5.0Amp. Surface Mount Schottky Barrier Diodes

SK520SB thru SK5100SB

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
- Exceeds environmental standards of MIL-S-19500/228

Mechanical Data

- Case: Molded plastic, SMB/JEDEC DO-214AA.
- Terminals: Solder plated, solderable per MIL-STD-750 method 2026
- Polarity: Indicated by cathode band.
- Mounting Position : Any.
- Weight: 0.0878 gram

Maximum Ratings and Electrical Characteristics

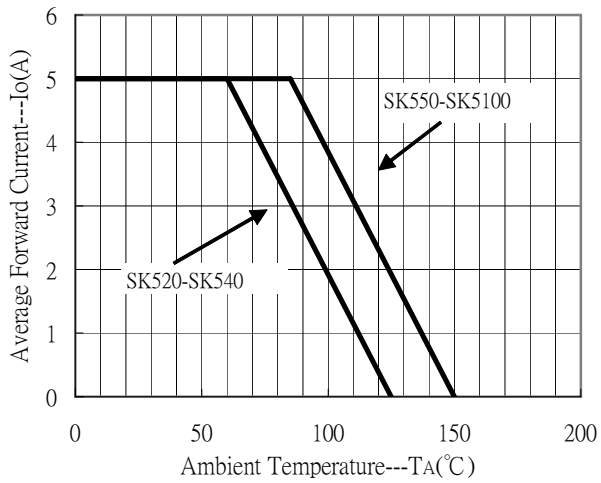
(Rating at 25°C ambient temperature unless otherwise specified.)

Parameter	Symbol	Type							Units
		SK 520	SK 530	SK 540	SK 550	SK 560	SK 580	SK 5100	
Repetitive peak reverse voltage	V_{RRM}	20	30	40	50	60	80	100	V
Maximum RMS voltage	V_{RMS}	14	21	28	35	42	56	70	V
Maximum DC blocking voltage	V_R	20	30	40	50	60	80	100	V
Maximum instantaneous forward voltage, I_F=5A (Note 1)	V_F	0.55	0.55	0.55	0.7	0.7	0.85	0.85	V
Average forward rectified current	I_O	5							A
Peak forward surge current @8.3ms single half sine wave superimposed on rated load (JEDEC method)	I_{FSM}	150							A
Maximum DC reverse current $V_R=V_{RRM}$,T_A=25℃ (Note) $V_R=V_{RRM}$,T_A=125℃ (Note)	I_R	0.5 50							mA mA
Maximum thermal resistance, Junction to Lead	$R_{th,JL}$	12 (typ)							℃/W
Diode junction capacitance @ f=1MHz and applied 4VDC reverse voltage	C_J	380(typ)							pF
Storage temperature	Tstg	-55 ~ +150							℃
Operating temperature	T_J	-55 ~ +125			-55 ~ +150				℃

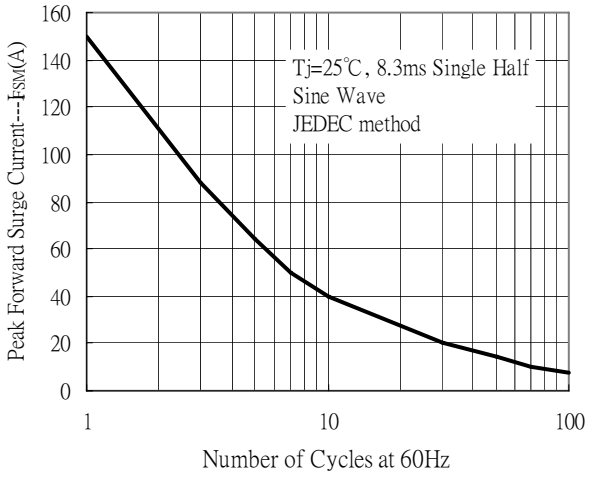
Notes : Pulse test, pulse width=300 μ sec, 2% duty cycle

