

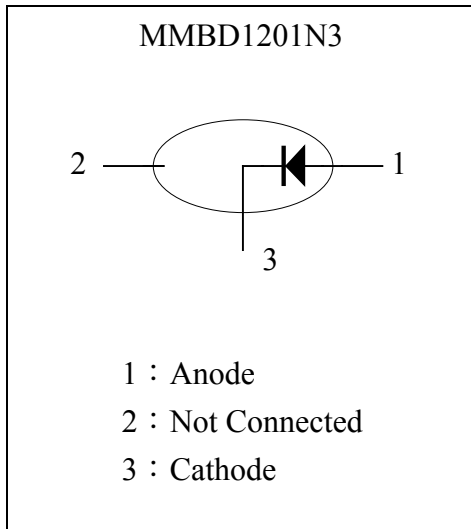
Small Signal Switching Diode

MMBD1201N3

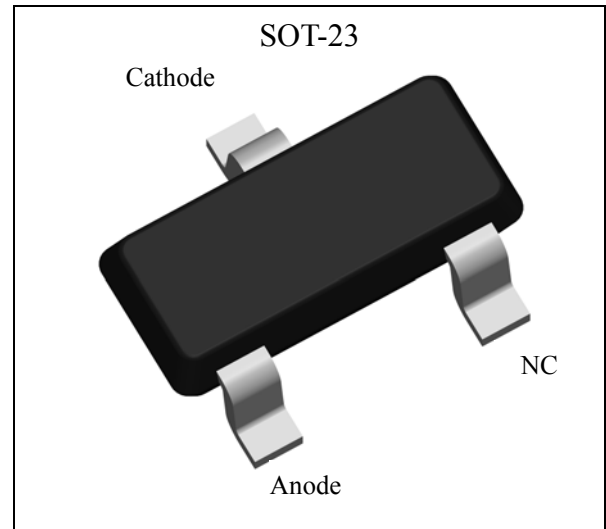
Features

- High speed switching applications
- Low reverse current
- Pb-free lead plating and halogen-free package

Equivalent Circuit



Outline



Ordering Information

Device	Package	Shipping
MMBD1201N3-0-T1-G	SOT-23 (Pb-free lead plating and halogen-free package)	3000 pcs / tape & reel

- ↑ Environment friendly grade : S for RoHS compliant products, G for RoHS compliant and green compound products
- ↑ Packing spec, T1 : 3000 pcs / tape & reel, 7" reel
- ↑ Product rank, zero for no rank products
- ↑ Product name

**Absolute Maximum Ratings**

Symbol	Parameter	Conditions	Min	Max	Unit
VRRM	maximum repetitive reverse voltage		-	100	V
IF(AV)	average rectified forward current		-	200	mA
IFSM	non-repetitive peak forward surge current	tp≤1s	-	1	A
		tp≤1μs	-	2	
PD	power dissipation (note 1)	Ta=25°C	-	350	mW
Tstg	storage temperature range		-55	+150	°C
Tj	operating junction temperature range		-55	+150	

Thermal Characteristics

Symbol	Parameter	Conditions	Value	Unit
Rth j-a	thermal resistance from junction to ambient	(note 1)	357	°C/W

Note 1 : Device mounted on a FR-4 PCB

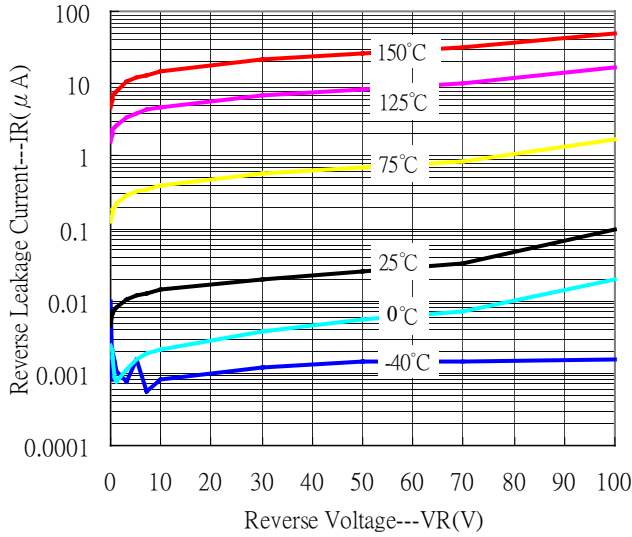
Characteristics (Ta=25°C, unless otherwise specified)

