperature will rise above 150°C and IC will go into thermal shutdown. For the G957 in SOT-223 package, θ<sub>JA</sub> is 148°C/W; in the TO-252 package, θ<sub>JA</sub> is 124°C/W; in the TO-220 package, θ<sub>JA</sub> is 76°C/W (No heat sink).

**Note3:** Low duty pulse techniques are used during test to maintain junction temperature as close to ambient as possible.

**Note4:** The type of output capacitor should be tantalum or aluminum.

### Definitions

#### Dropout Voltage

The input/output Voltage differential at which the regulator output no longer maintains regulation against further reductions in input voltage. Measured when the output drops 100mV below its nominal value. Dropout voltage is affected by junction temperature, load current and minimum input supply requirements.

#### Line Regulation

The change in output voltage for a change in input voltage. The measurement is made under conditions of low dissipation or by using pulse techniques such that average chip temperature is not significantly affected.

#### Load Regulation

The change in output voltage for a change in load current at constant chip temperature. The measurement is made under conditions of low dissipation or by using pulse techniques such that average chip temperature is not significantly affected.

#### Maximum Power Dissipation

The maximum total device dissipation for which the regulator will operate within specifications.

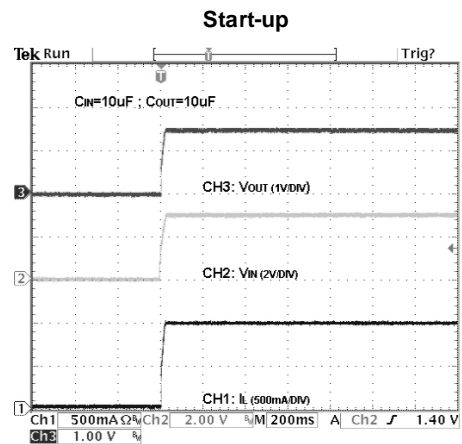
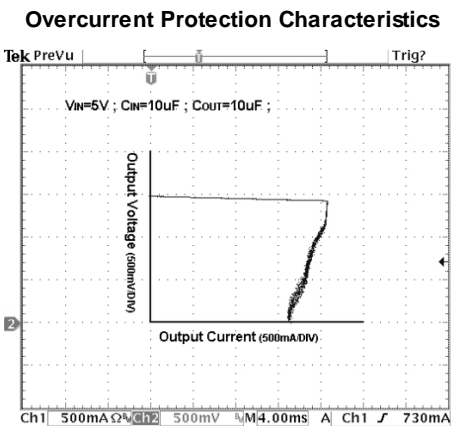
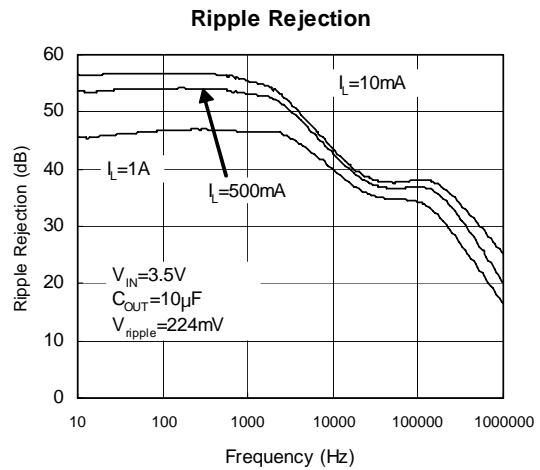
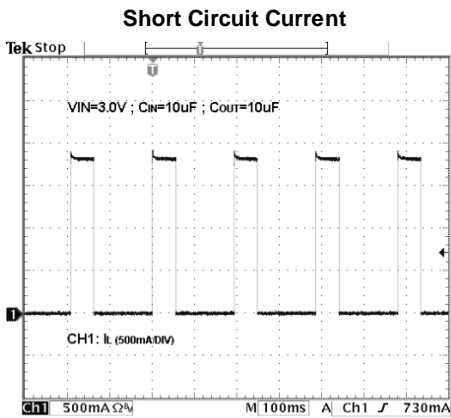
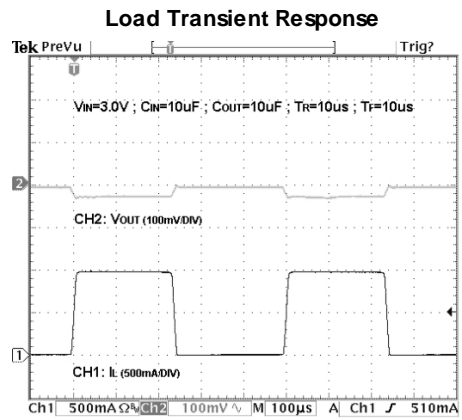
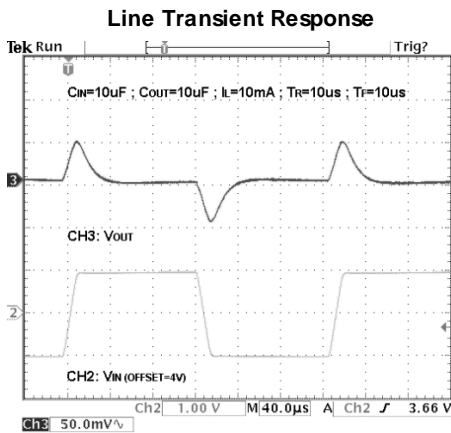
#### Quiescent Bias Current

