

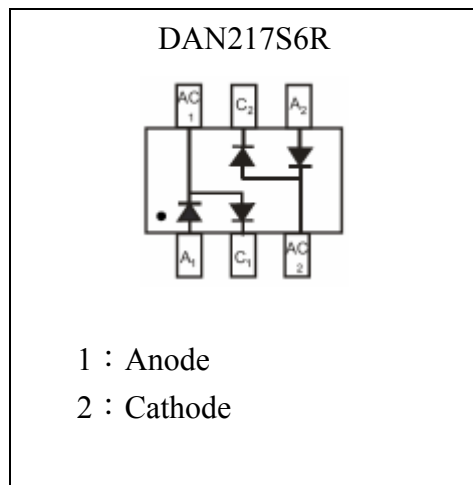
# High –speed multi-chip diode

## DAN217S6R

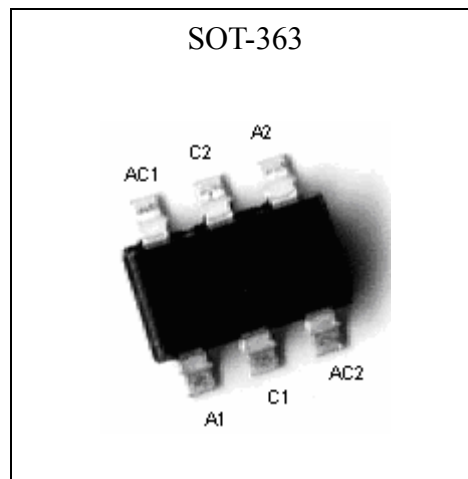
### Description

The DAN217S6R consists of two set of high-speed switching diodes connected in series, fabricated in planar technology, and encapsulated in the small SOT-363 plastic SMD package.

### Equivalent Circuit



### Outline



### Features

- Small plastic SMD package
- High switching speed: max. 4ns
- Continuous reverse voltage: max. 75V
- Repetitive peak reverse voltage: max. 85V
- Repetitive peak forward current: max. 450mA.
- Very low leakage current
- Pb-free package

### Applications

- High-speed switching in thick and thin-film circuits.

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

Parameters	Symbol	Min	Max	Unit
Repetitive peak reverse voltage	$V_{RRM}$	-	85	V
Continuous reverse voltage	$V_R$	-	85	V
Continuous forward current	$I_F$	-	160	mA
Non-repetitive peak forward current @square wave, $T_j=125^{\circ}\text{C}$ prior to surge	$I_{FSM}$	$t=1\mu\text{s}$	4	A
		$t=10\text{ms}$	1	A
		$t=1\text{s}$	0.5	A
Total power dissipation (Note 1)	$P_{tot}$		200	mW
Total power dissipation (Note 2)	$P_{tot}$		300	mW
Junction Temperature	$T_j$	-	150	$^{\circ}\text{C}$
Storage Temperature	$T_{stg}$	-65	+150	$^{\circ}\text{C}$

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

Parameters	Symbol	Conditions	Min	Typ.	Max	Unit
Reverse breakdown voltage	$V_{(BR)R}$	$I_R=100\mu\text{A}$	85	-	-	V
Forward voltage	$V_F$	$I_F=1\text{mA}$ $I_F=10\text{mA}$ $I_F=50\text{mA}$ $I_F=150\text{mA}$	-	-	0.9 1 1.1 1.25	V V V V
Reverse current	$I_R$	$V_R=75\text{V}$	-	-	5	nA
Diode capacitance	$C_D$	$V_R=0\text{V}$ , $f=1\text{MHz}$	-	2	-	pF
Reverse recovery time	$t_{rr}$	when switched from $I_F=10\text{mA}$ to $I_R=10\text{mA}$ , $R_L=100\Omega$ , measured at $I_R=1\text{mA}$	-	-	4	ns

**Thermal Characteristics**

Symbol	Parameter	Conditions	Value	Unit
$R_{th,j-a}$	thermal resistance from junction to ambient	Note 1	625	$^{\circ}\text{C}/\text{W}$
$R_{th,j-a}$	thermal resistance from junction to ambient	Note 2	417	$^{\circ}\text{C}/\text{W}$