Parameter	Symbol	Condition	Min.	Max.	Unit
Reverse Breakdown Voltage	VR	IR=100μA	100	-	V
Forward Voltage (Note 1)	VF(1)	IF=1mA	569	600	mV
	VF(2)	IF=10mA	679	740	mV
	VF(3)	IF=100mA	845	920	mV
	VF(4)	IF=200mA	0.93	1.0	V
	VF(5)	IF=300mA	-	1.1	V
Reverse Leakage Current	IR	VR=20V	-	25	nA
		VR=50V	-	50	nA
		VR=50V, TA=150°C		100	μA
Total Capacitance	CT	VR=0V, f=1MHz	-	2	pF
Reverse Recovery Time	trr	when switched from IF= 10mA to IR=10mA; RL=100Ω; measured at IR=1mA	-	4	ns

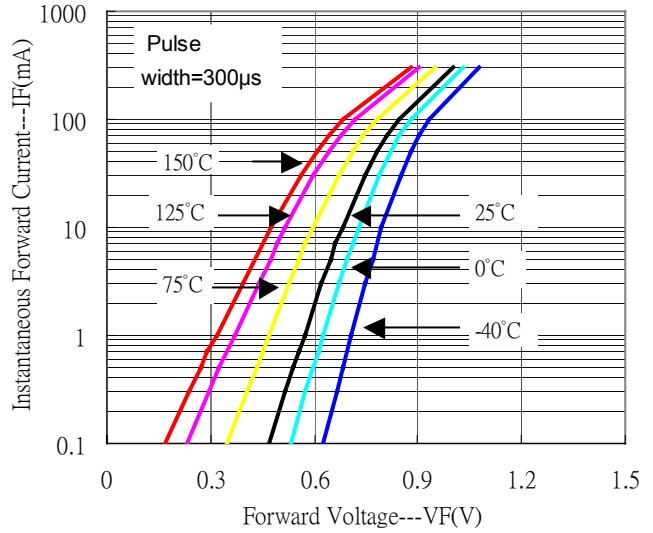
Notes: 1.pulse test, tp=300μs, duty cycle<2%.

Typical Characteristics

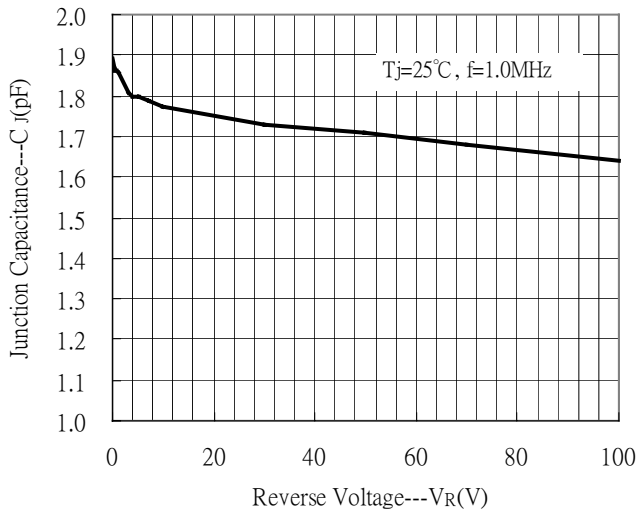
Reverse Leakage Current vs Reverse Voltage