Current which is used to operate the regulator chip and is not delivered to the load.



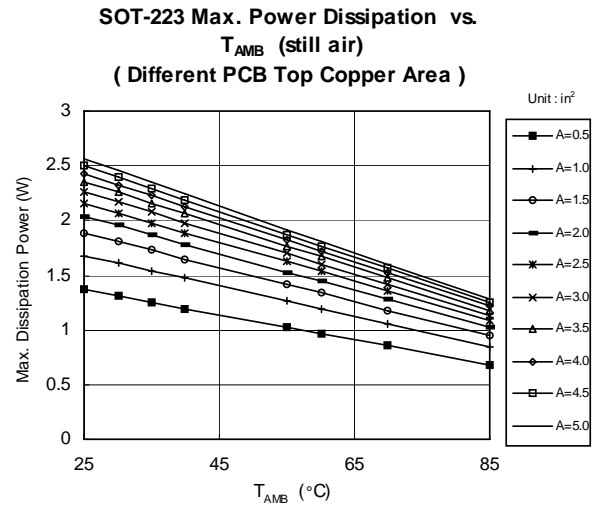
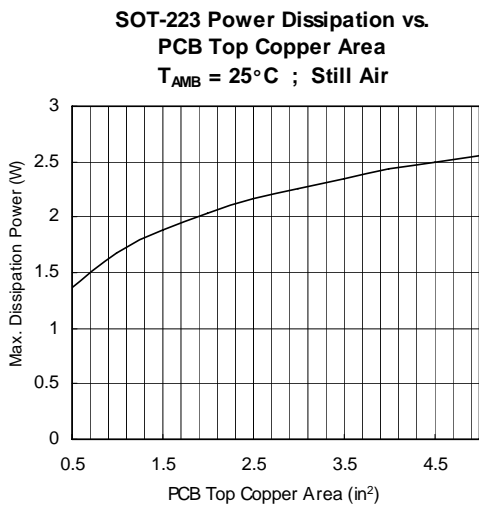
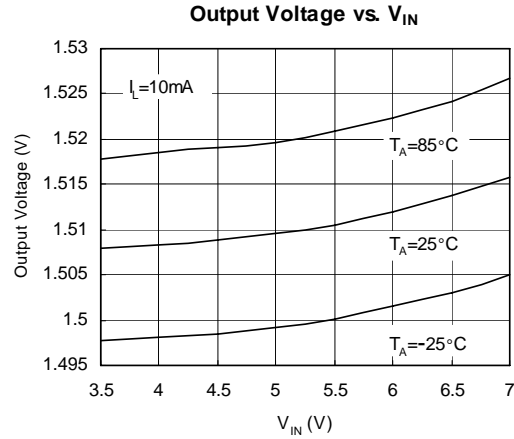
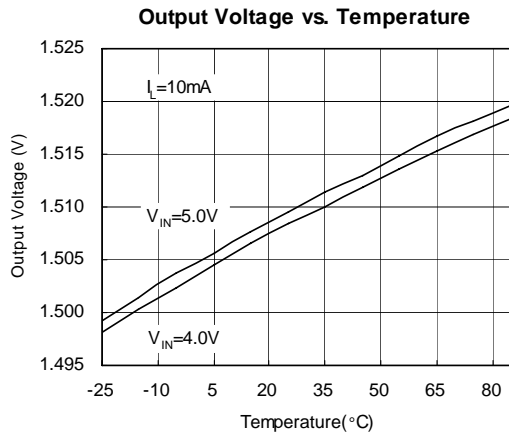
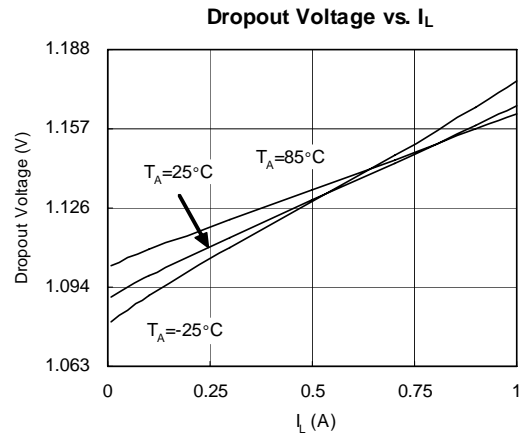
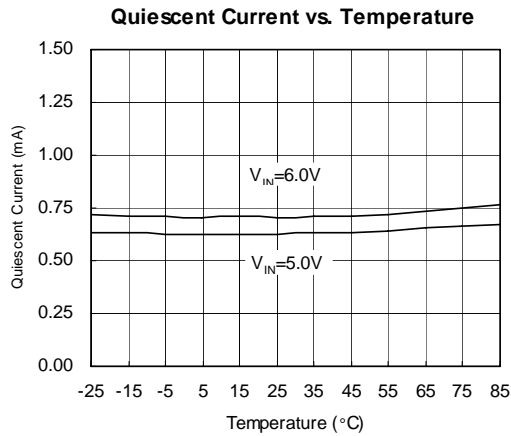
Typical Performance Characteristics

