

**Small Signal Schottky (double) diodes**

# BAR40N3/BAR40AN3

# BAR40CN3/BAR40SN3

**Description**

Planar silicon Schottky barrier diodes encapsulated in a SOT-23 small plastic SMD package. Single diodes and double diodes with different pinning are available.

**Features**

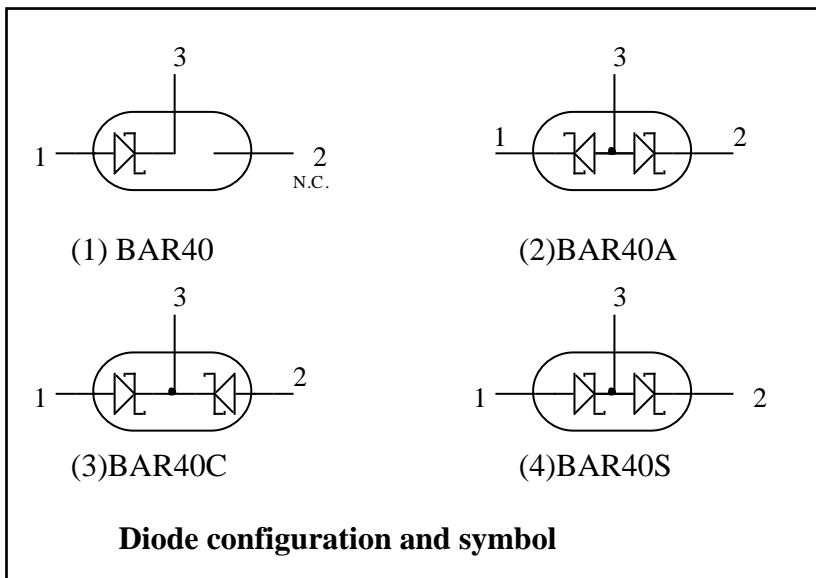
- Very small conduction losses
- Low forward voltage drop
- Small plastic SMD package
- Pb-free lead plating and halogen-free package

**Applications**

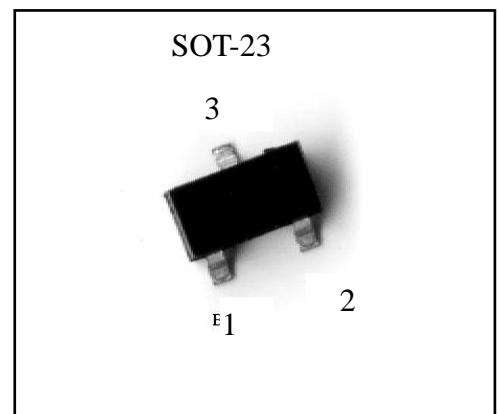
- Ultra high-speed switching
- Voltage clamping
- Protection circuits
- Blocking diodes

**Pinning**

Pin	Description			
	BAR40	BAR40A	BAR40C	BAR40S
1	A	K1	A1	A1
2	NC	K2	A2	K2
3	K	A1,A2	K1,K2	K1,A1



**Outline**



**Marking:**

Type	Marking Code
BAR40 N3	JV3
BAR40AN3	B6
BAR40CN3	5C
BAR40SN3	LD3



### Absolute Maximum Ratings

- Maximum Temperatures  
Storage Temperature Tstg ..... -65~+150 °C  
Operating Junction Temperature Tj ..... -65~+150 °C
- Maximum Power Dissipation  
Total Power Dissipation (Ta=25°C) Ptot (Note) ..... 350 mW
- Maximum Voltages and Currents (Ta=25°C)  
Repetitive Peak Reverse Voltage VRRM..... 40 V  
Continuous Forward Current IF ..... 200 mA  
Repetitive Peak Forward Current(tp≤1s,duty cycle≤0.5)..... 300mA  
Non-repetitive Peak Forward Current (tp<10ms, sinusoidal) IFSM..... 600 mA

Note: for double diodes, Ptot is the total power dissipation of both diodes.

