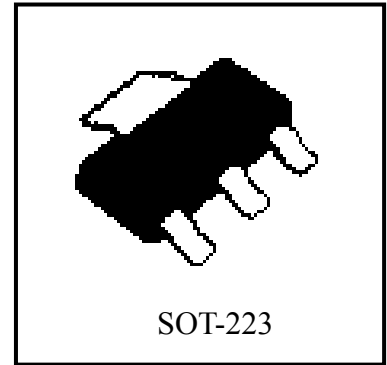


Three Terminal Positive Voltage Regulators

LM78D05L3



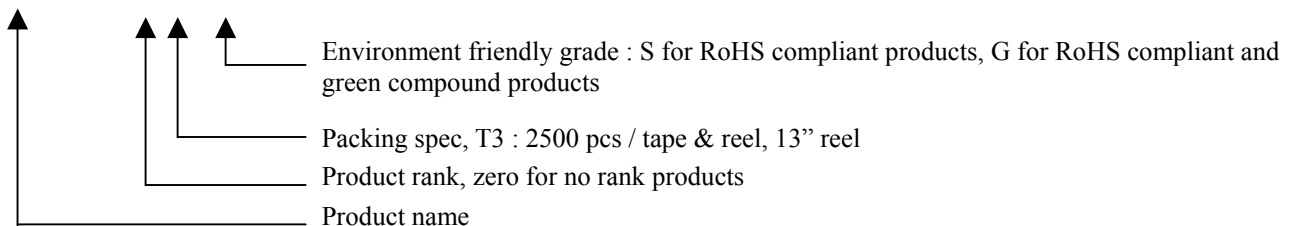
These voltage regulators are monolithic integrated circuits designed as fixed voltage regulators for a wide variety of applications including local, on-card regulation. These regulators employ internal current limiting, thermal shutdown, and safe-area compensation. With adequate heatsinking they can deliver output currents in excess of 1.0A. Although designed primarily as fixed voltage regulator, these devices can be used with external components to obtain adjustable voltages and currents.

Maximum Ratings

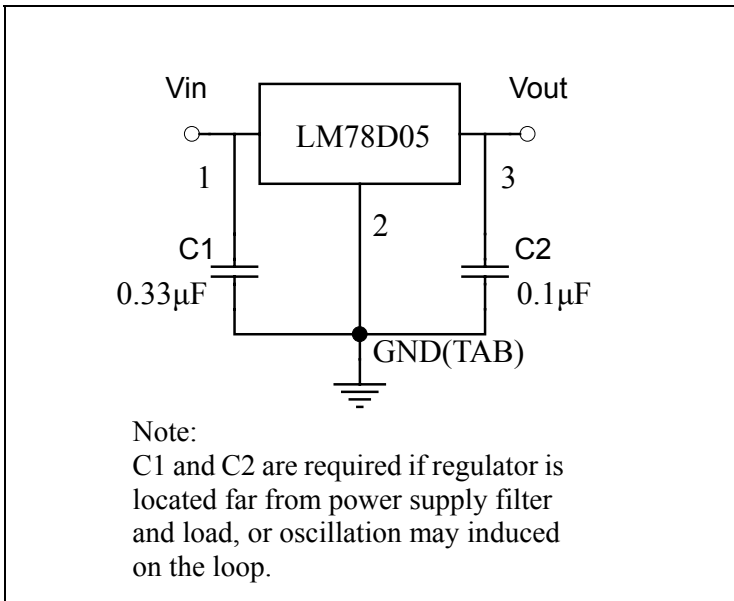
Rating	Symbol	Value	Unit
Input Voltage	V_{IN}	35	V
Output Current	I_o	1	A
Power Dissipation	P_D	Internally Limited	W
Operating Junction Temperature Range	T_J	-40 to +125	°C
Storage Temperature Range	T_{stg}	-65 to +150	°C

