

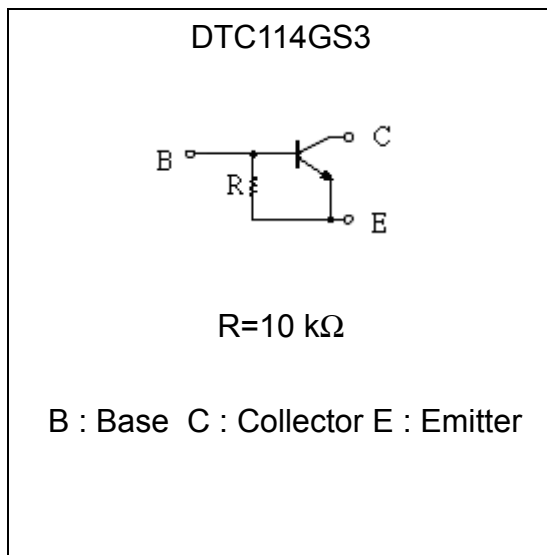
NPN Digital Transistors (Built-in Resistors)

DTC114GS3

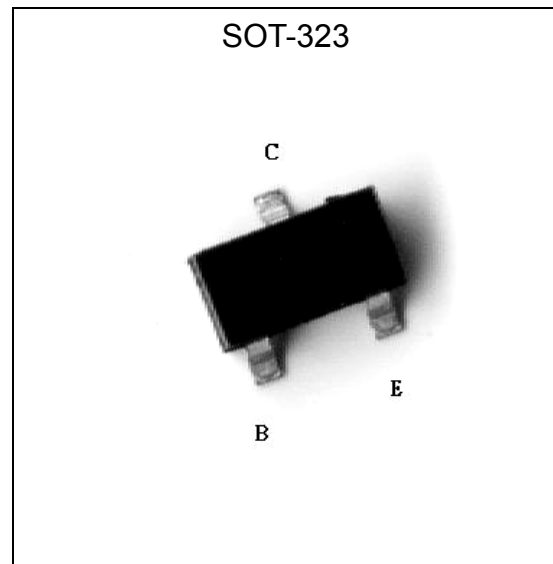
Features

- Built-in bias resistors, $R=10k\Omega$
- Complements the DTA114GS3
- Pb-free lead plating and halogen-free package

Equivalent Circuit

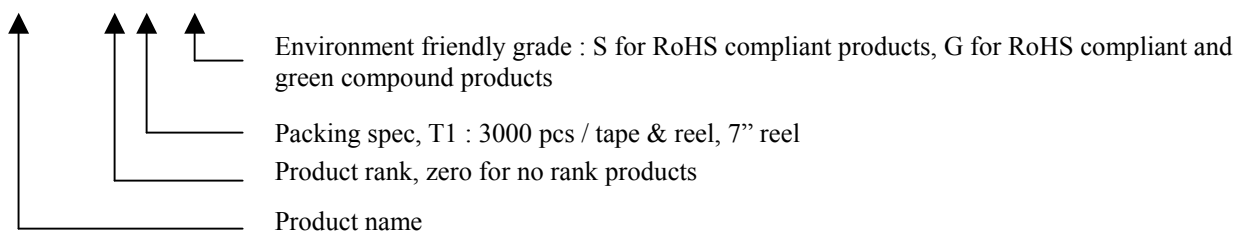


Outline



Ordering Information

Device	Package	Shipping
DTC114GS3-0-T1-G	SOT-323 (Pb-free lead plating and halogen-free package)	3000 pcs / Tape & Reel



