

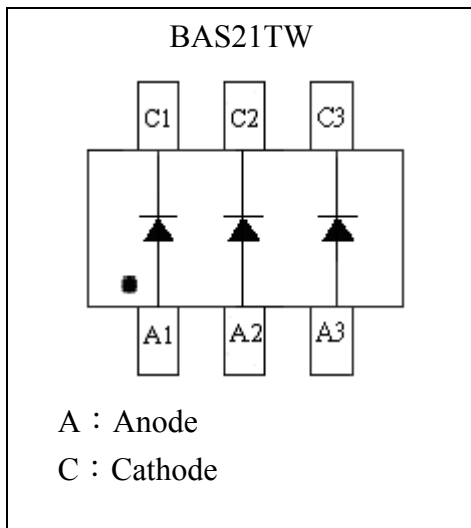
Switching Diode

BAS21TW

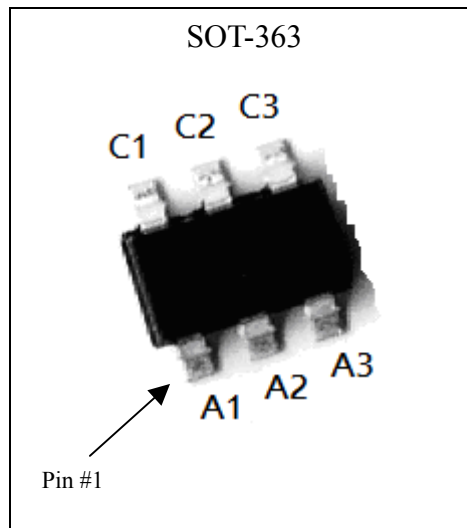
Features

- Fast switching speed.
- Ultra small surface mount package
- High conductance
- Pb-free lead plating and halogen-free package

Equivalent Circuit



Outline

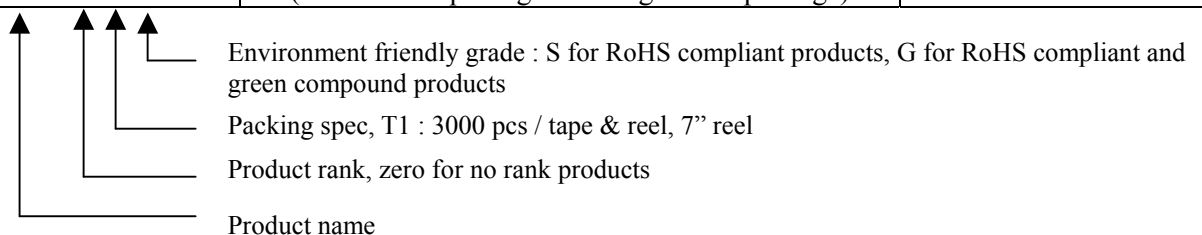


Applications

- For general purpose switching applications.

Ordering Information

Device	Package	Shipping
BAS21TW-0-T1-G	SOD-363 (Pb-free lead plating and halogen-free package)	3000 pcs / tape & reel



**Absolute Maximum Ratings @ $T_A=25^{\circ}\text{C}$**

Parameters	Symbol	Min	Max	Unit
Repetitive peak reverse voltage	V_{RRM}	-	250	V
Continuous reverse voltage	V_R	-	250	V
Average Rectified Forward Current (single)	I_O	-	200	mA
Repetitive peak forward current	I_{FM}		400	mA
Non-repetitive peak forward current @square wave, $T_j=125^{\circ}\text{C}$ prior to surge $t=1\text{ms}$ $t=1\text{s}$	I_{FSM}	-	2.5	A
		-	0.5	A
Total power dissipation(Note 1)	P_{tot}		200	mW
Operating Junction Temperature Range	T_j	-55	+150	$^{\circ}\text{C}$
Storage Temperature Range	T_{stg}	-65	+150	$^{\circ}\text{C}$

Note 1: Device mounted on an FR-4 PCB.

