1.2Amp. Surface Mount Schottky Barrier Diodes

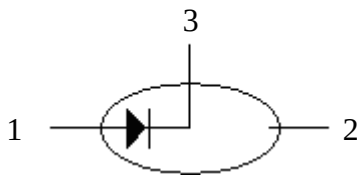
RB140BN3

Features

- For surface mounted applications.
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- Plastic material used carries Underwriters Laboratory Flammability Classification 94V-0
- Low leakage current
- High surge capability
- High temperature soldering: 250°C/10 seconds at terminals
- Exceeds environmental standards of MIL-S-19500/228
- Pb-free lead plating package

Equivalent Circuit

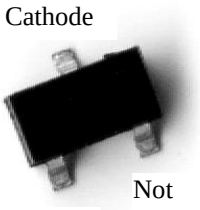
RB140BN3



1：Anode
2：Not Connected
3：Cathode

Outline

SOT-23



Applications

- DC-DC converters.
- Strobes.
- Mobile phones.
- Charging circuits.
- Motor control.

Absolute Maximum Ratings

(Rating at 25°C ambient temperature unless otherwise specified.)

Parameter	Symbol	Limits	Units
Repetitive peak reverse voltage	V_{RRM}	40	V
Maximum RMS voltage	V_{RMS}	28	V
Maximum DC blocking voltage	V_R	40	V
Average forward rectified current	I_O	1.2	A
Peak forward surge current @8.3ms single half sine wave superimposed on rated load (JEDEC method)	I_{FSM}	20	A
Power Dissipation (Note)	P_D	625	mW
Maximum thermal resistance, Junction to ambient (Note)	$R_{th,JA}$	250	℃/W
Operating Junction and Storage Temperature range	T_J ; Tstg	-50 ~ +150	℃

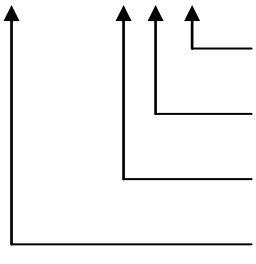
Note : For a device mounted on 25mm×25mm FR-4 PCB with high coverage of single sided 1oz copper, in still air condition.

Characteristics (T_A=25°C)

Characteristic	Symbol	Condition	Min.	Typ	Max.	Unit
Reverse Breakdown Voltage	$V_{(BR)R}$	I_R=80μA	40	-	-	V
Forward Voltage	V_F 1	I_F=50mA	-	280	340	mV
	V_F 2	I_F=100mA	-	300	360	
	V_F 3	I_F=250mA	-	340	410	
	V_F 4	I_F=400mA	-	380	460	
	V_F 5	I_F=750mA	-	410	500	
	V_F 6	I_F=1000mA	-	440	550	
	V_F7	I_F=1500mA	-	-	630	
Reverse Leakage Current	I_R 1	V_R=30V	-	8	20	μA
	I_R 3	V_R=30V, T_A=75°C	-	180	-	μA
Capacitance Between Terminals	C_T	V_R=30V, f=1MHz	-	18	-	pF

Ordering Information

Device	Package	Shipping
RB140BN3-0-T-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

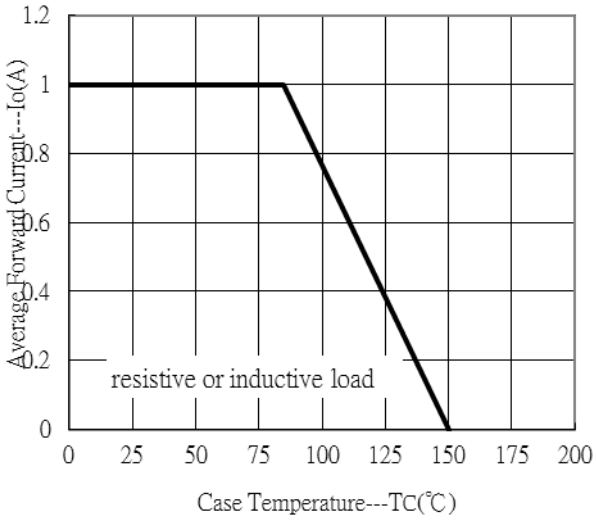
Packing spec, T1 : 3000 pcs/ tape & reel in 7” reel