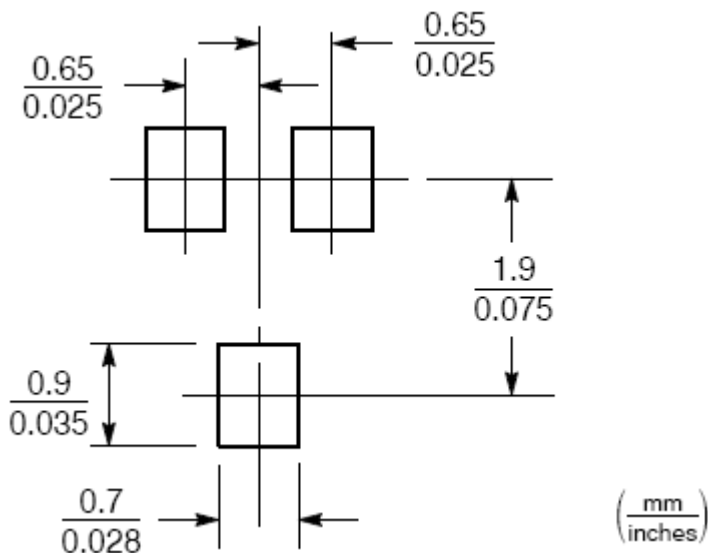
Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector to Base Voltage	V _{CB0}	50	V
Collector to Emitter Voltage	V _{CEO}	50	V
Emitter to Base Voltage	V _{EBO}	5	V
Collector Current	I _C	100	mA
Power Dissipation	P _D	200	mW
Thermal Resistance, Junction to Ambient	R _{θJA}	625	°C/W
Operating Junction Temperature Range	T _j	-55~+150	°C
Storage Temperature Range	T _{stg}	-55~+150	°C

Electrical Characteristics (Ta=25°C)

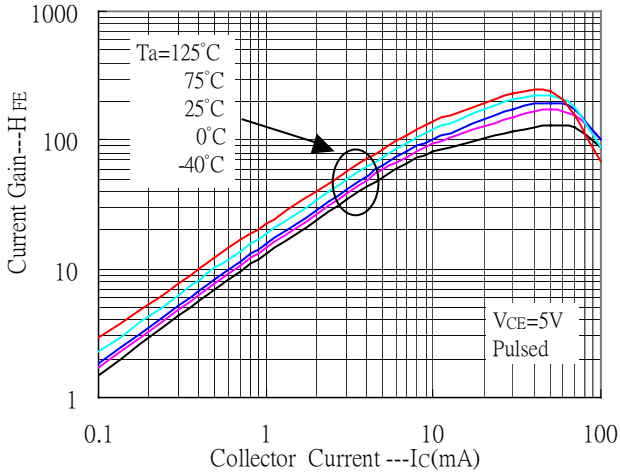
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Collector-Base Breakdown Voltage	BV _{CB0}	50	-	-	V	I _C =50μA
Collector-Emitter Breakdown Voltage	BV _{CEO}	50	-	-	V	I _C =1mA
Emitter-Base Breakdown Voltage	BV _{EBO}	5	-	-	V	I _E =720μA
Collector Cutoff Current	I _{CBO}	-	-	500	nA	V _{CB} =50V
Emitter Cutoff Current	I _{EBO}	300	-	580	μA	V _{EB} =4V
Collector-Emitter Saturation Voltage	V _{CE(SAT)}	-	-	120	mV	I _C =10mA, I _B =0.5mA
DC Current Gain	H _{FE}	30	-	-	-	V _{CE} =5V, I _C =5mA
Emitter-Base Resistance	R	7	10	13	kΩ	-
Transition Frequency	f _T	-	250	-	MHz	V _{CE} =10V, I _C =5mA, f=100MHz*