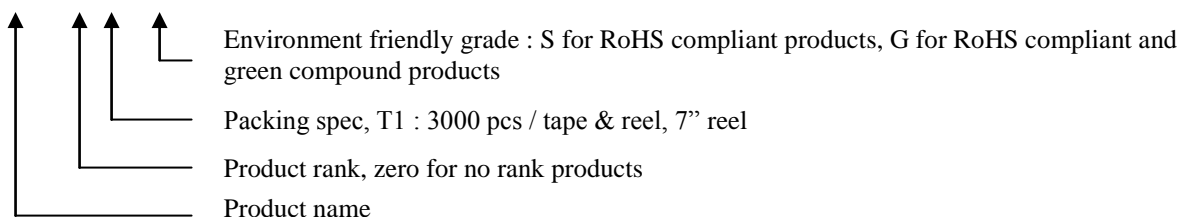
### Characteristics (Ta=25°C)

Characteristic	Symbol	Condition	Min.	Max.	Unit
Reverse Breakdown Voltage	VBR	IR=100μA	40	-	V
Forward Voltage (Note 1)	VF(1)	IF=1mA	-	320	mV
	VF(2)	IF=40mA	-	500	mV
	VF(3)	IF=100mA	-	550	mV
Reverse Leakage Current (Note 2)	IR	VR=30V, Tj=25°C	-	200	nA
Diode Capacitance	CD	VR=1V, f=1MHz	-	10	pF
Reverse Recovery Time	trr	IF=IR=10mA RL=100Ω measured at IR=1mA	-	5	ns

Notes: 1.pulse test, tp=380μs,duty cycle<2%.  
2.pulse test, tp=5ms,duty cycle<2%.

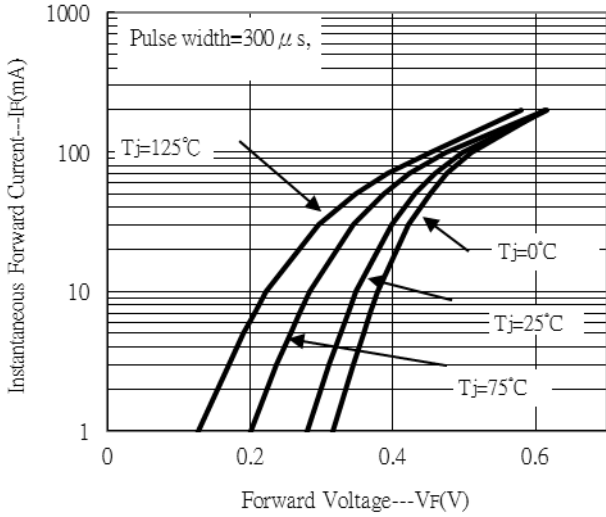
### Ordering Information

Device	Package	Shipping	Marking
BAR40N3-0-T1-G	SOT-23 (Pb-free lead plating and halogen-free package)	3000 pcs / Tape & Reel	JV3
BAR40AN3-0-T1-G			B6
BAR40CN3-0-T1-G			5C
BAR40SN3-0-T1-G			LD3