Electrical Characteristics @ $T_j=25^{\circ}\text{C}$ unless otherwise specified

Parameters	Symbol	Conditions	Min	Typ.	Max	Unit
Reverse Breakdown Voltage	$V_{R(BR)}$	$I_R=100\mu\text{A}$	250	-	-	V
Forward voltage	V_F	$I_F=100\text{mA}$ $I_F=200\text{mA}$	-	-	1 1.25	V
Reverse current	I_R	$V_R=200\text{V}$	-	-	100	nA
Diode capacitance	C_d	$V_R=0\text{V}$, $f=1\text{MHz}$	-	-	5	pF
Reverse recovery time	t_{rr}	$I_F=I_R=30\text{mA}$, $I_{rr}=0.1\times I_R$, $R_L=100\Omega$	-	-	50	ns

Thermal Characteristics

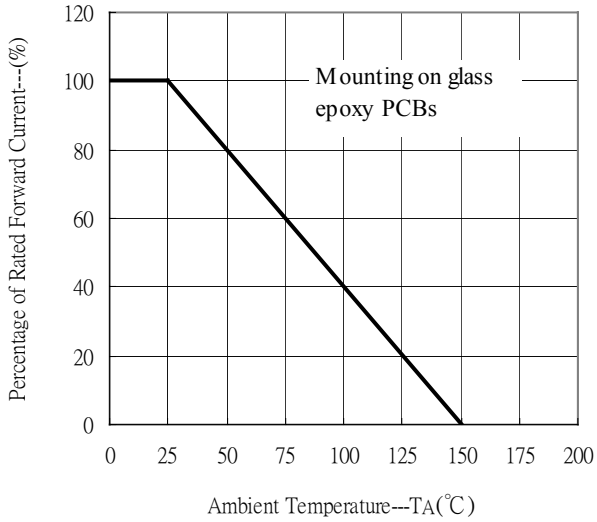
Symbol	Parameter	Conditions	Value	Unit
$R_{th, j-a}$	thermal resistance from junction to ambient	Note 1	625	$^{\circ}\text{C}/\text{W}$

Note 1: Device mounted on an FR-4 PCB.