* Transition frequency of the device

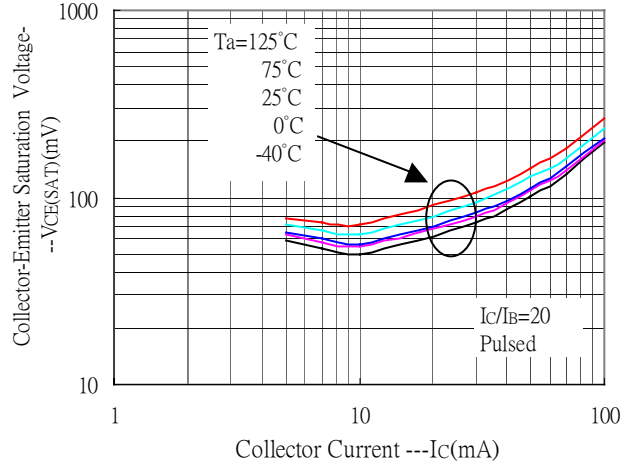
Recommended Soldering Footprint


Typical Characteristics

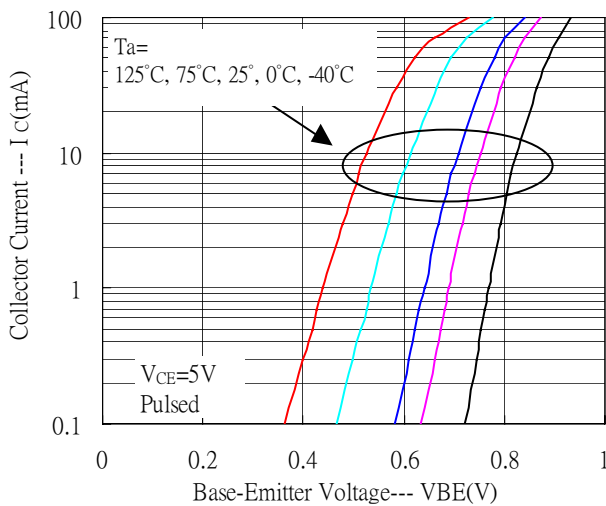
DC Current Gain vs Collector Current



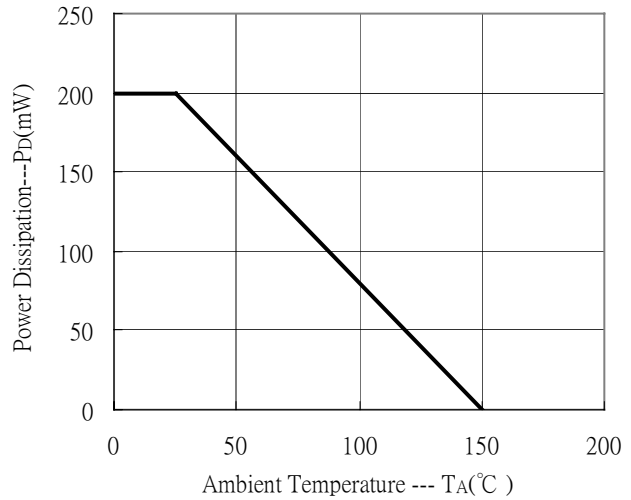
Collector-Emitter Saturation Voltage vs Collector Current



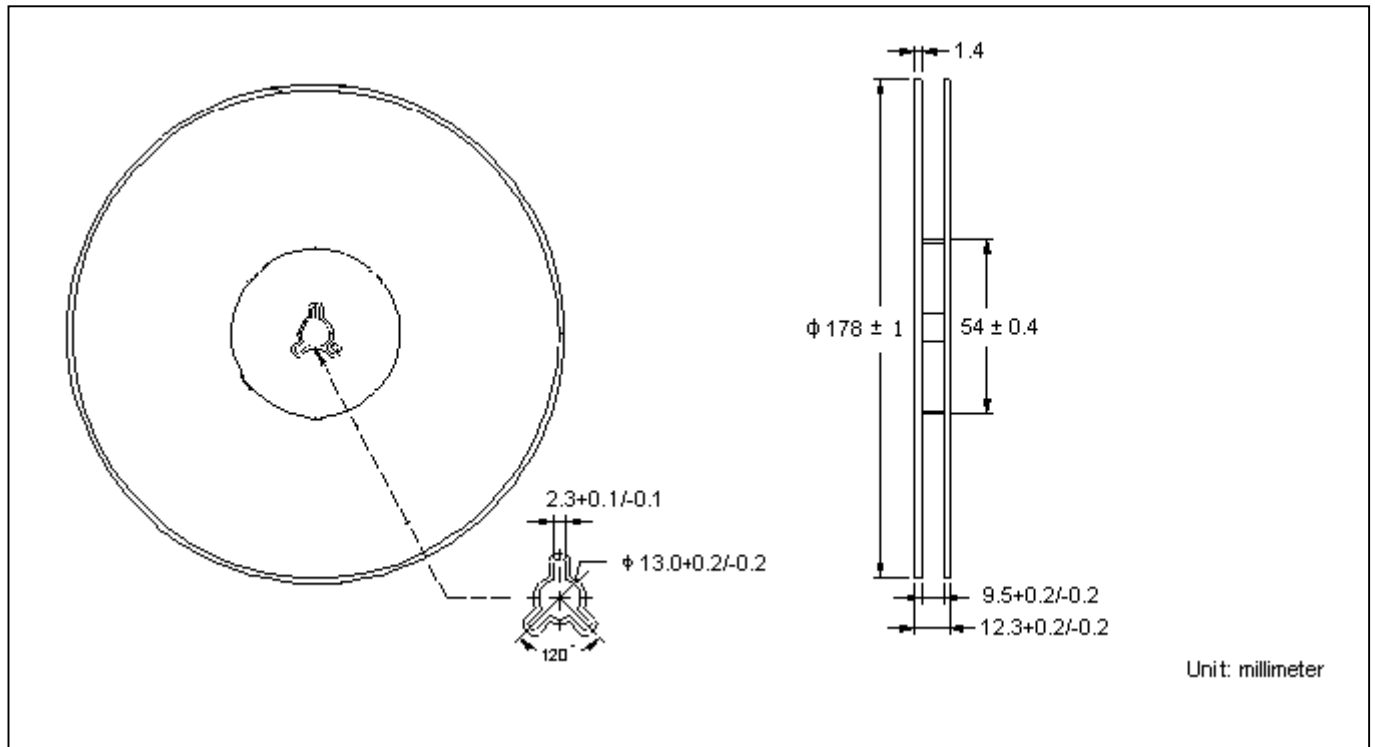
Grounded Emitter Propagation Characteristics