(VIN= +3.3V, CIN=1μF, COUT=10μF, TA=25°C, unless otherwise noted.)



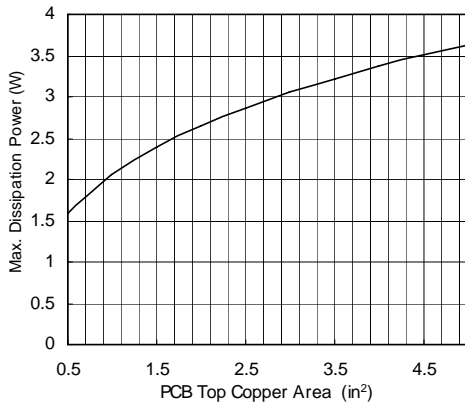


Typical Performance Characteristics (continued)

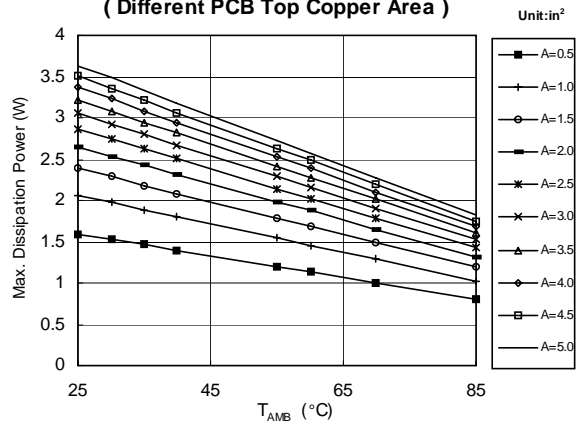


Typical Performance Characteristics (continued)