Product rank, zero for no rank products

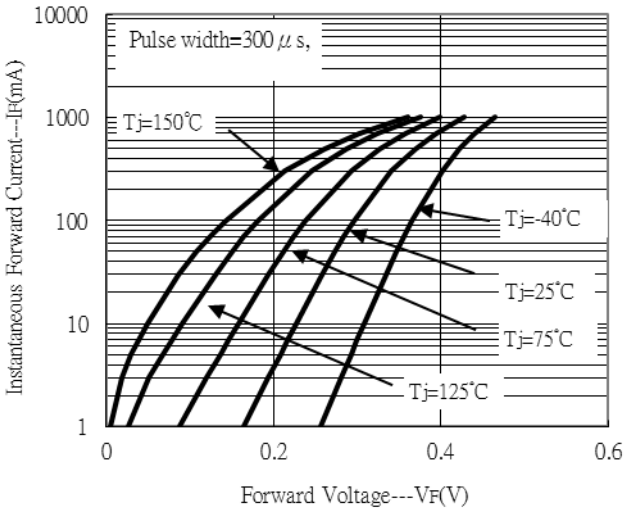
Product name

Typical Characteristics

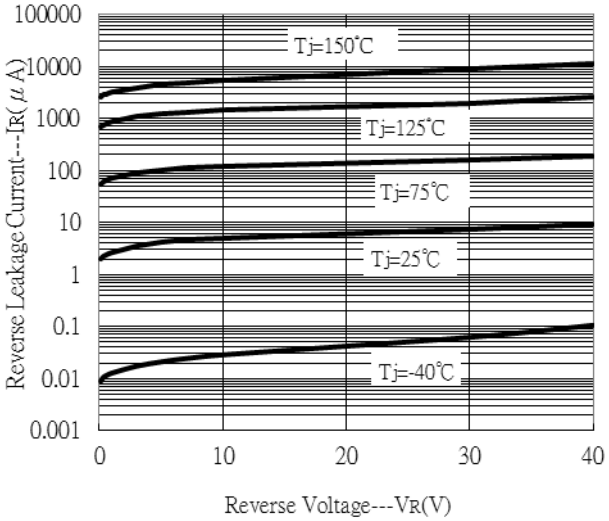
Forward Current Derating Curve