Ordering Information

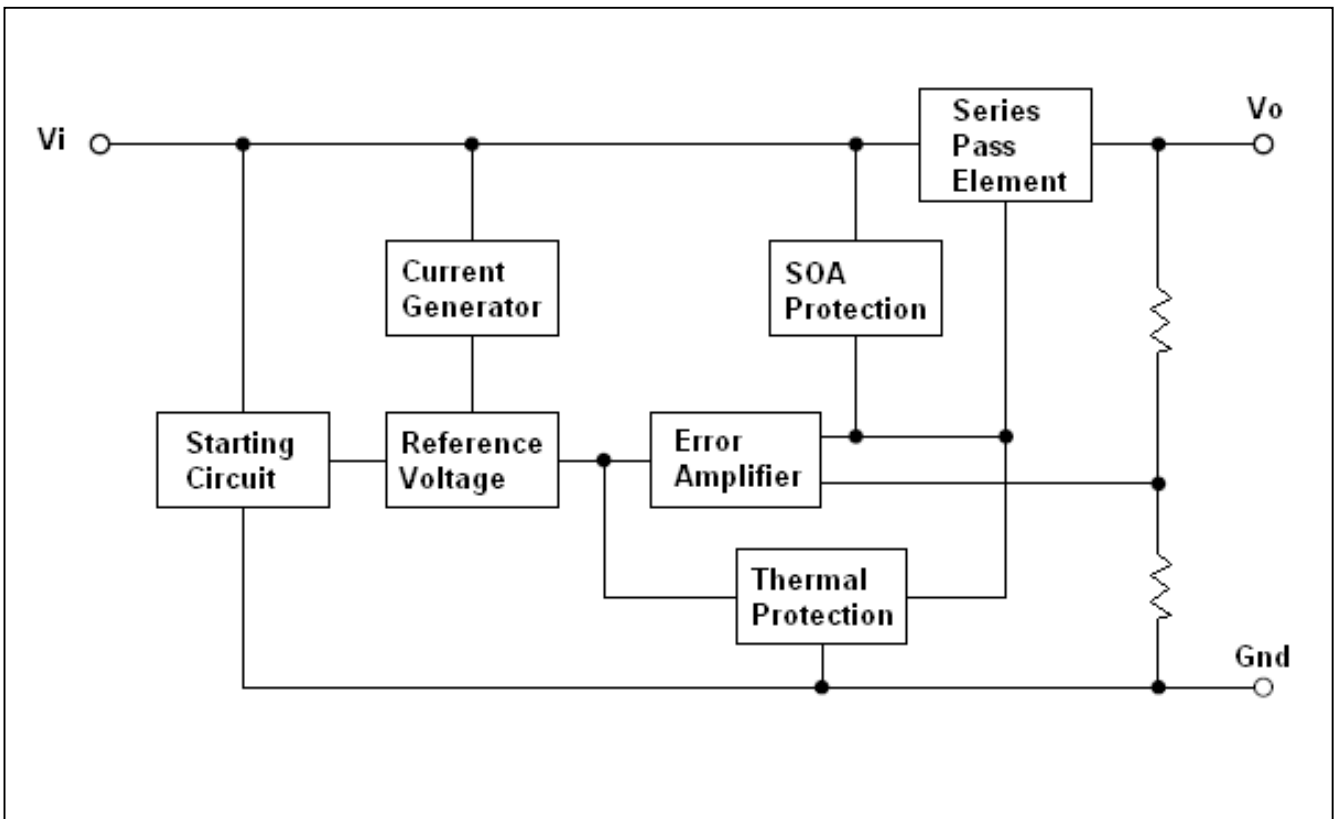
Device	Output Voltage Tolerance	Package	Shipping
LM78D05L3-A-T3-G	± 3%	SOT-223 (Pb-free lead plating and halogen-free package)	2500 pcs/Tape & Reel
LM78D05L3-B-T3-G	± 5%		



Typical Application Circuit



Block Diagram



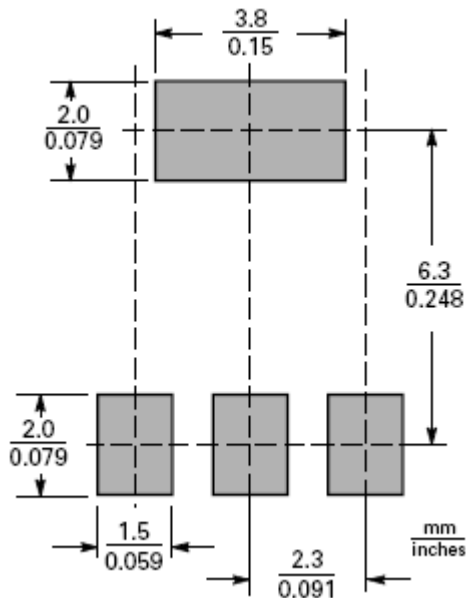
Electrical Characteristics $V_{IN}=10V, I_{OUT}=500mA, T_J=25^{\circ}C, C_{IN}=0.33\mu F, C_{OUT}=0.1\mu F,$
 unless otherwise specified