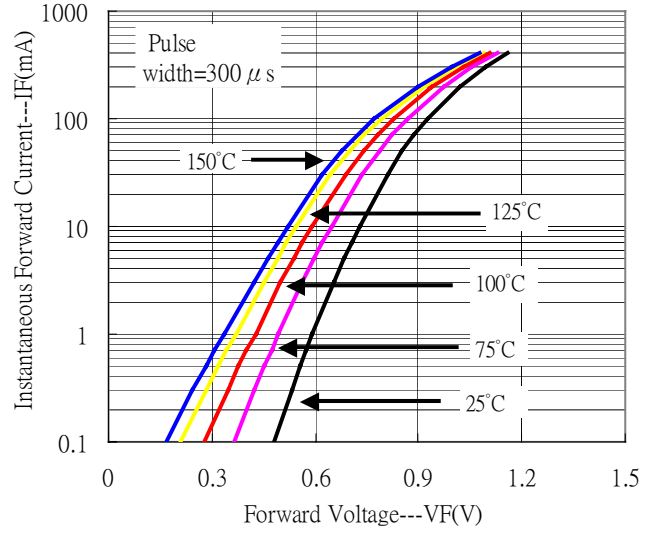


Typical Characteristics

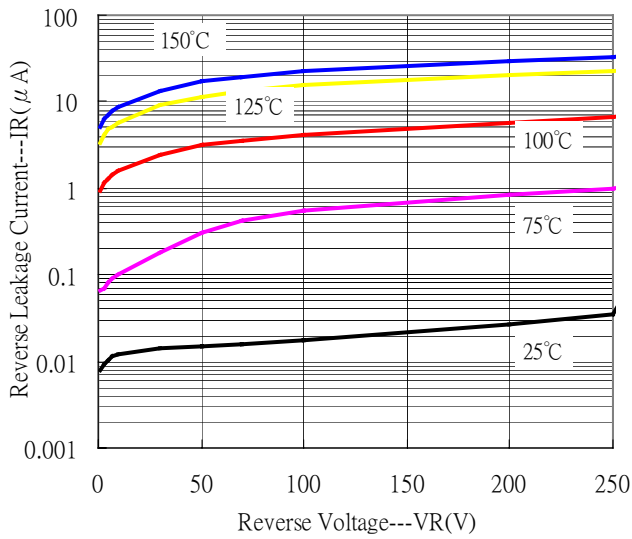
Forward Current Derating Curve



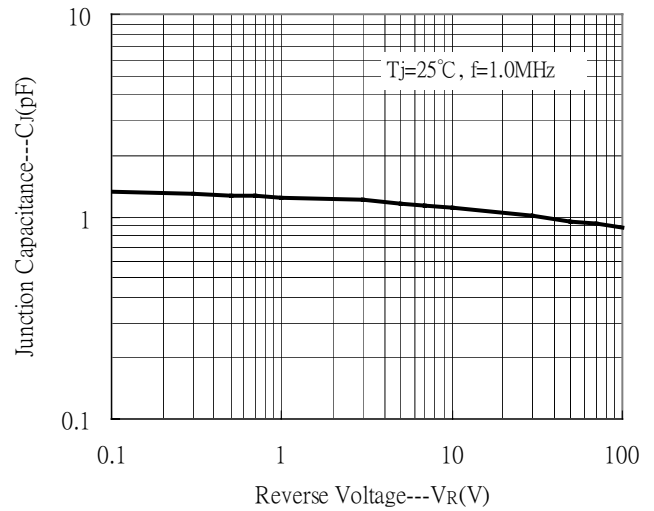
Forward Current vs Forward Voltage



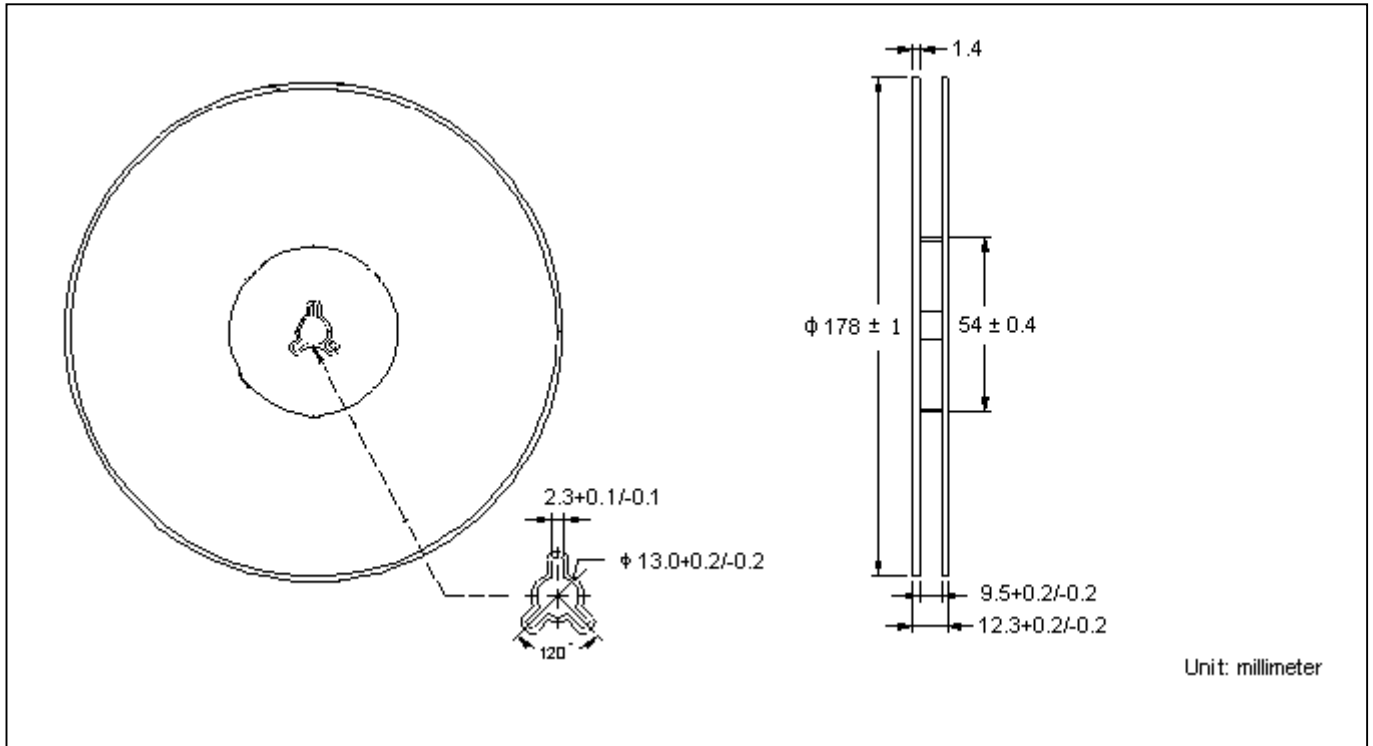
Reverse Leakage Current vs Reverse Voltage