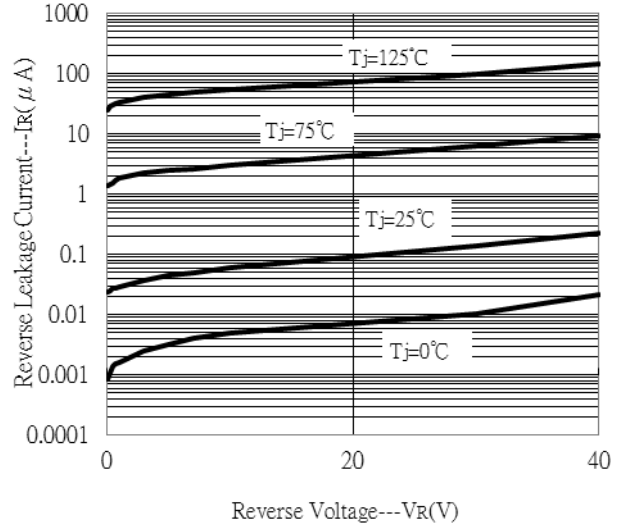


## Typical Characteristics

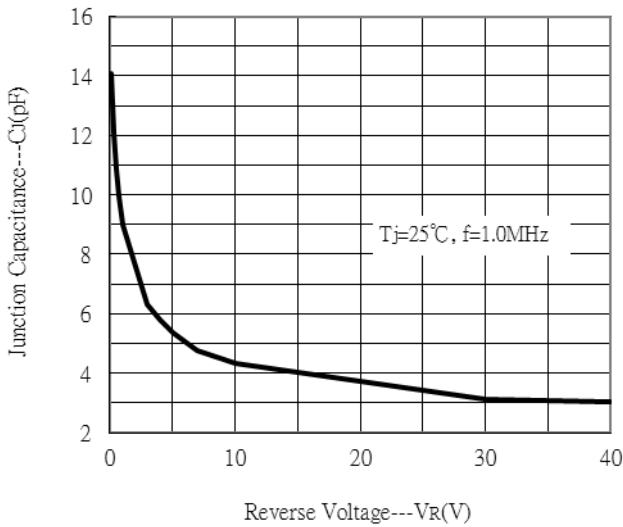
Forward Current vs Forward Voltage



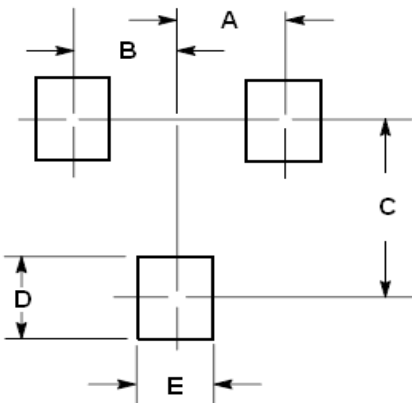
Reverse Leakage Current vs Reverse Voltage