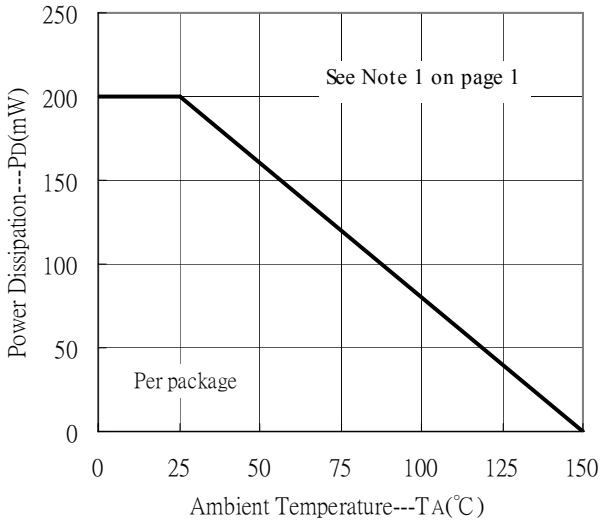
Note : 1. Device mounted on a FR-4 PCB with copper area of 1 inch  $\times$  0.82 inch and thickness 0.062 inch .2. Device mounted on a Alumina PCB with area of 0.4 inch  $\times$  0.3 inch and thickness 0.024 inch .**Ordering Information**

Device	Package	Shipping	Marking
DAN217S6R	SOT-363 (Pb-free)	3000 pcs / Tape & Reel	K52