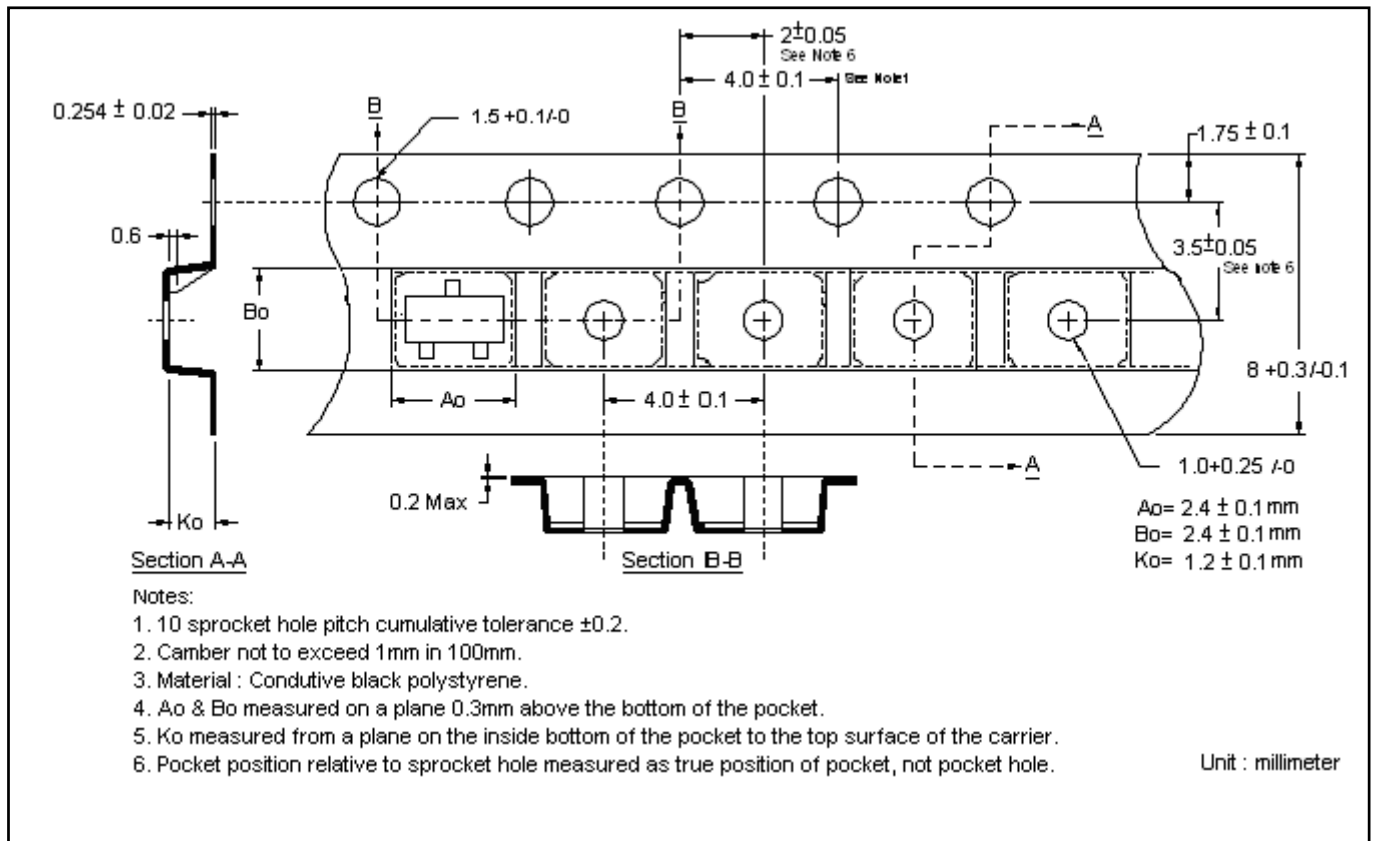
Power Derating Curve



Reel Dimension

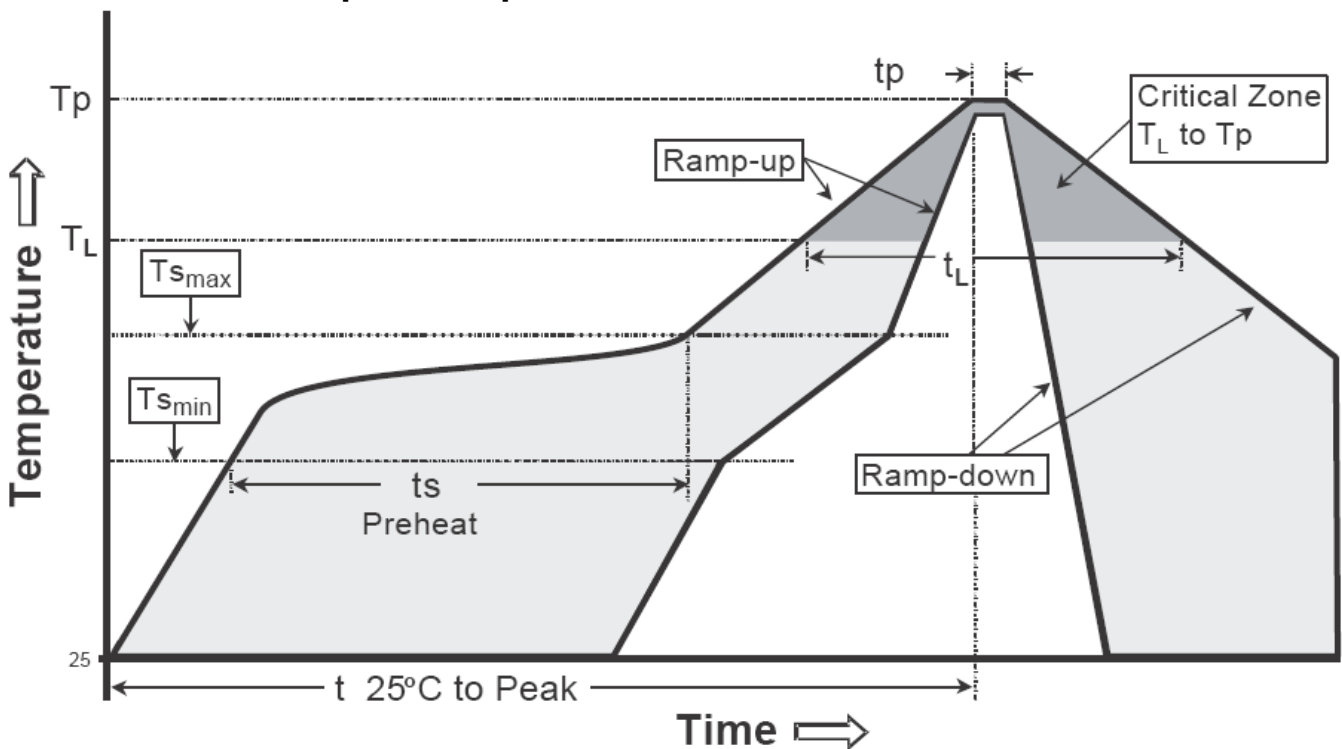


Carrier Tape Dimension



Recommended wave soldering condition

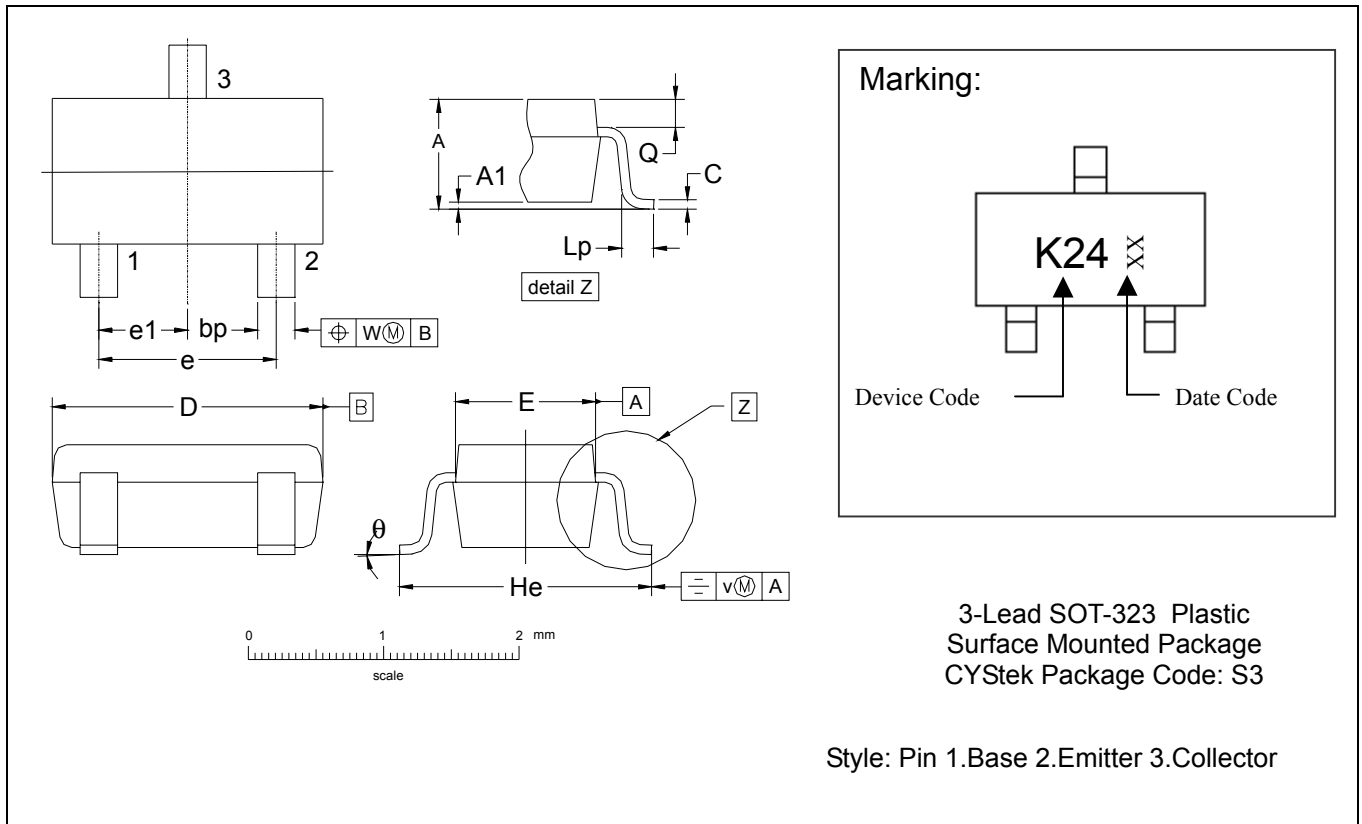
Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

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(t _p)	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-323 Dimension



*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.0315	0.0433	0.80	1.10	e1	0.0256*		0.65*	
A1	0.0000	0.0039	0.00	0.10	He	0.0846	0.0965	2.15	2.45
bp	0.0078	0.0157	0.20	0.40	Lp	0.0105	0.0181	0.26	0.46
C	0.0031	0.0059	0.08	0.15	Q	0.0051	0.0091	0.13	0.23
D	0.0709	0.0866	1.80	2.20	v	0.0079	-	0.2	-
E	0.0453	0.0531	1.15	1.35	w	0.0079	-	0.2	-
e	0.0472	0.0551	1.20	1.40	θ	0°	8°	0°	8°

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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