Junction Capacitance vs Reverse Voltage



## Recommended Footprint

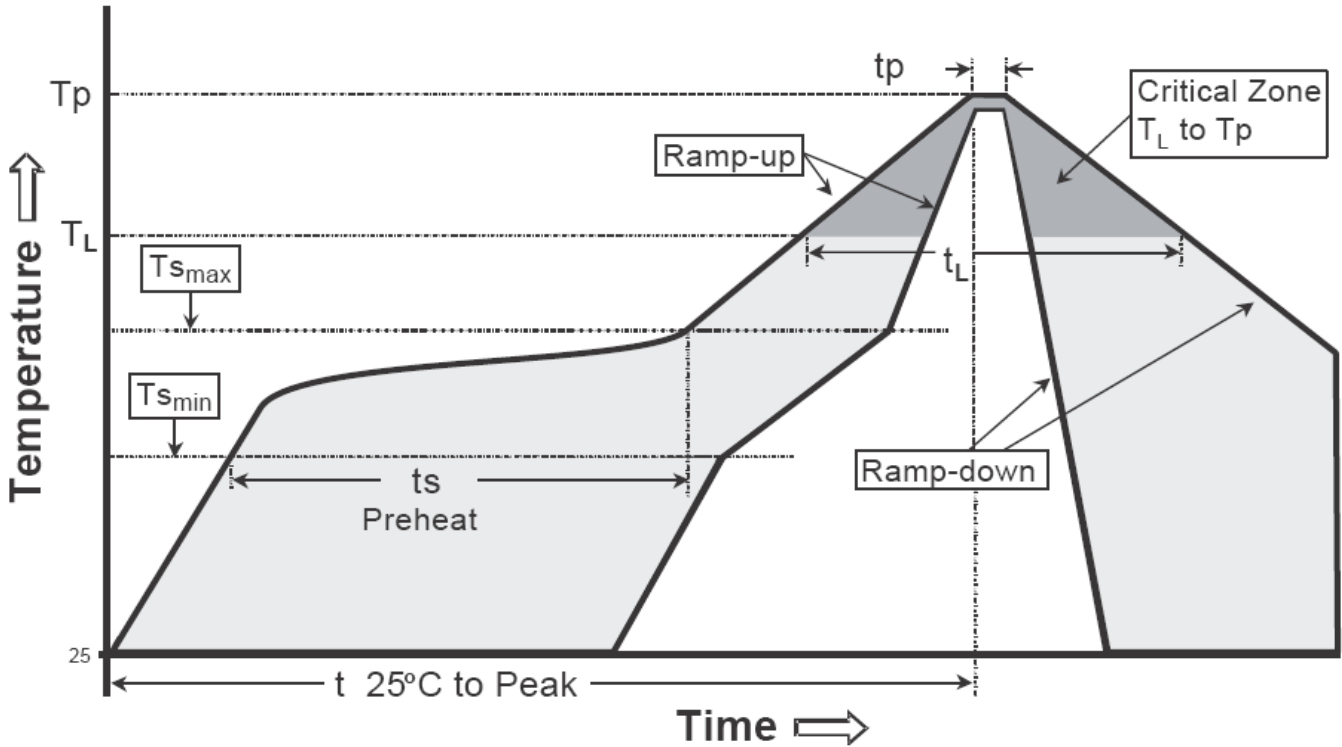


DIM	Inches	Millimeters
	Typ	Typ
A	0.039	1.0
B	0.039	1.0
C	0.079	2.0
D	0.035	0.9
E	0.031	0.8

**Recommended wave soldering condition**

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

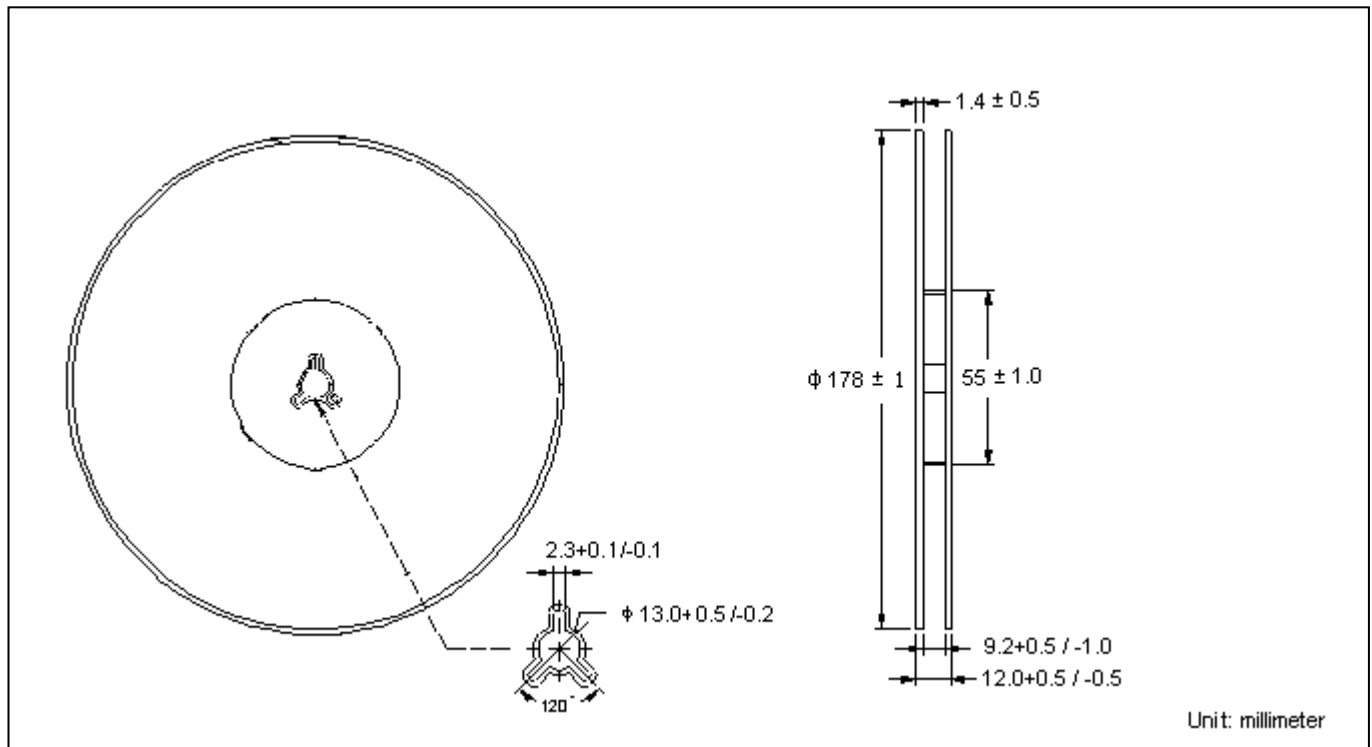
**Recommended temperature profile for IR reflow**