Characteristic Curves

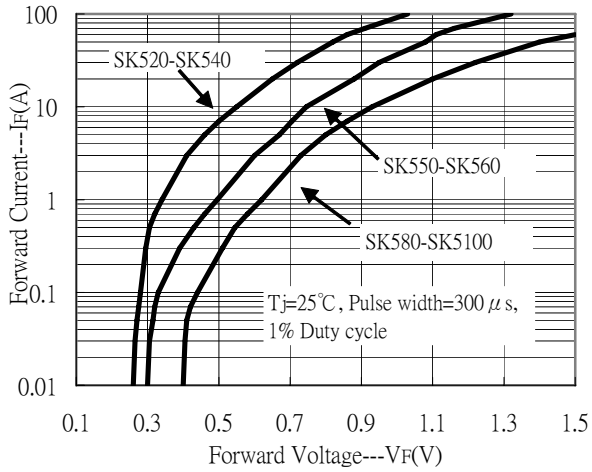
Forward Current Derating Curve



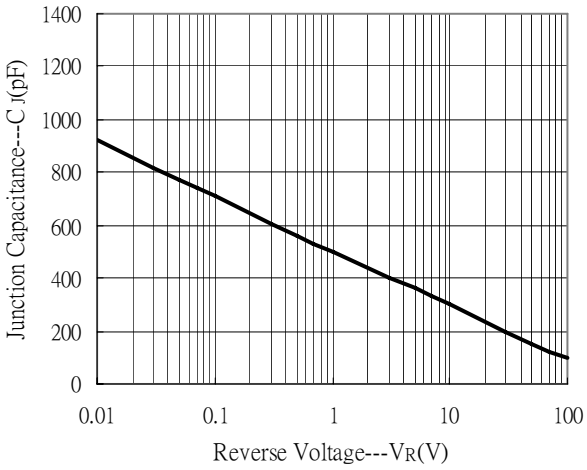
Maximum Non-Repetitive Forward Surge Current