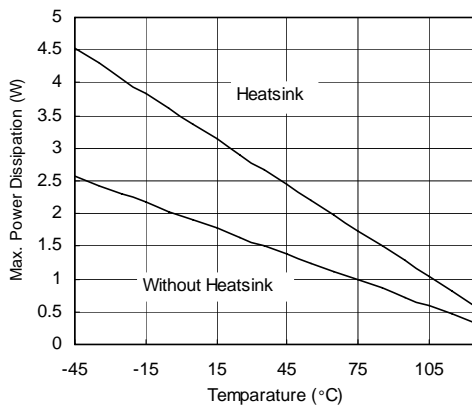
**TO-252 Power Dissipation vs. PCB Top Copper Area**  
 $T_{AMB} = 25^{\circ}\text{C}$  ; Still Air



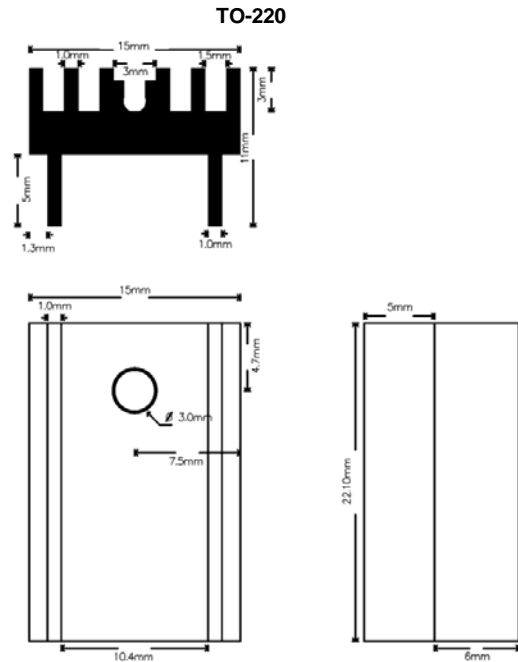
**TO-252 Max. Power Dissipation vs.  $T_{AMB}$  (still air)**  
 ( Different PCB Top Copper Area )



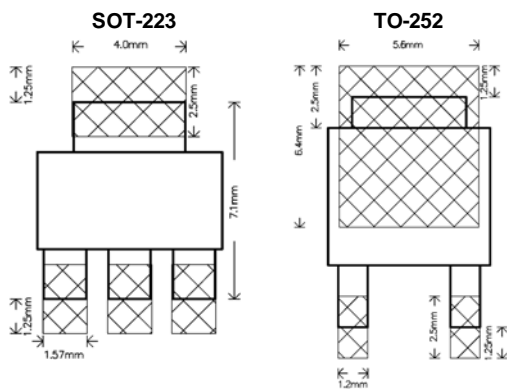
**TO-220 Max. Power Dissipation vs. Temperature**