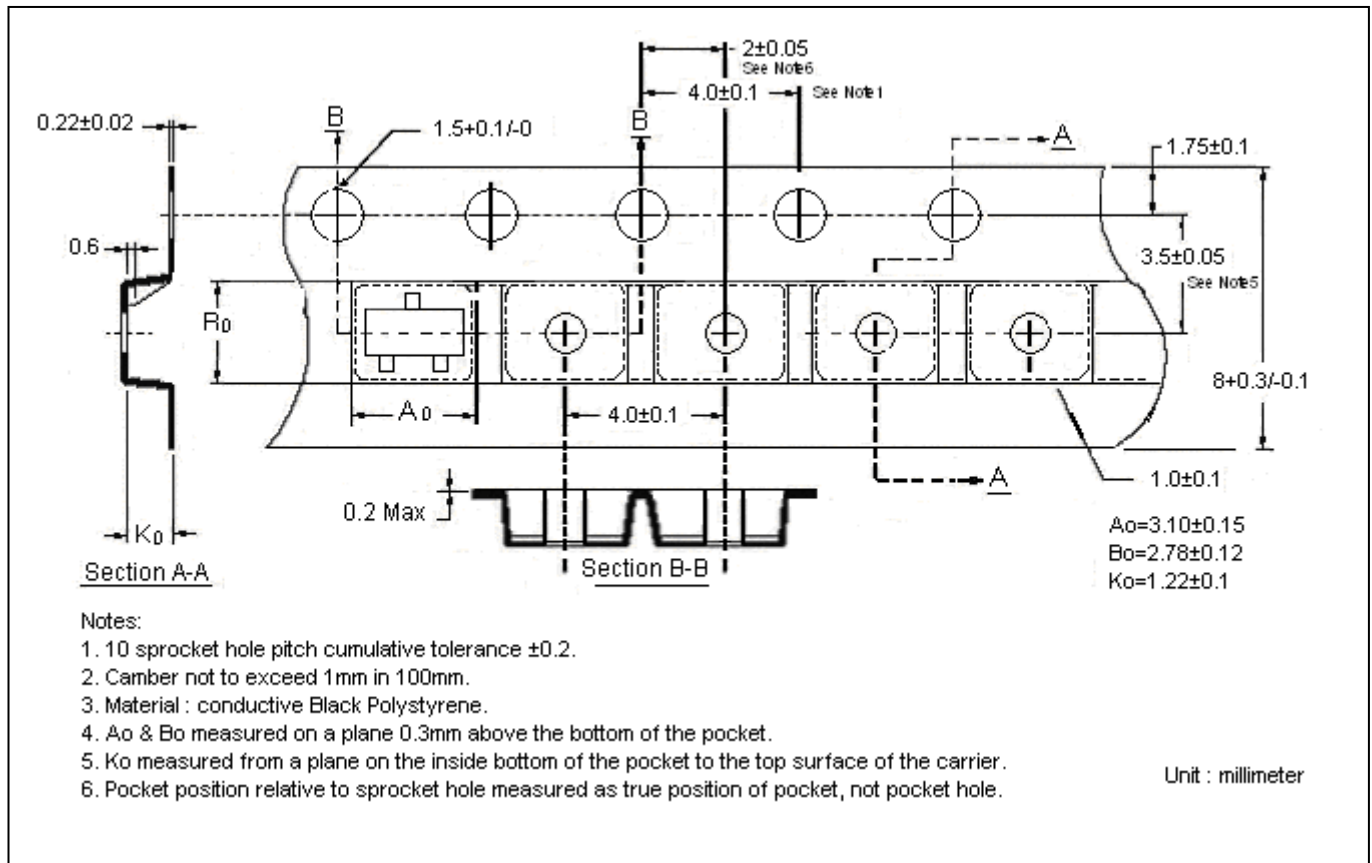
Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (T <sub>smax</sub> to T <sub>p</sub> )	3°C/second max.	3°C/second max.
Preheat		
-Temperature Min(T <sub>s min</sub> )	100°C	150°C
-Temperature Max(T <sub>s max</sub> )	150°C	200°C
-Time(t <sub>s min</sub> to t <sub>s max</sub> )	60-120 seconds	60-180 seconds
Time maintained above:		
-Temperature (T <sub>L</sub> )	183°C	217°C
- Time (t <sub>L</sub> )	60-150 seconds	60-150 seconds
Peak Temperature(T <sub>p</sub> )	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.