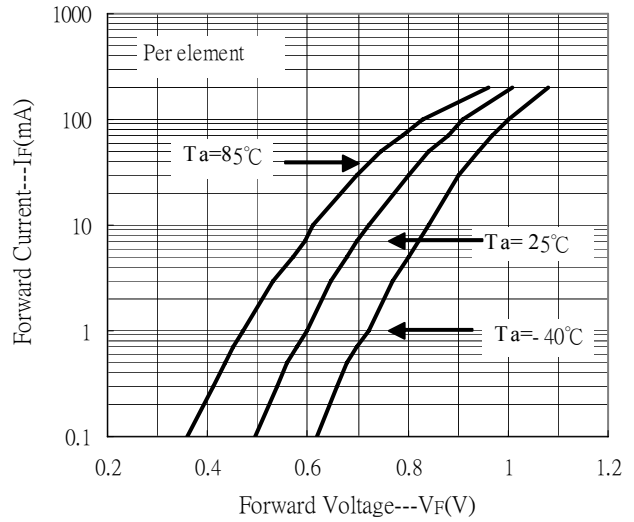


### Characteristic Curves

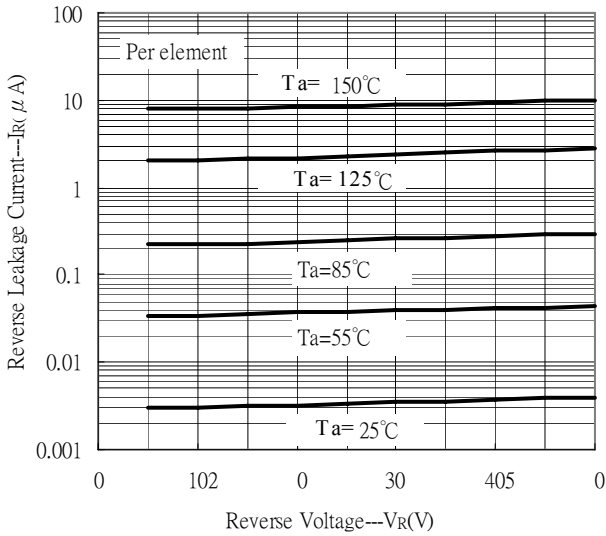
Power Derating Curve



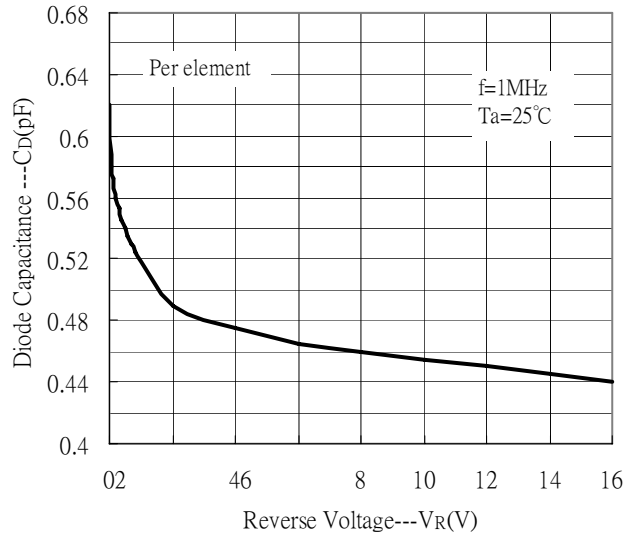
Forward Current vs Forward Voltage



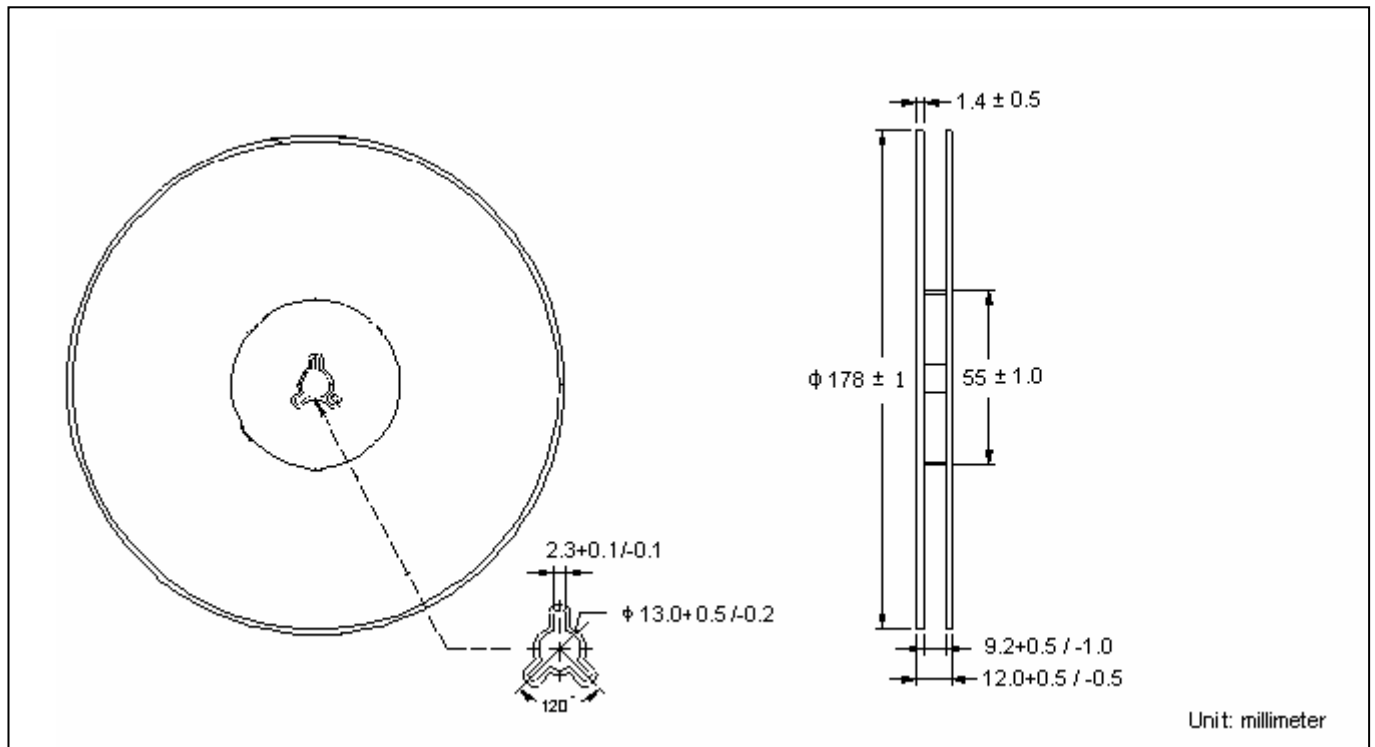
Reverse Leakage Current vs Reverse Voltage