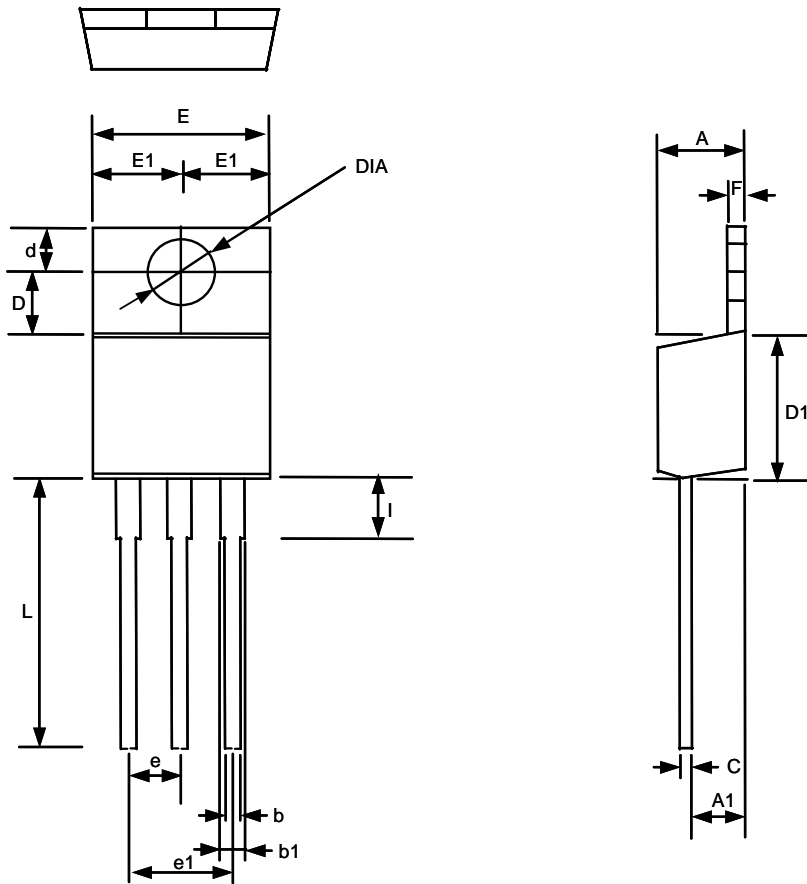
**Heatsink Package Dimension**



**Recommended Minimum Footprint**

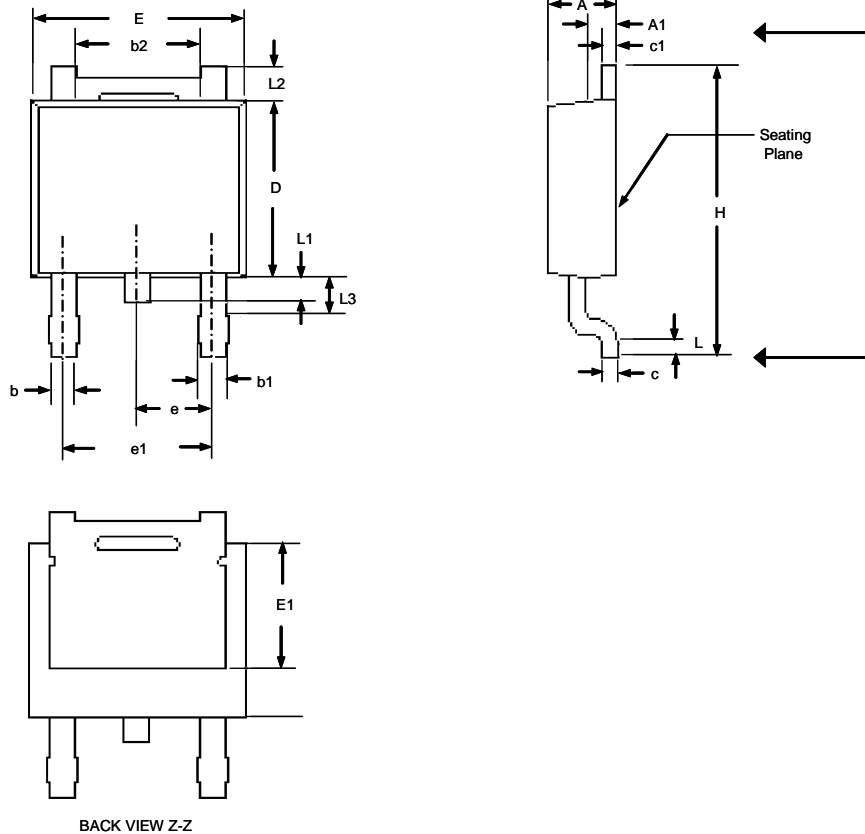


Package Information



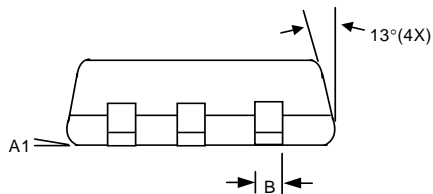
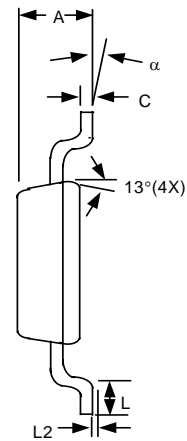
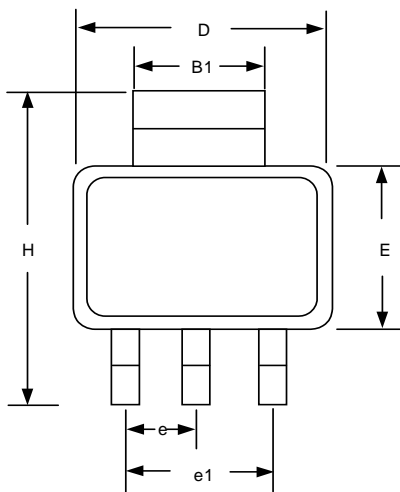
TO-220 (T3) Package

SYMBOL	MILLIMETER		INCH	
	MIN	MAX	MIN	MAX
A	4.318	4.826	0.170	0.190
A1	2.46	2.72	0.097	0.107
b	0.69	0.94	0.027	0.037
b1	1.143	1.397	0.045	0.055
C	0.304	0.460	0.012	0.018
D	3.429	3.683	0.135	0.145
D1	8.53	9.04	0.336	0.356
d	2.62	2.87	0.103	0.113
E	9.906	10.40	0.390	0.410
E1	4.953	5.22	0.195	0.206
DIA	3.708	3.962	0.146	0.156
e	2.29	2.79	0.090	0.110
e1	4.83	5.33	0.190	0.210
F	1.143	1.397	0.045	0.055
L	13.589	14.351	0.535	0.565
I	3.56	4.06	0.140	0.16



TO-252 (T4) Package

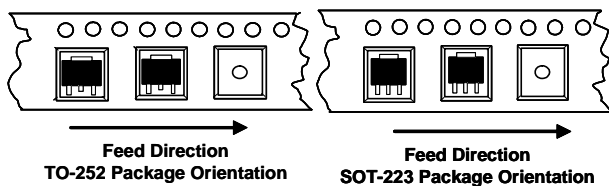
SYMBOL	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	2.19	2.38	0.086	0.094
A1	0.89	1.14	0.035	0.045