Characteristics	Symbol	Test Condition	Min	Typ	Max	Unit
Output Voltage LM78D05L3 A-rank LM78D05L3 B-rank	V_O		4.85 4.75	5.0 5.0	5.15 5.25	V
Output Voltage LM78D05L3 A-rank LM78D05L3 B-rank	V_O	$5.0mA \leq I_{OUT} \leq 1.0A, P_D \leq 15W$	4.85 4.75	5.0 5.0	5.15 5.25	V
Line Regulation	ΔV_O	$7V \leq V_{IN} \leq 25V$ $8V \leq V_{IN} \leq 25V$	- -	- -	50 25	mV
Load Regulation	ΔV_O	$5.0mA \leq I_{OUT} \leq 1.5A$ $250mA \leq I_{OUT} \leq 750mA$	- -	- -	100 50	mV
Quiescent Current	I_Q	$I_{OUT} \leq 1.0A$	-	-	8	mA
Quiescent Current Change	ΔI_Q	$5.0mA \leq I_{OUT} \leq 1.5A$ $7V \leq V_{IN} \leq 25V$	- -	- -	0.5 1.3	mA
Dropout Voltage	V_D	$I_{OUT} = 1.0A$	-	2	-	V
Peak Output Current	I_{PK}		1.7	-	-	A

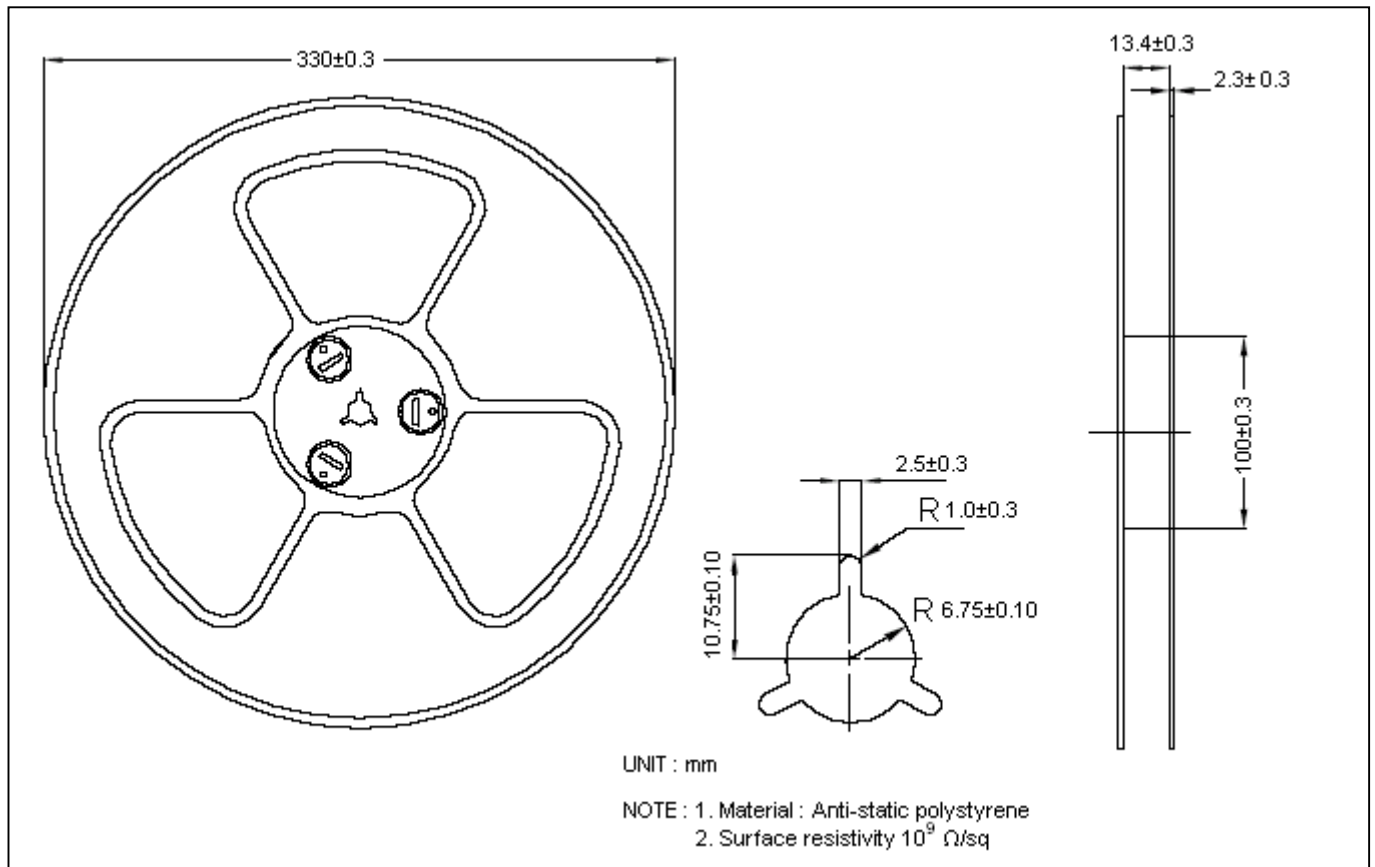
Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-case, max	$R_{th,j-c}$	15	$^{\circ}C/W$
Thermal Resistance, Junction-to-ambient, max	$R_{th,j-a}$	80 (Note)	$^{\circ}C/W$