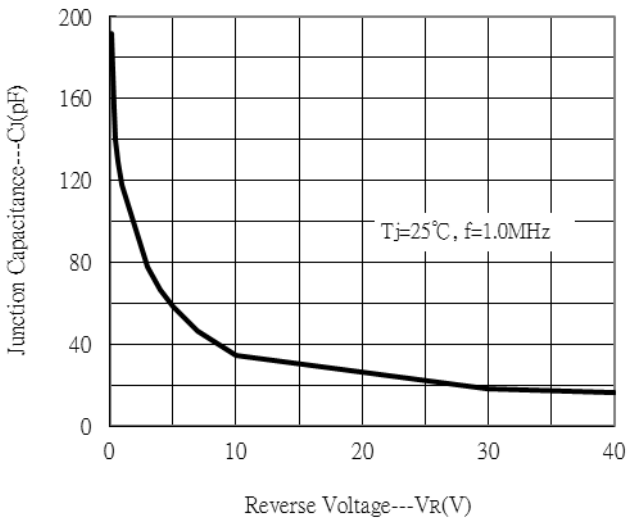
Forward Current vs Forward Voltage



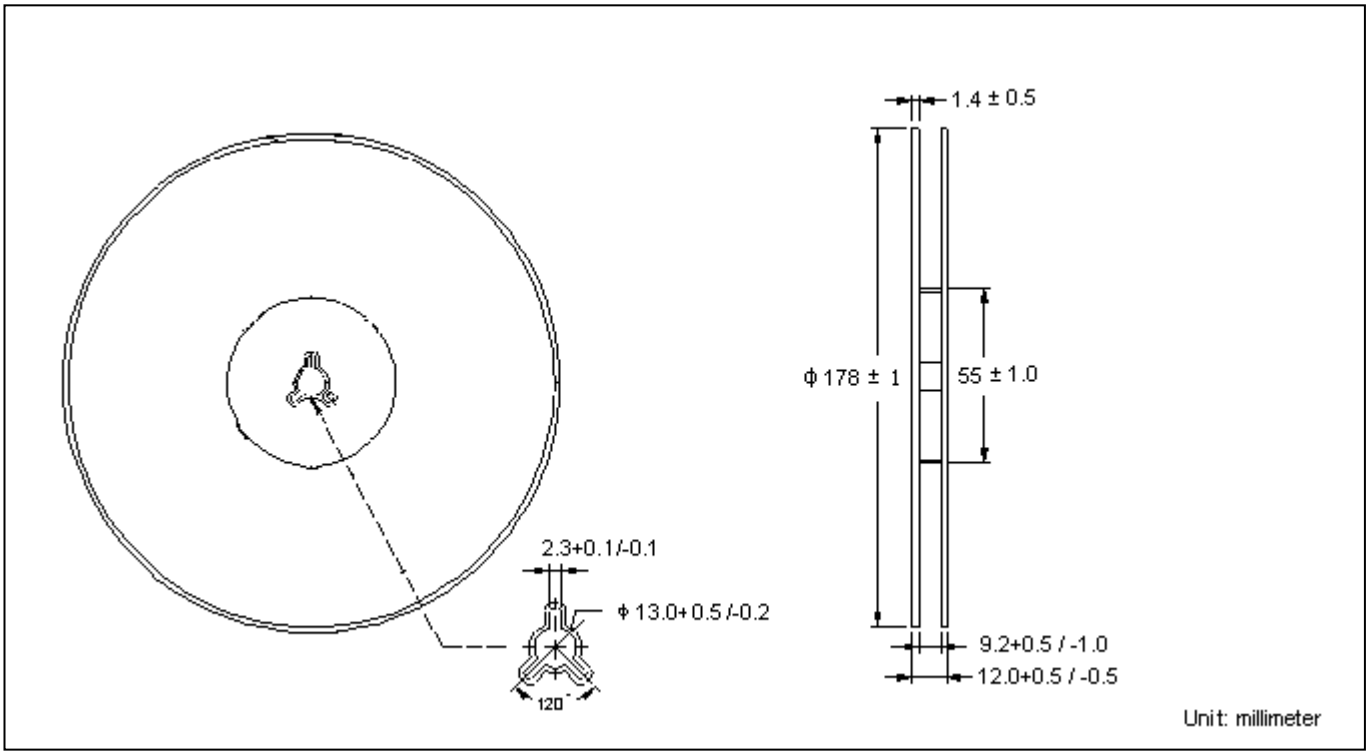
Reverse Leakage Current vs Reverse Voltage