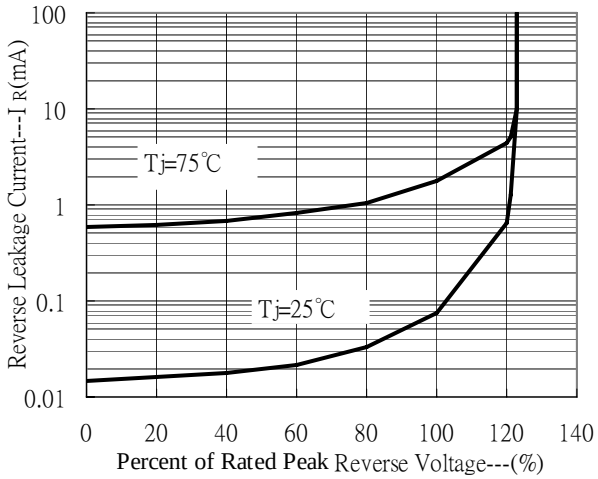
Forward Current vs Forward Voltage



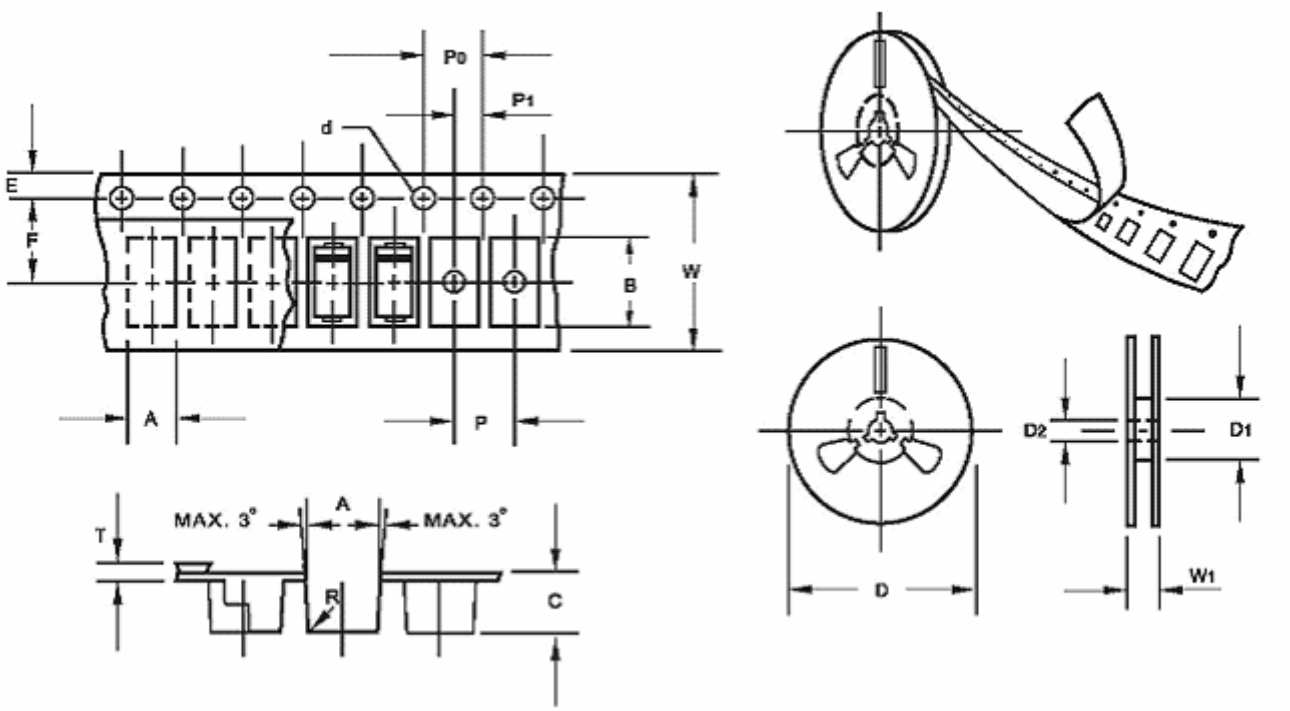
Junction Capacitance vs Reverse Voltage



Reverse Leakage Current vs Reverse Voltage



Taping Reel Dimension

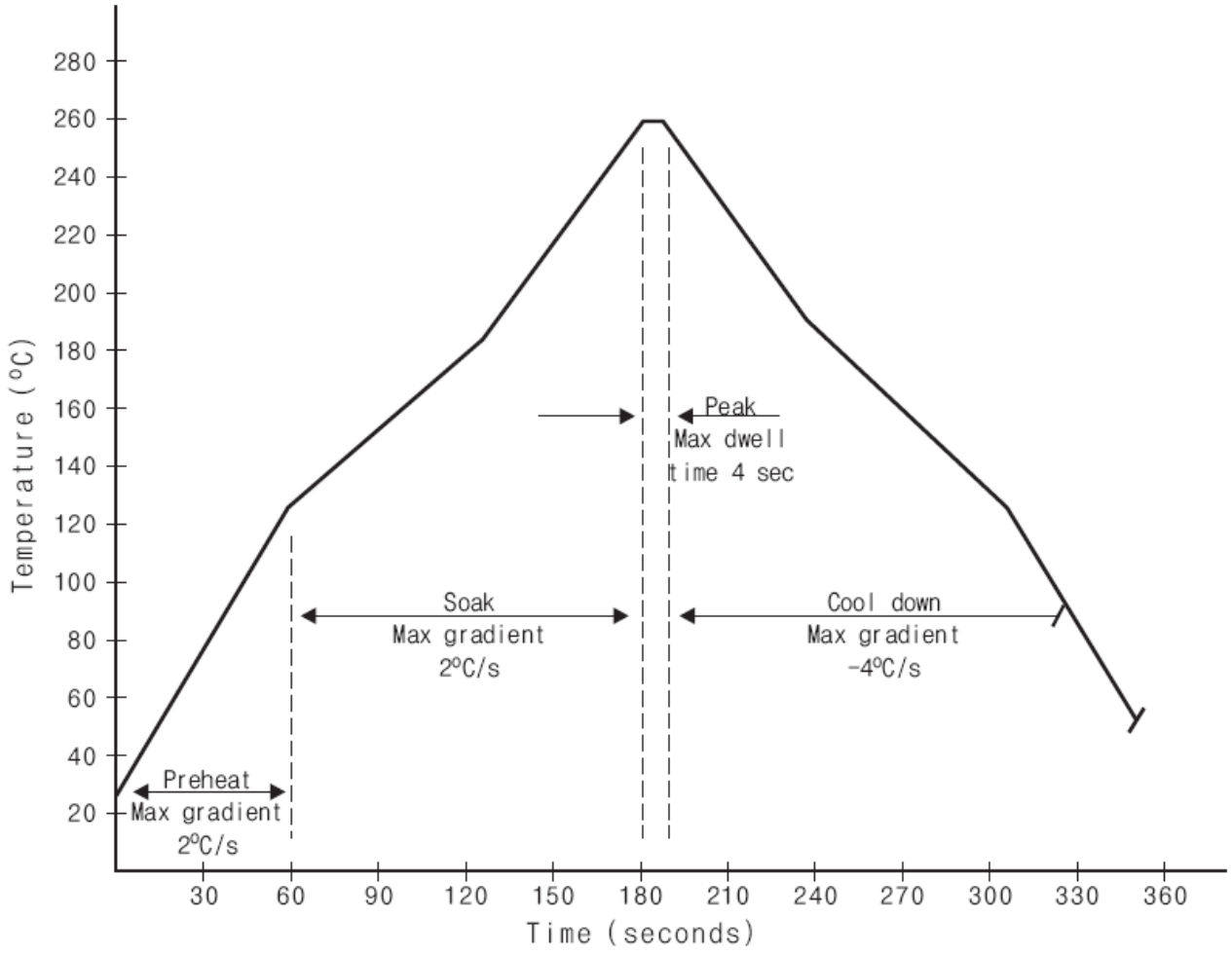


unit : mm

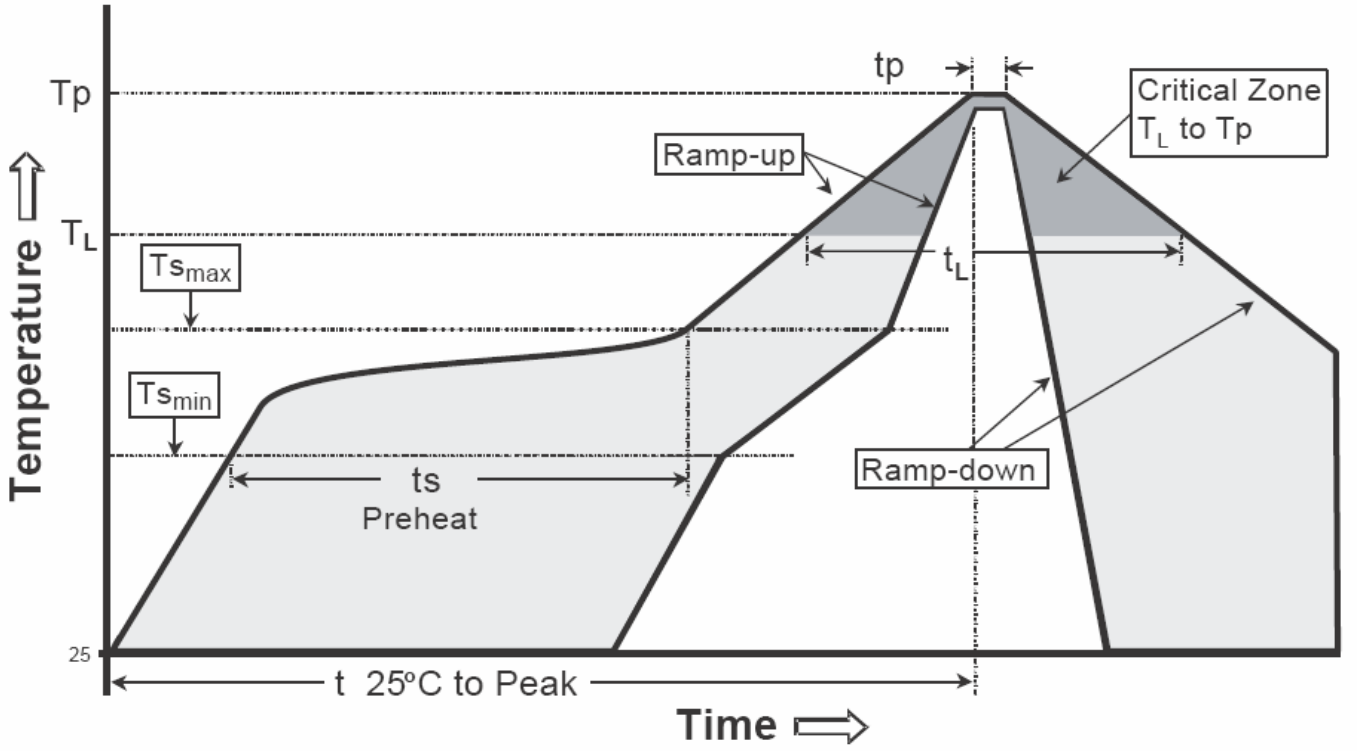
Item	Tolerance	Symbol	
Carrier width	0.10	A	SEE NOTE 2
Carrier length	0.10	B	
Carrier depth	0.10	C	
Sprocket hole	0.10	d	1.50
13" Reel outside diameter	2.00	D	330.0
13" Reel inner diameter	min.	D1	50.0
7" Reel outside diameter	2.00	D	178.0
7" Reel inner diameter	min.	D1	62.0
Feed hole diameter	0.50	D2	13.00
Sprocket hole position	0.10	E	1.75
Punch hole position	0.10	F	5.50
Punch hole pitch	0.10	P	8.00
Sprocket hole pitch	0.10	P0	4.00
Embossment center	0.10	P1	2.00
Tape width	0.30	W	12.00
Reel width	1.00	W1	16.80

NOTE: 1.Devices are packed in accordance with EIA standard RS-481-A and specification given above
2.A,B, and C are determined by the maximum dimensions of the component size.
The clearance between the component and the cavity must be within
0.05mm (0.002") min. to 0.5mm(0.02") max. for 8mm tape and 12mm tape,
0.15mm(0.066") min. to 0.90mm(0.035") max. for 16mm tape and
0.15mm(0.066") min. to 1.0mm(0.59") max. for 24mm tape.