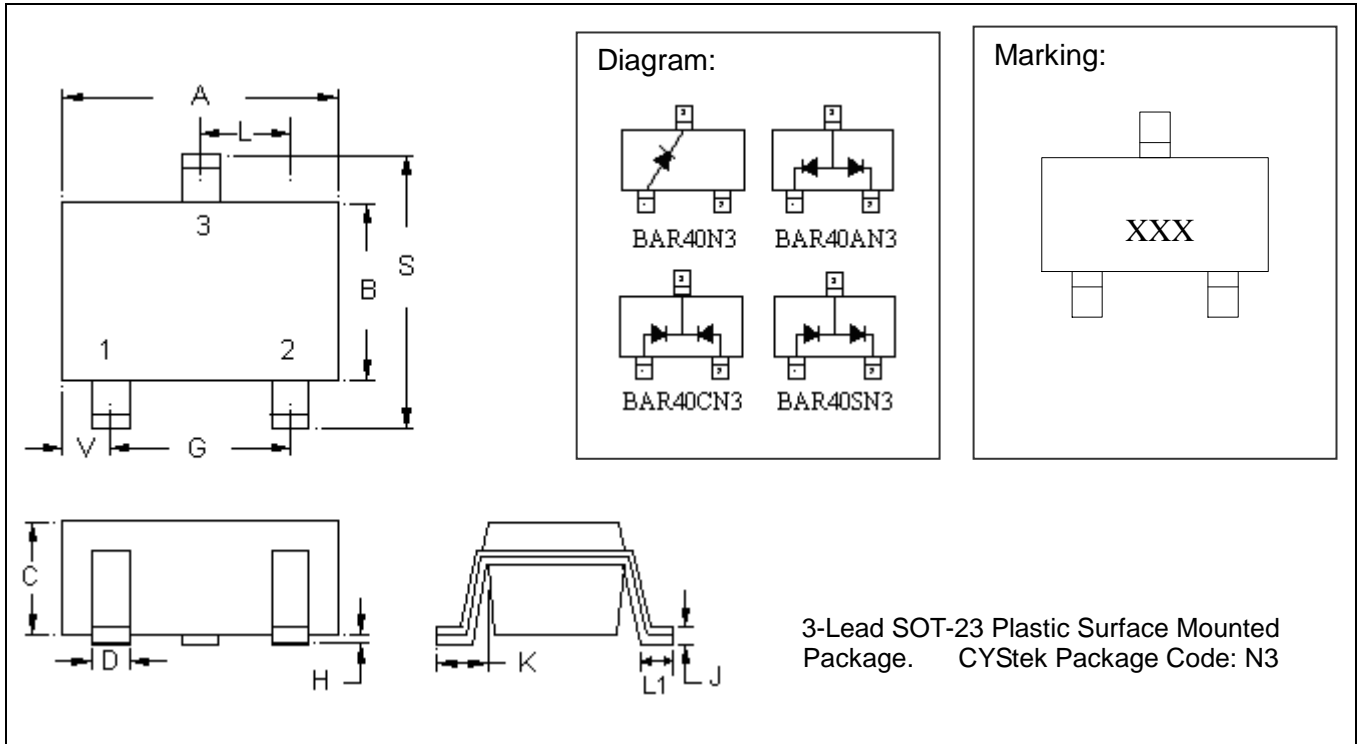
**Reel Dimension**



**Carrier Tape Dimension**



**SOT-23 Dimension**



- BAR40 N3: Single Diode. (Marking Code JV3)
- BAR40AN3: Common Anode. (Marking Code B6)
- BAR40CN3: Common Cathode. (Marking Code 5C)
- BAR40SN3: Series Connected. (Marking Code LD3)

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1102	0.1204	2.80	3.04	J	0.0032	0.0079	0.08	0.20
B	0.0472	0.0669	1.20	1.70	K	0.0118	0.0266	0.30	0.67
C	0.0335	0.0512	0.89	1.30	L	0.0335	0.0453	0.85	1.15
D	0.0118	0.0197	0.30	0.50	S	0.0830	0.1161	2.10	2.95
G	0.0669	0.0910	1.70	2.30	V	0.0098	0.0256	0.25	0.65
H	0.0000	0.0040	0.00	0.10	L1	0.0118	0.0197	0.30	0.50

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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