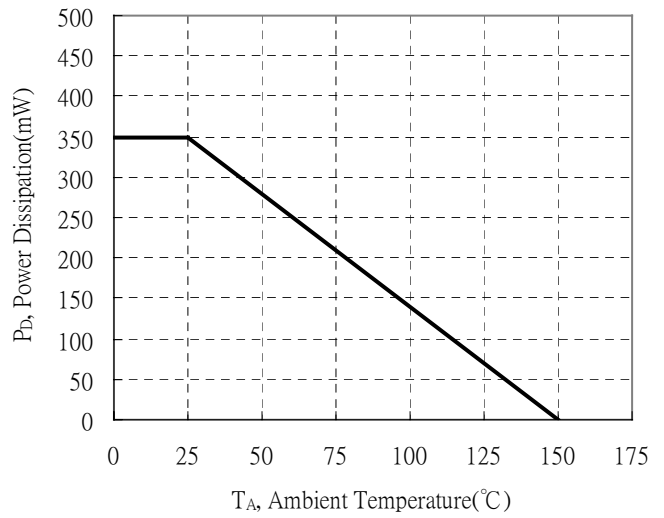
Forward Current vs Forward Voltage



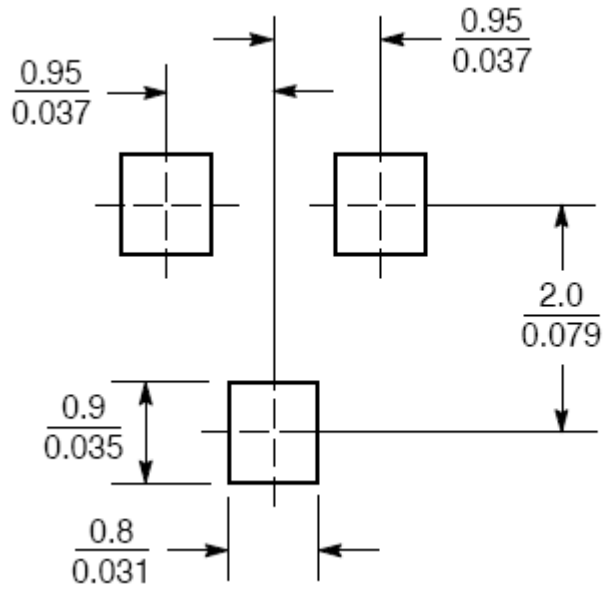
Junction Capacitance vs Reverse Voltage



Power Derating Curve

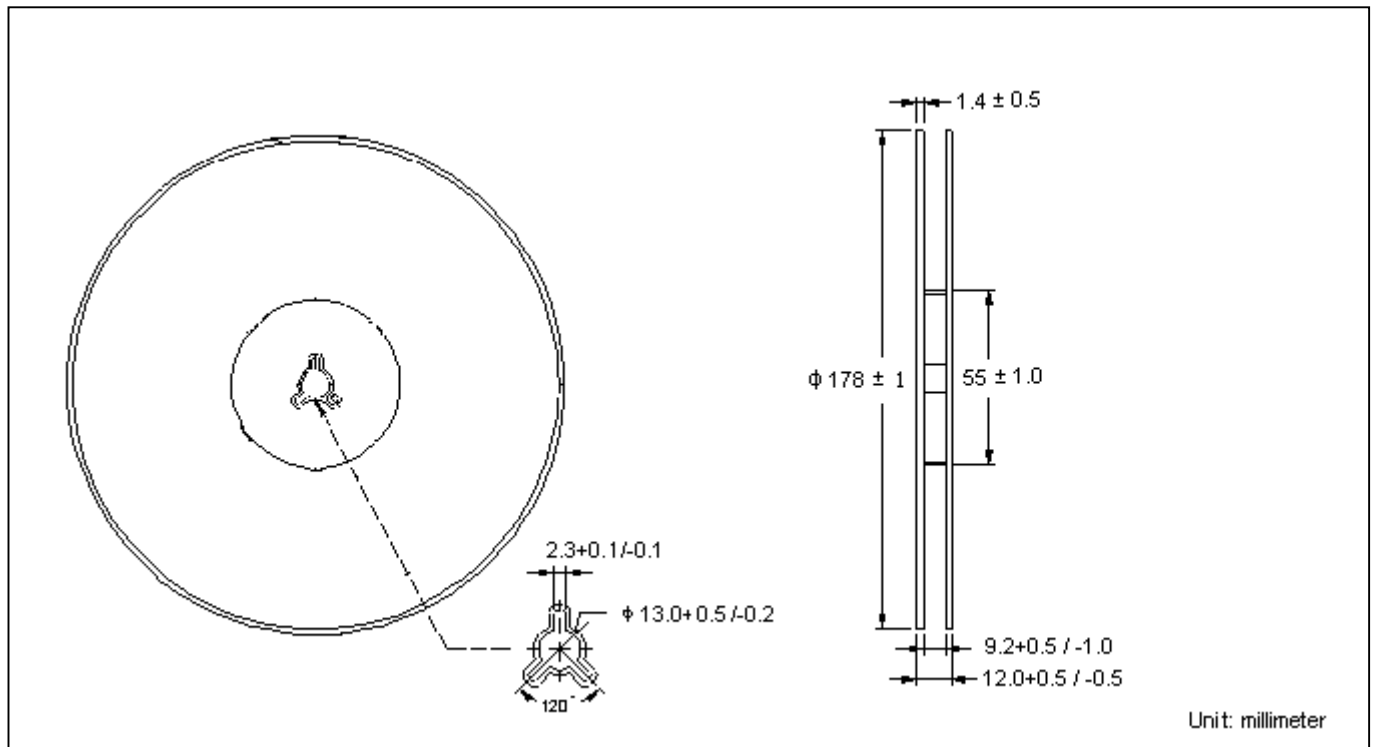