Recommended Wave Soldering Profile



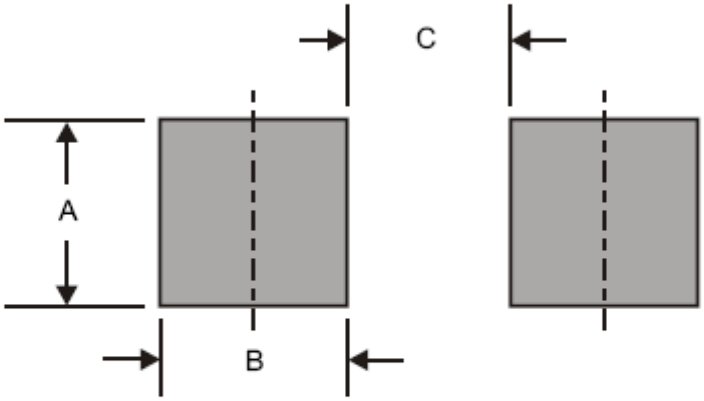
Recommended temperature profile for IR reflow



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(T_S min) −Temperature Max(T_S max) −Time($t_{s\ min}$ to $t_{s\ max}$)	 100°C 150°C 60-120 seconds	 150°C 200°C 60-180 seconds
Time maintained above: −Temperature (T_L) − Time (t_L)	 183°C 60-150 seconds	 217°C 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.

Recommended Footprint



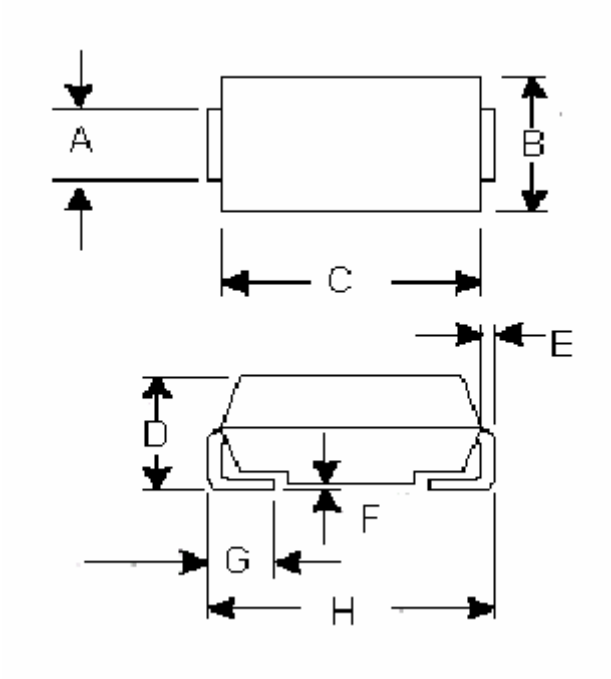
Dimensions in inches and (millimeters)

DIM	Inches	Millimeters
	Typ	Typ
A	0.142	3.60
B	0.059	1.50
C	0.118	3.00

Ordering Information

Device	Package	Shipping	Marking
SK520SB	SMB	3000 pcs / Tape & Reel	SS52
SK530SB	SMB	3000 pcs / Tape & Reel	SS53
SK540SB	SMB	3000 pcs / Tape & Reel	SS54
SK550SB	SMB	3000 pcs / Tape & Reel	SS55
SK560SB	SMB	3000 pcs / Tape & Reel	SS56
SK580SB	SMB	3000 pcs / Tape & Reel	SS58
SK5100SB	SMB	3000 pcs / Tape & Reel	S510

DO-214AA/SMB Dimension



DO-214AA/SMB Plastic
Surface Mounted Package
CYStek Package Code : SB

*:Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.076	0.082	1.93	2.08	E	0.006	0.012	0.15	0.31
B	0.137	0.147	3.48	3.73	F	0.004	0.008	0.10	0.20
C	0.167	0.187	4.25	4.75	G	0.035	0.056	0.90	1.41
D	0.078	0.103	1.99	2.61	H	0.207	0.215	5.26	5.46

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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