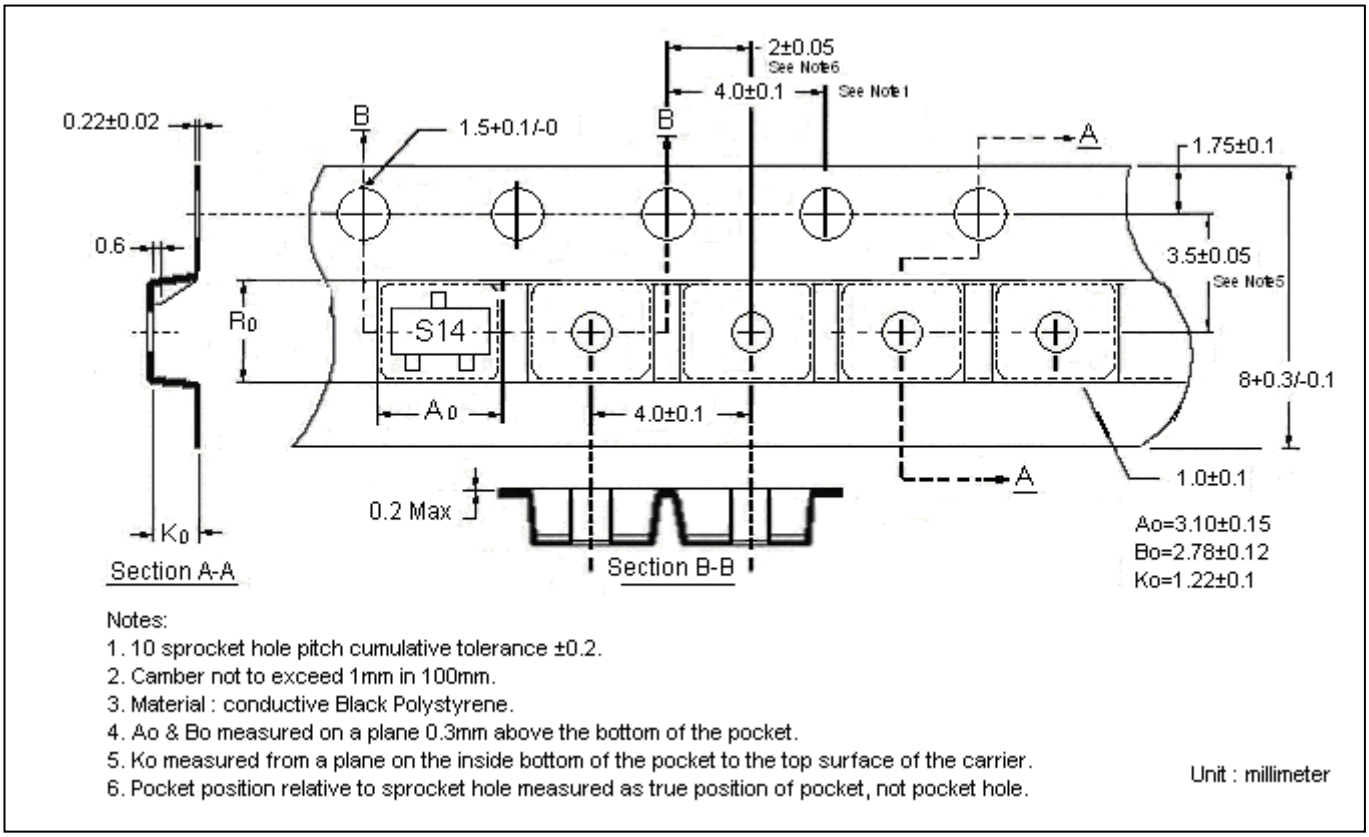
Junction Capacitance vs Reverse Voltage



Reel Dimension



Carrier Tape Dimension



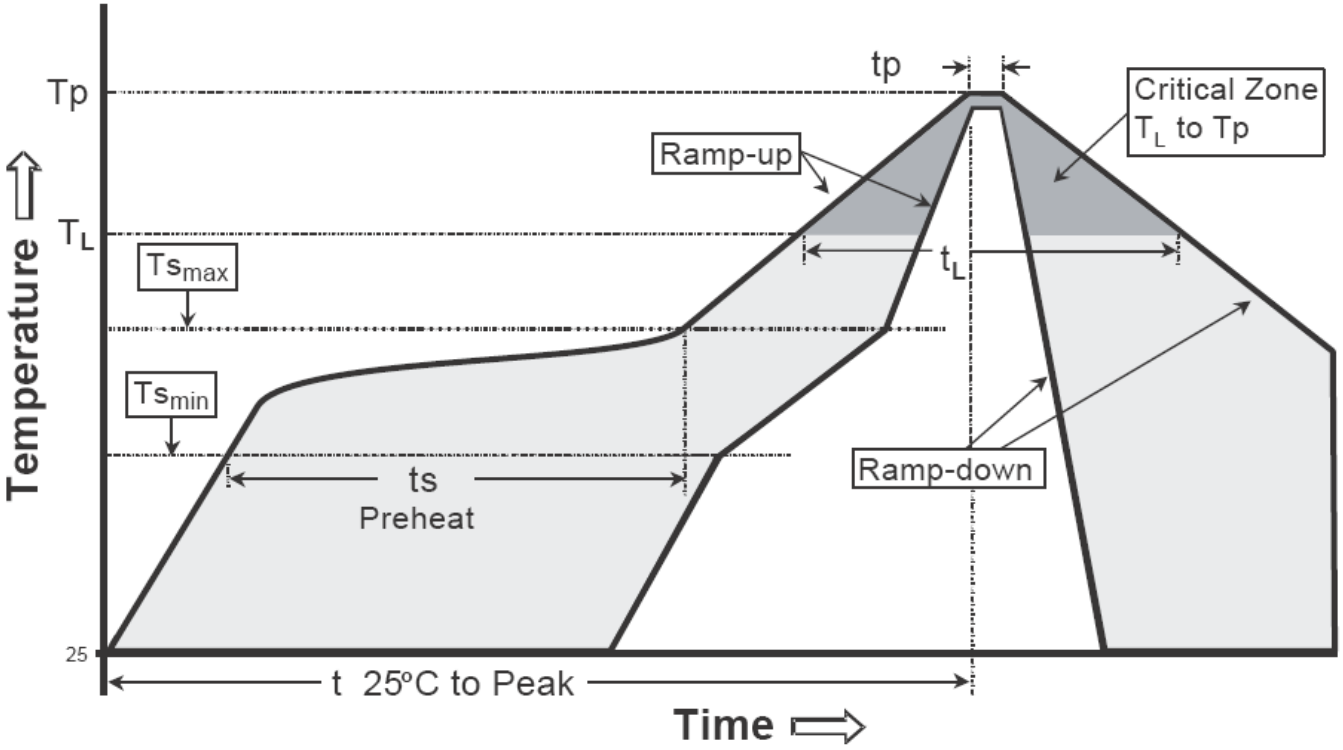
Notes:
1. 10 sprocket hole pitch cumulative tolerance ±0.2.
2. Camber not to exceed 1mm in 100mm.
3. Material : conductive Black Polystyrene.
4. Ao & Bo measured on a plane 0.3mm above the bottom of the pocket.
5. Ko measured from a plane on the inside bottom of the pocket to the top surface of the carrier.
6. Pocket position relative to sprocket hole measured as true position of pocket, not pocket hole.

Unit : millimeter

Recommended wave soldering condition

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

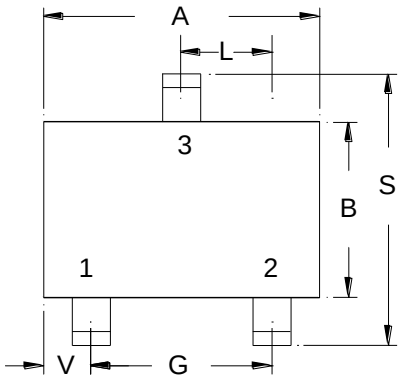
Recommended temperature profile for IR reflow

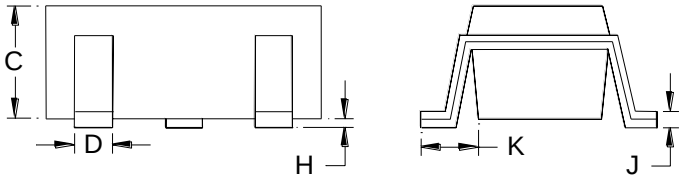


Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat −Temperature Min(Ts min) −Temperature Max(Ts max) −Time(ts min to ts max)	 100°C 150°C 60-120 seconds	 150°C 200°C 60-180 seconds
Time maintained above: −Temperature (TL)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

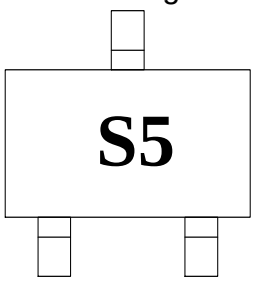
Note : All temperatures refer to topside of the package, measured on the package body surface.

SOT-23 Dimension





Marking:



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	0.0034	0.0070	0.085	0.177
B	0.0472	0.0630	1.20	1.60	K	0.0128	0.0266	0.32	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	0.1083	2.10	2.75
G	0.0669	0.0910	1.70	2.30	V	0.0098	0.0256	0.25	0.65
H	0.0005	0.0040	0.013	0.10					

Notes: 1Controlling 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