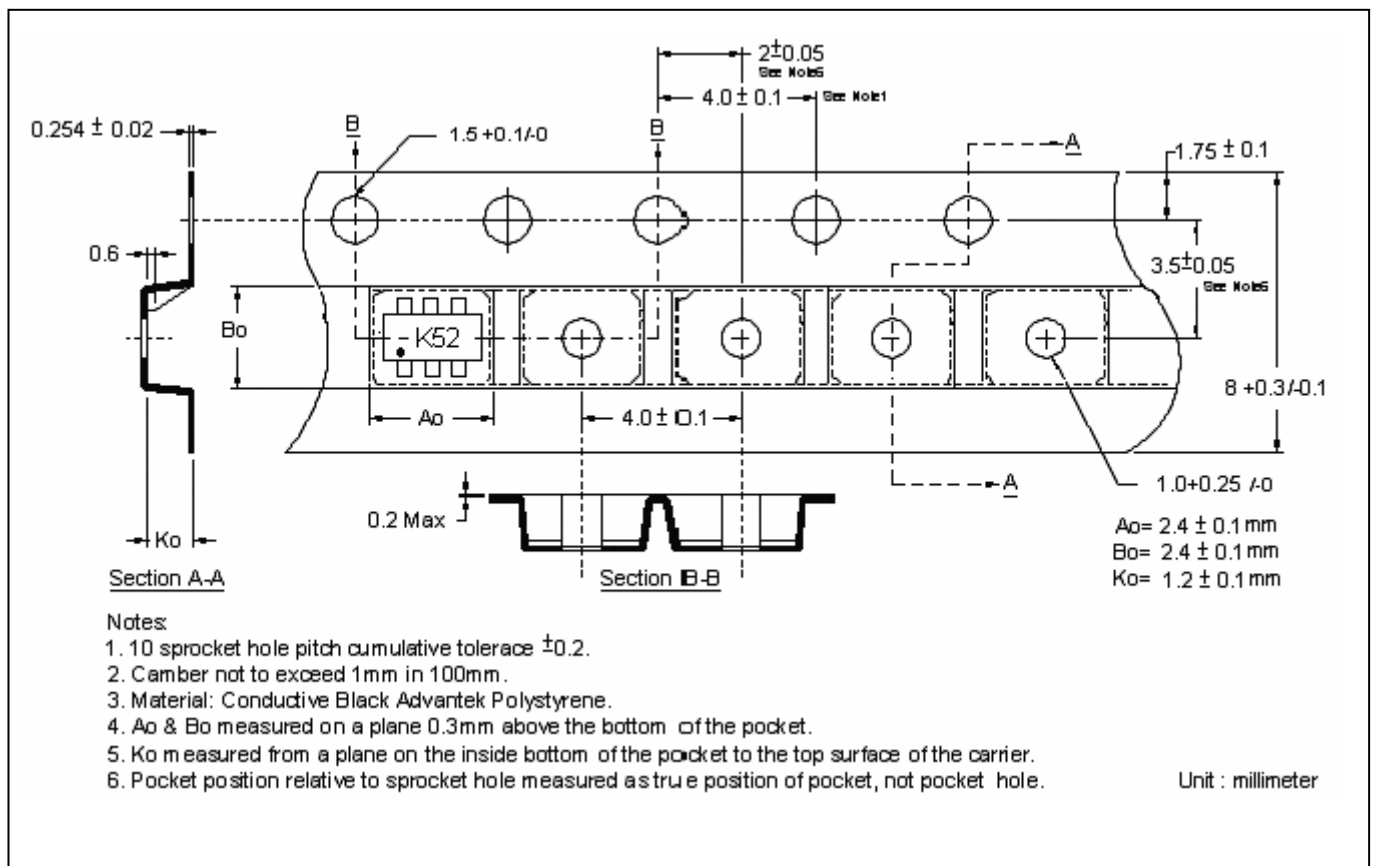
Capacitance vs Reverse Voltage



### Reel Dimension



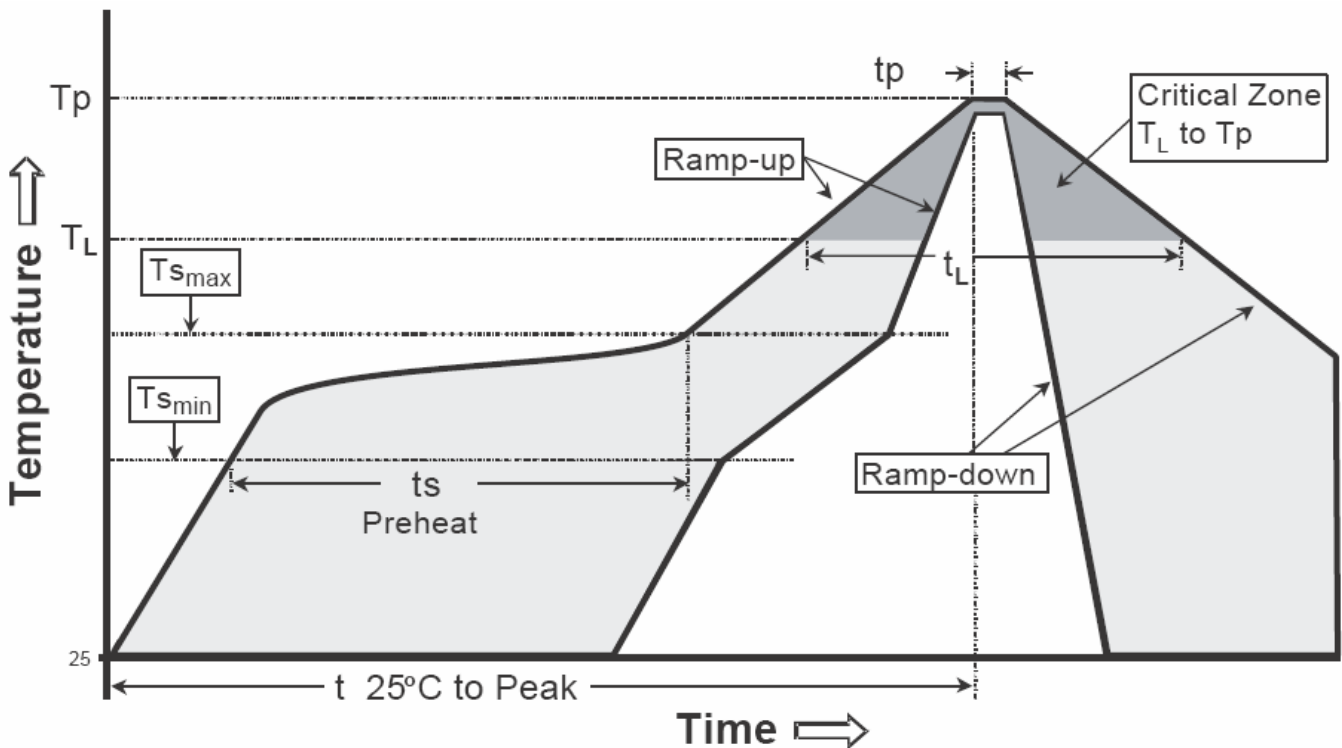
### Carrier Tape Dimension



**Recommended wave soldering condition**

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

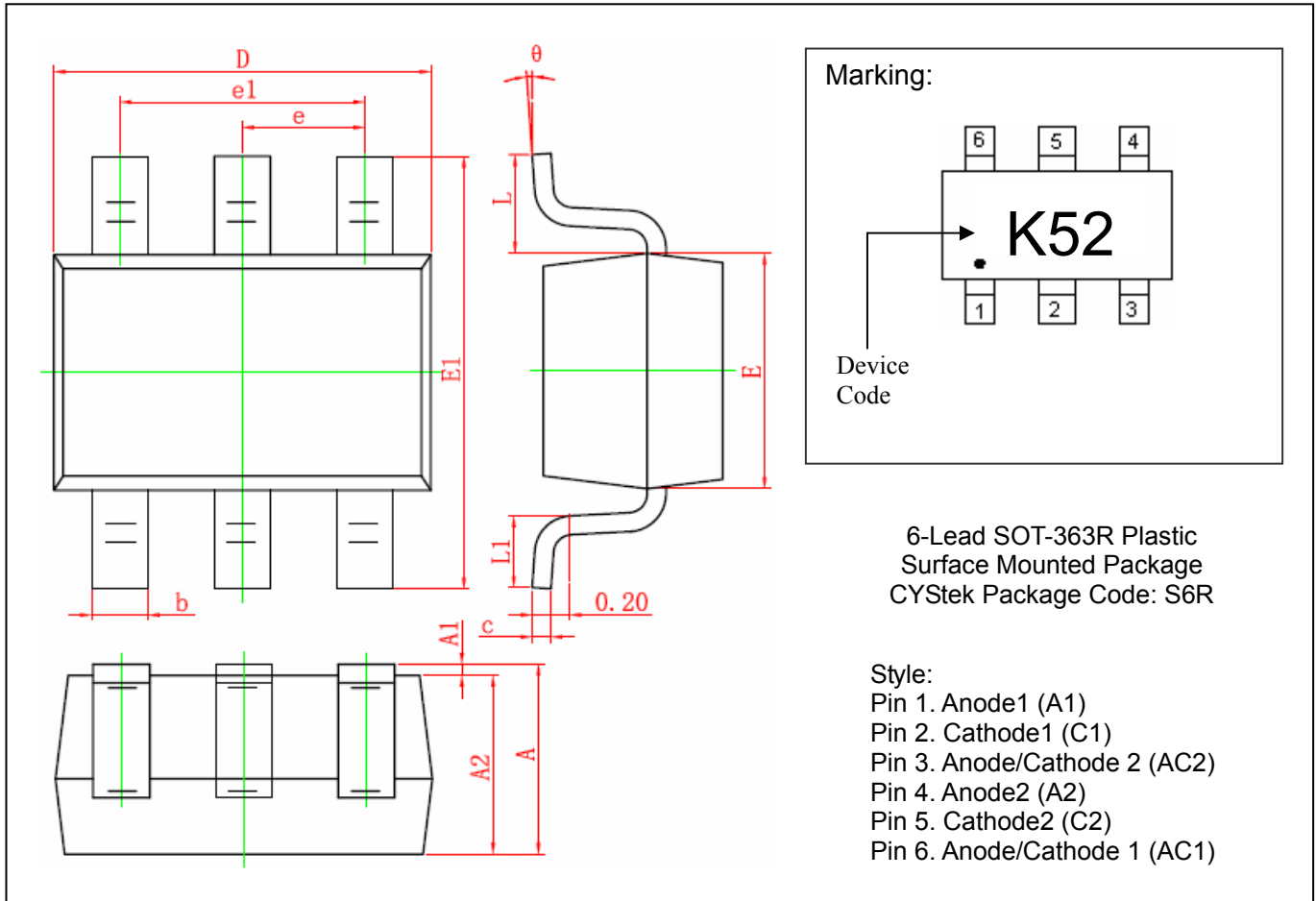
**Recommended temperature profile for IR reflow**



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat		
-Temperature Min(Ts min)	100°C	150°C
-Temperature Max(Ts max)	150°C	200°C
-Time(ts min to ts max)	60-120 seconds	60-180 seconds
Time maintained above:		
-Temperature (TL)	183°C	217°C
- Time (tL)	60-150 seconds	60-150 seconds
Peak Temperature(TP)	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**



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

**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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