Recommended Soldering Footprint

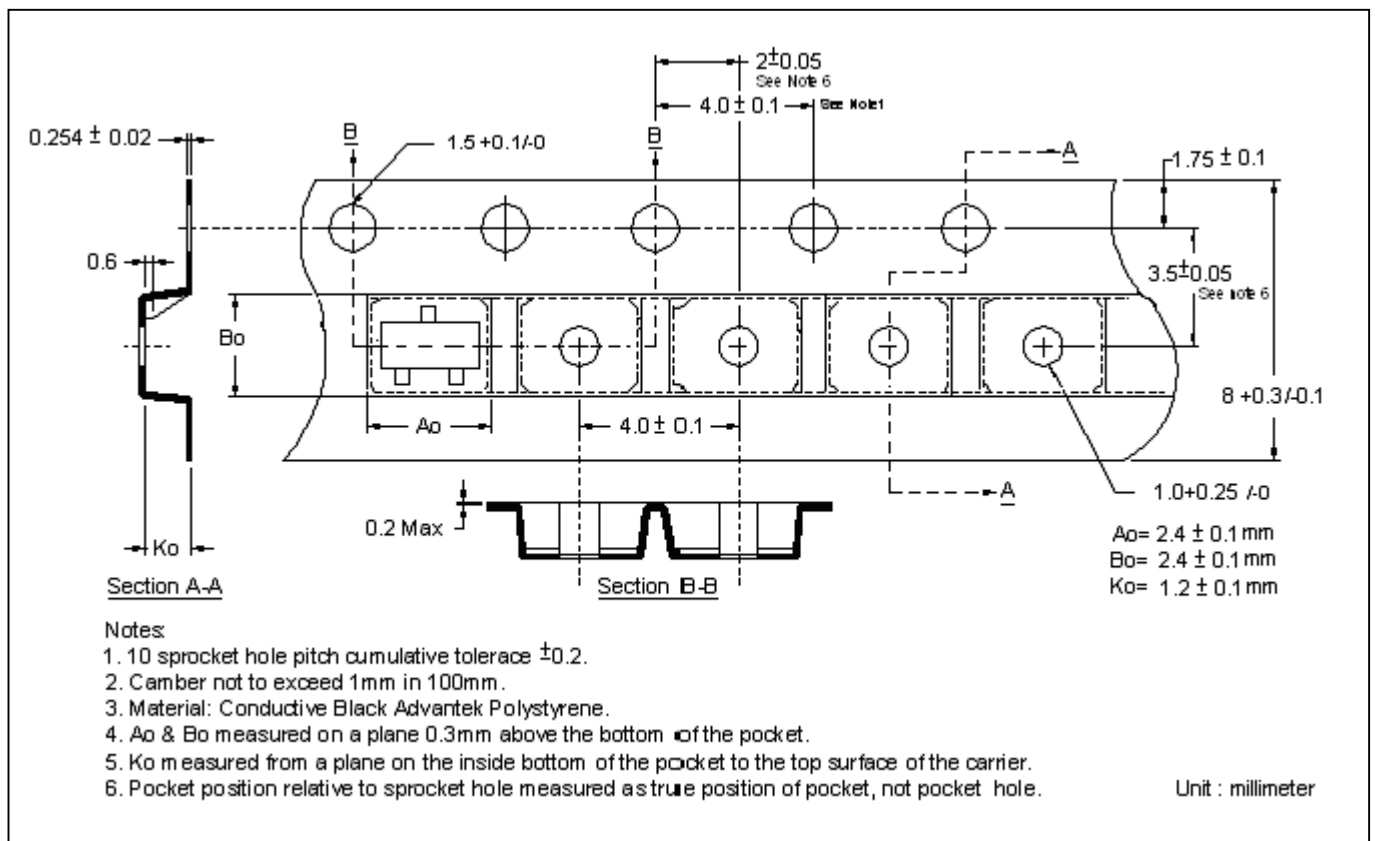


Unit : $\frac{\text{mm}}{\text{inches}}$

Reel Dimension



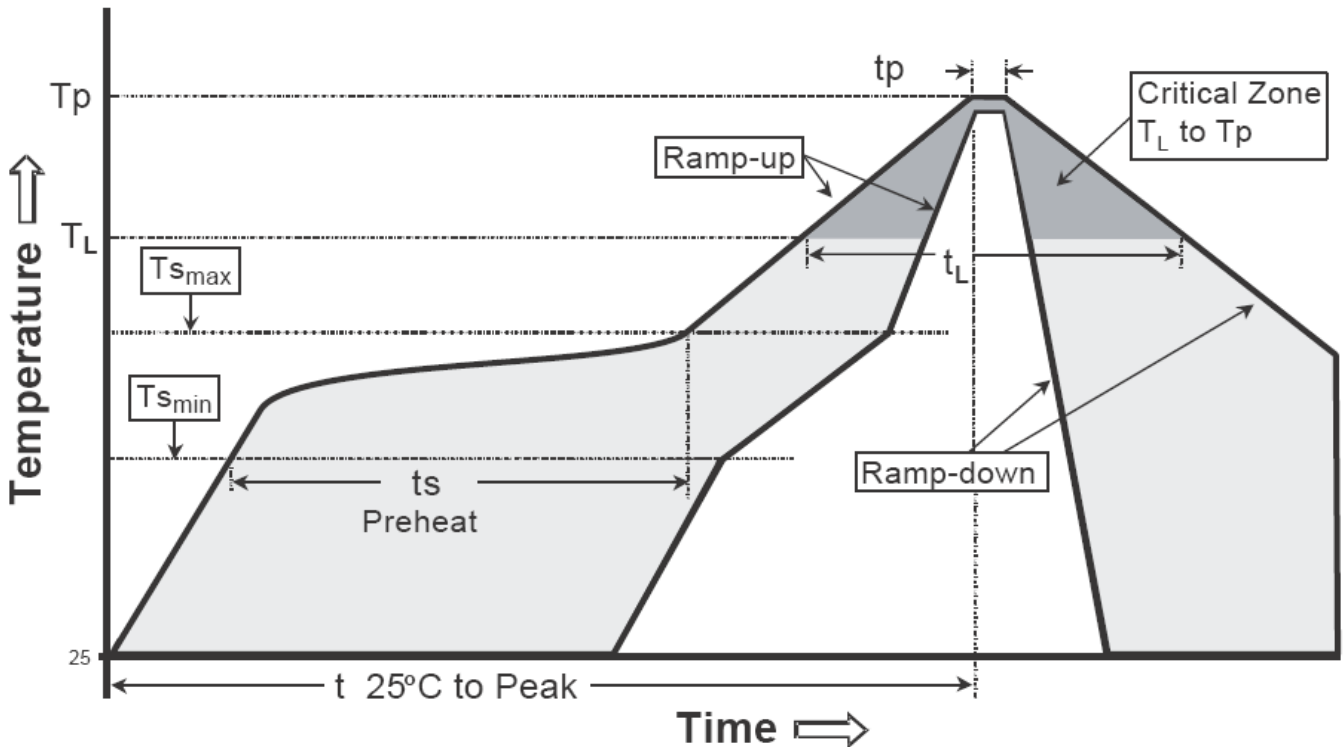
Carrier Tape Dimension



Recommended wave soldering condition