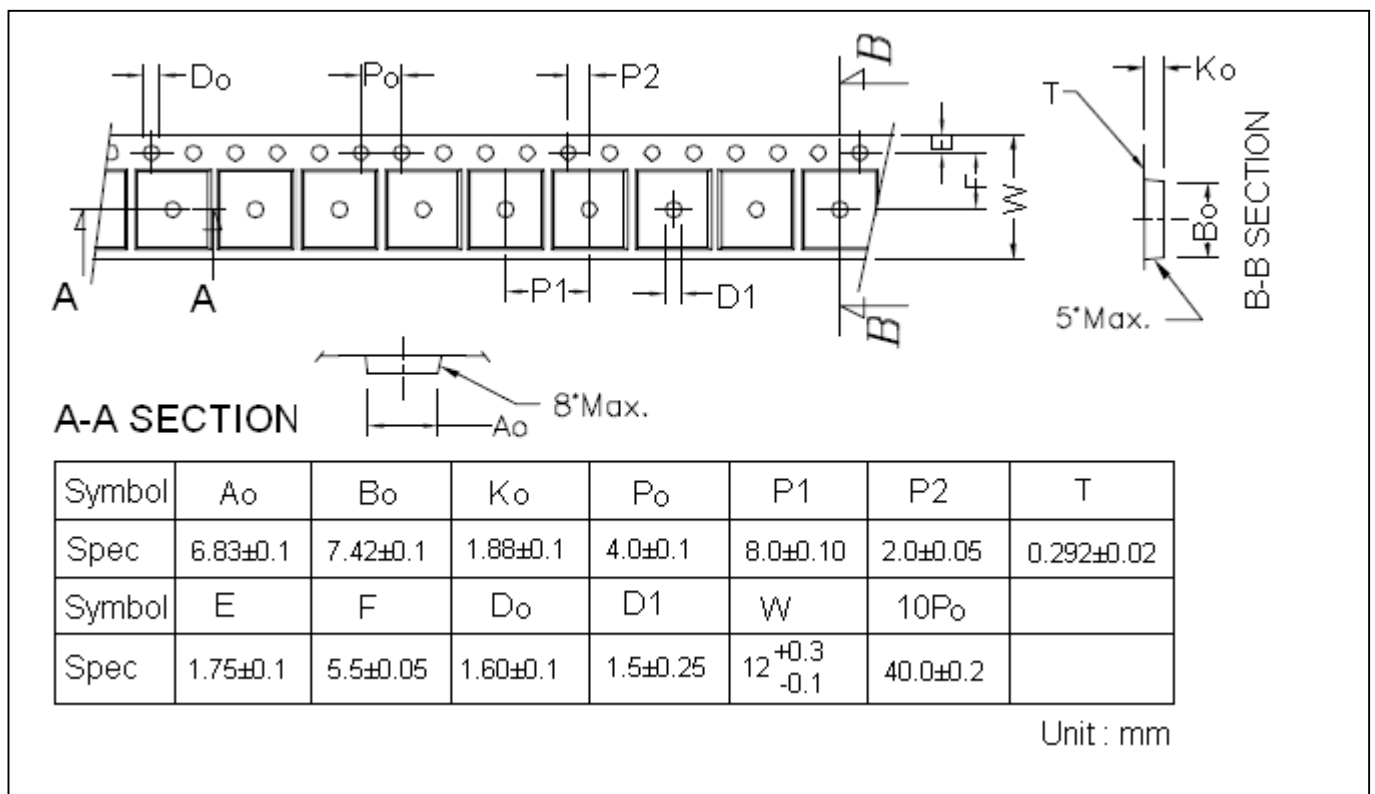
 Note : Surface mounted on a 1 in^2 pad of 2 oz. copper, $t \leq 10s$; $120^{\circ}C/W$ when mounted on minimum copper pad.