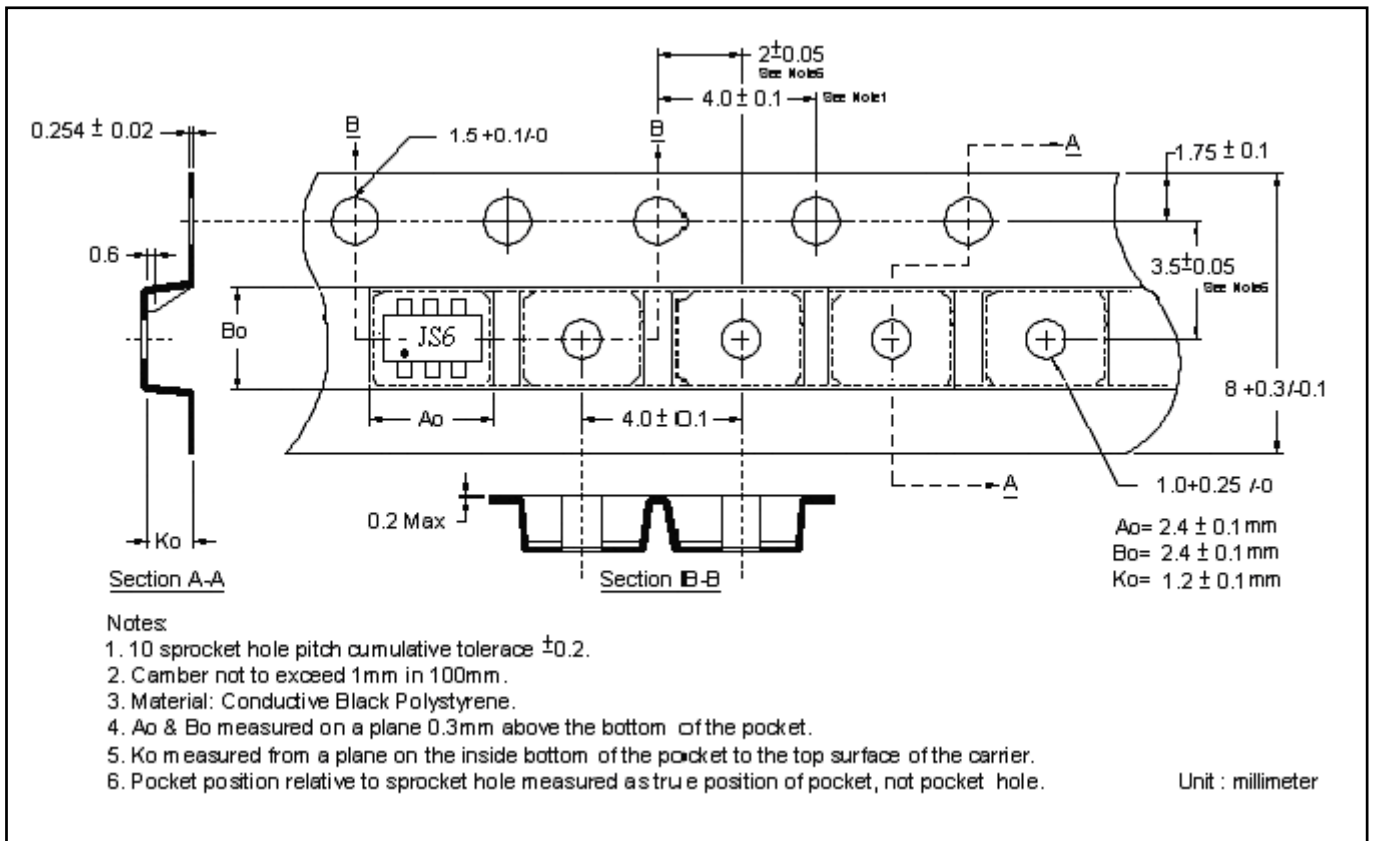
Junction Capacitance vs Reverse Voltage



Reel Dimension



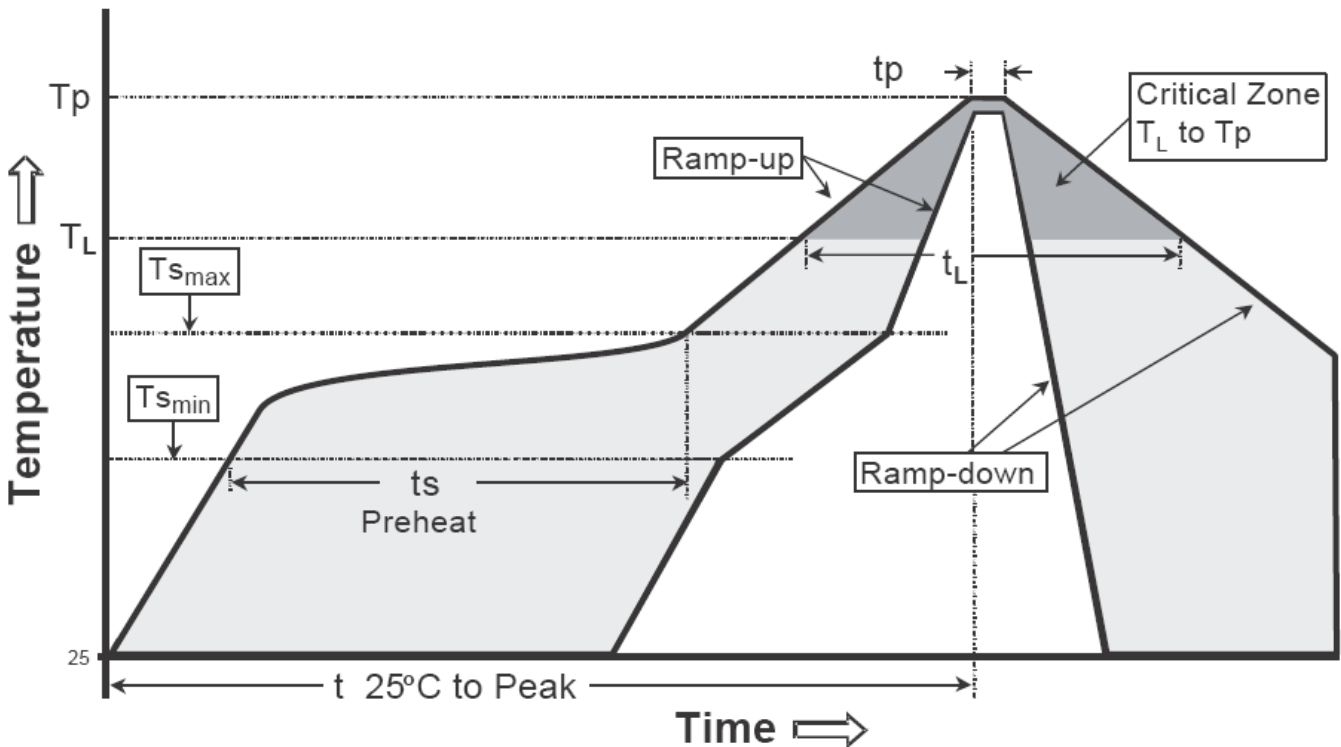
Carrier Tape Dimension



Recommended wave soldering condition

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

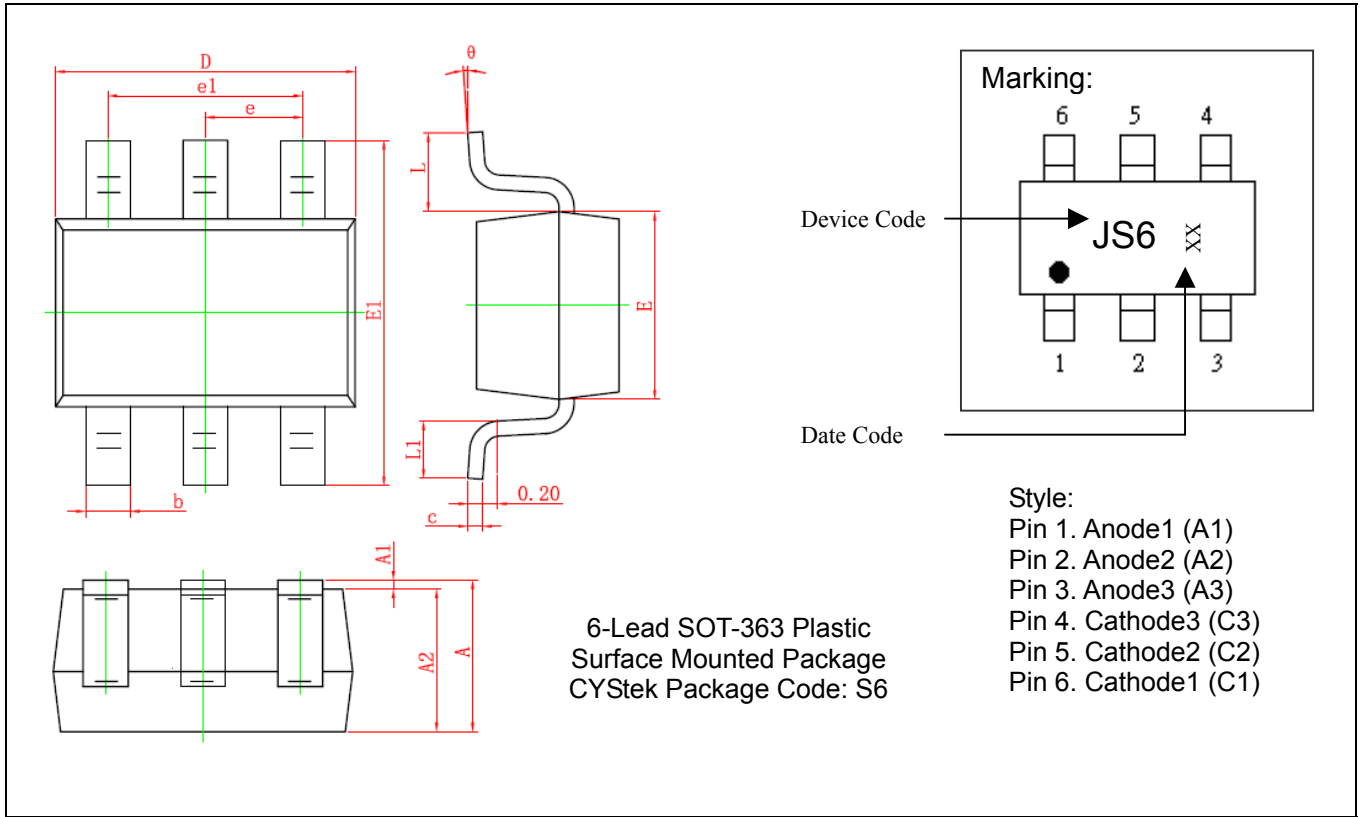
Recommended temperature profile for IR reflow



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-363 Dimension



*:Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.035	0.043	0.900	1.100	E1	0.085	0.096	2.150	2.450
A1	0.000	0.004	0.000	0.100	e	0.026*		0.650*	
A2	0.035	0.039	0.900	1.000	e1	0.047	0.055	1.200	1.400
b	0.006	0.014	0.150	0.350	L	0.021	REF	0.525	REF
c	0.003	0.006	0.080	0.150	L1	0.010	0.018	0.260	0.460
D	0.079	0.087	2.000	2.200	theta	0°	8°	0°	8°
E	0.045	0.053	1.150	1.350					

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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