b	0.64	0.88	0.025	0.035
b1	0.76	1.14	0.030	0.045
b2	5.21	5.46	0.205	0.215
c	0.46	0.58	0.018	0.023
c1	0.46	0.58	0.018	0.023
D	5.97	6.22	0.235	0.244
E	6.35	6.73	0.250	0.265
E1	MIN 4.32		MIN 0.170	
e	2.28 BSC		0.090 BSC	
e1	4.57 BSC		0.180 BSC	
H	9.40	10.42	0.370	0.410
L	0.51	-----	0.020	-----
L1	0.64	1.02	0.025	0.040
L2	0.88	1.27	0.035	0.050
L3	1.15	1.52	0.045	0.060



**SOT-223 (T6) Package**

SYMBOL	MILLIMETER		INCH	
	MIN	MAX	MIN	MAX
A	1.55	1.80	0.061	0.071
A1	0.02	0.12	0.0008	0.0047
B	0.60	0.80	0.024	0.031
B1	2.90	3.10	0.114	0.122
C	0.24	0.32	0.009	0.013
D	6.30	6.70	0.248	0.264
E	3.30	3.70	0.130	0.146
e	2.30 BSC		0.090 BSC	
e1	4.60 BSC		0.181 BSC	
H	6.70	7.30	0.264	0.287
L	0.90 MIN		0.036 MIN	
L2	0.06 BSC		0.0024 BSC	
$\alpha$	0°	10°	0°	10°

**Taping Specification**



PACKAGE	Q'TY/REEL	Q'TY/TUBE
TO-220	-----	50 ea
TO-252	2,500 ea	
SOT-223	2,500 ea	-----

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