Recommended soldering footprint


Reel Dimension



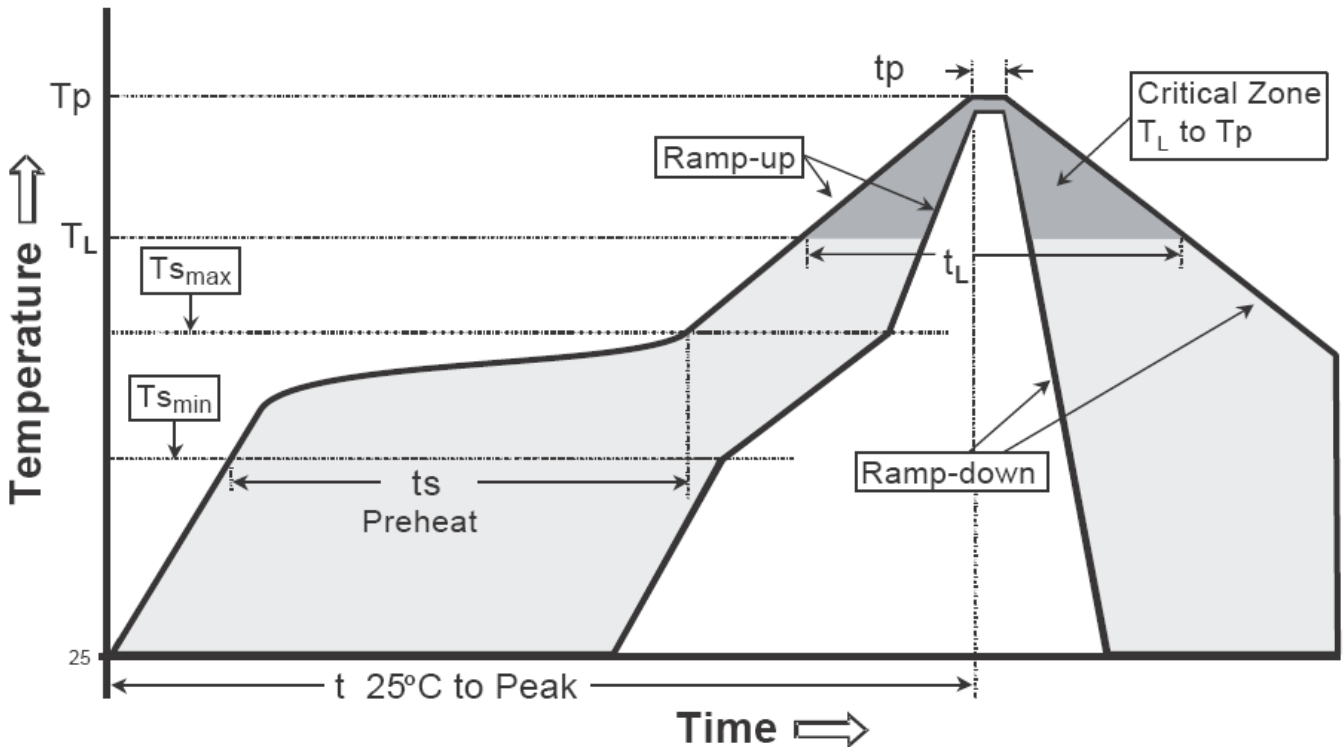
Carrier Tape Dimension



Recommended wave soldering condition

Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

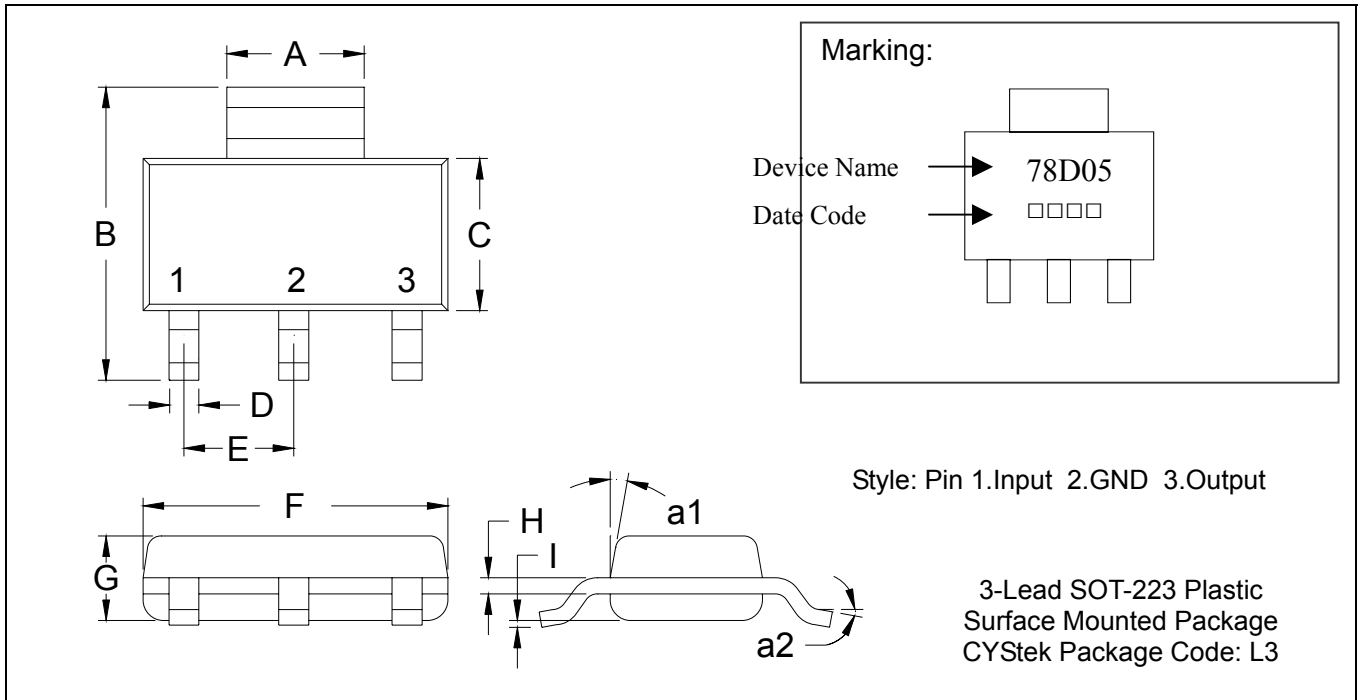
Recommended temperature profile for IR reflow



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (T _{smax} to T _p)	3°C/second max.	3°C/second max.
Preheat		
-Temperature Min(T _{s min})	100°C	150°C
-Temperature Max(T _{s max})	150°C	200°C
-Time(t _{s min} to t _{s max})	60-120 seconds	60-180 seconds
Time maintained above:		
-Temperature (T _L)	183°C	217°C
- Time (t _L)	60-150 seconds	60-150 seconds
Peak Temperature(T _P)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(tp)	10-30 seconds	20-40 seconds
Ramp down rate	6°C/second max.	6°C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

Note : All temperatures refer to topside of the package, measured on the package body surface.

SOT-223 Dimension



*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1142	0.1220	2.90	3.10	G	0.0551	0.0709	1.40	1.80
B	0.2638	0.2874	6.70	7.30	H	0.0098	0.0138	0.25	0.35
C	0.1299	0.1457	3.30	3.70	I	0.0008	0.0039	0.02	0.10
D	0.0236	0.0315	0.60	0.80	a1	*13°	-	*13°	-
E	*0.0906	-	*2.30	-	a2	0°	10°	0°	10°
F	0.2480	0.2638	6.30	6.70					

Notes: 1.Controlling dimension: millimeters.
 2.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.
 3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

Material:

- Lead: Pure tin plated.
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0.

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