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

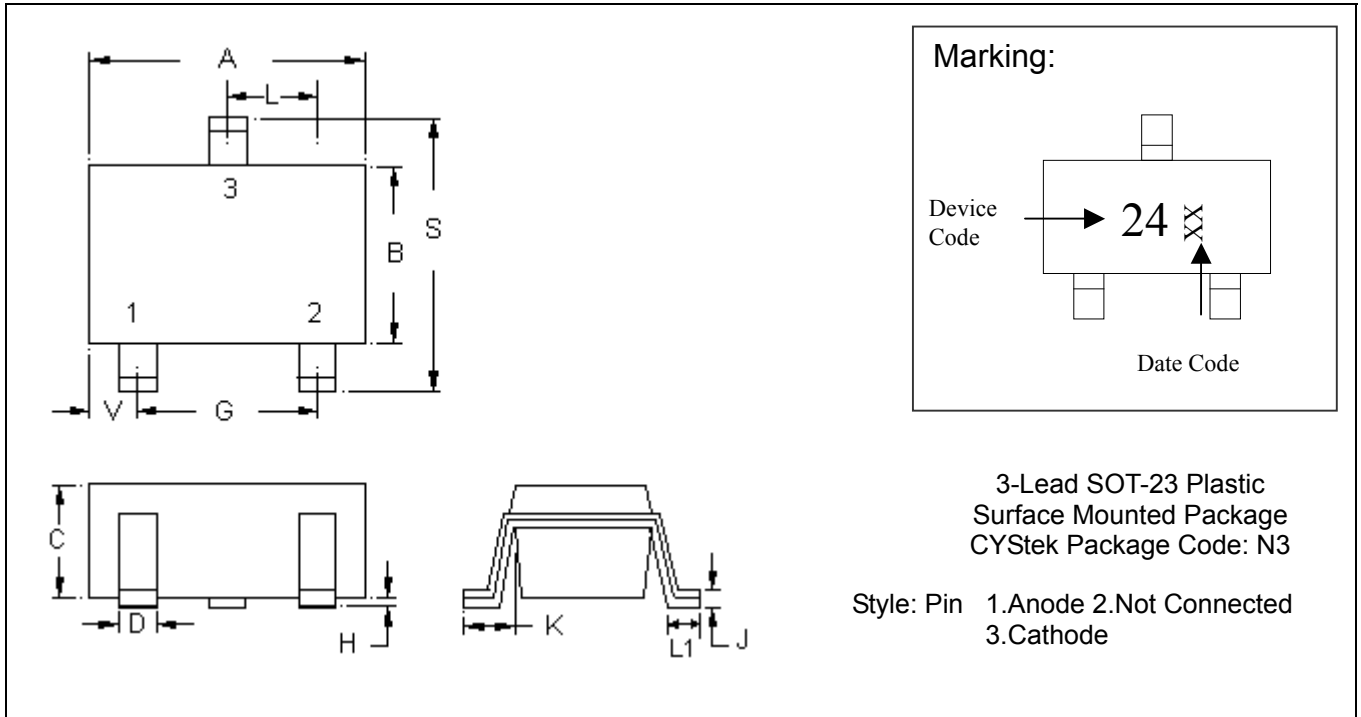
Recommended temperature profile for IR reflow



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-23 Dimension



3-Lead SOT-23 Plastic
 Surface Mounted Package
 CYStek Package Code: N3
 Style: Pin 1.Anode 2.Not Connected
 3.Cathode

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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