1.0Amp. Surface Mount Schottky Barrier Diodes

SK12SB thru SK1BSB

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.

Mechanical Data

- Case: Molded plastic, JEDEC DO-214AA/SMB.
- Terminals: Solder plated, solderable per MIL-STD-750 method 2026.
- Polarity: Indicated by cathode band.
- Mounting position: Any.
- Weight: 0.093 gram.

Maximum Ratings and Electrical Characteristics

(Rating at 25°C ambient temperature unless otherwise specified. Single phase, half wave, 60Hz, resistive or inductive load. For capacitive load, derate current by 20%.)

Parameter	Symbol	Type							Units
		SK12	SK13	SK14	SK15	SK16	SK18	SK1B	
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=1A (Note 1)	V_F	0.5			0.7		0.85		V
Maximum average forward rectified current @ T_L=100°C	I_O	1							A
Peak forward surge current @ 8.3ms, single half sine-wave superimposed on rated load (JEDEC method)	I_{FSM}	30							A
Maximum DC reverse current at Rated DC blocking voltage TJ=25°C TJ=100°C	I_R	0.5 10							mA
Typical thermal resistance, junction to ambient	$R_{th, JA}$	40							°C/W
Typical diode junction capacitance @ f=1MHz and applied 4V reverse voltage	C_J	120							pF
Storage temperature	Tstg	-55 ~ +150							°C
Operating temperature	T_J	-55 ~ +125							°C

Characteristic Curves

FIG.1 - FORWARD CURRENT DERATING CURVE

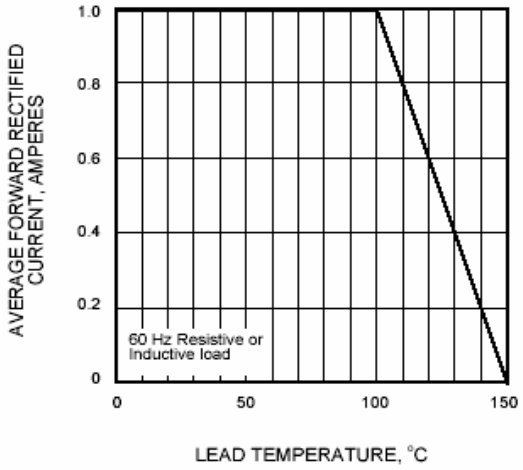


FIG.2 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

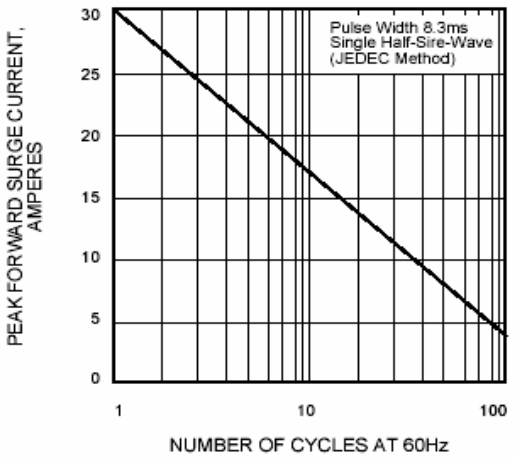


FIG.3 - TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

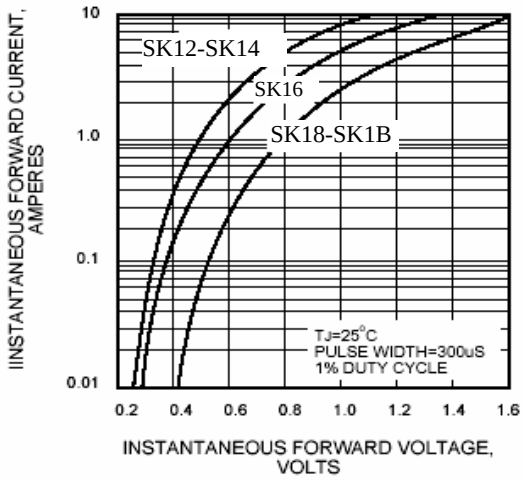


FIG.4 - TYPICAL REVERSE CHARACTERISTICS

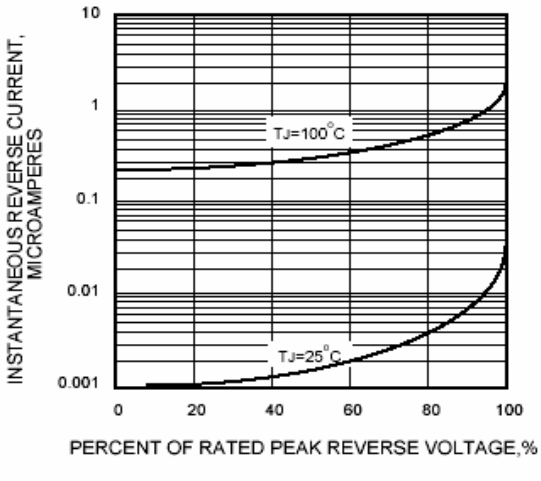
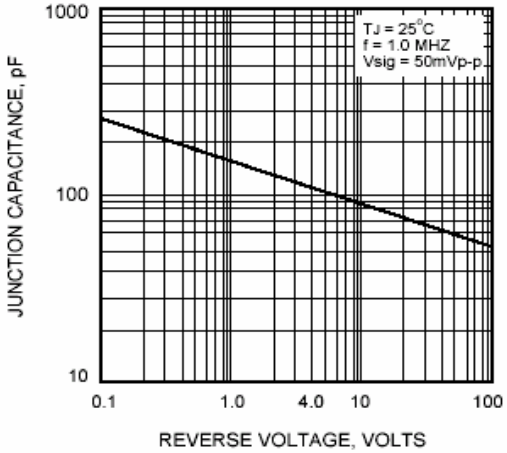
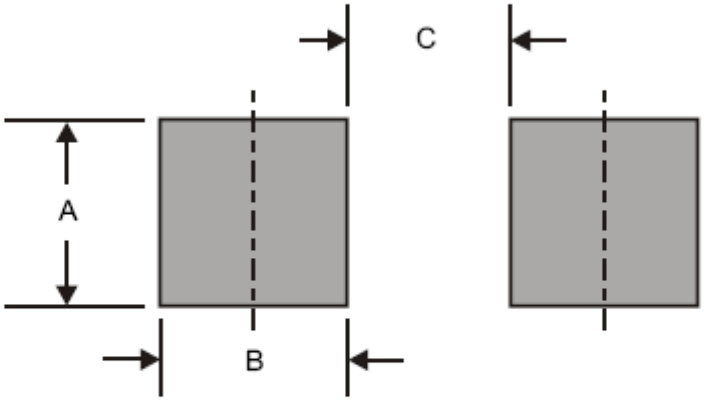


FIG.5 - TYPICAL JUNCTION CAPACITANCE



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

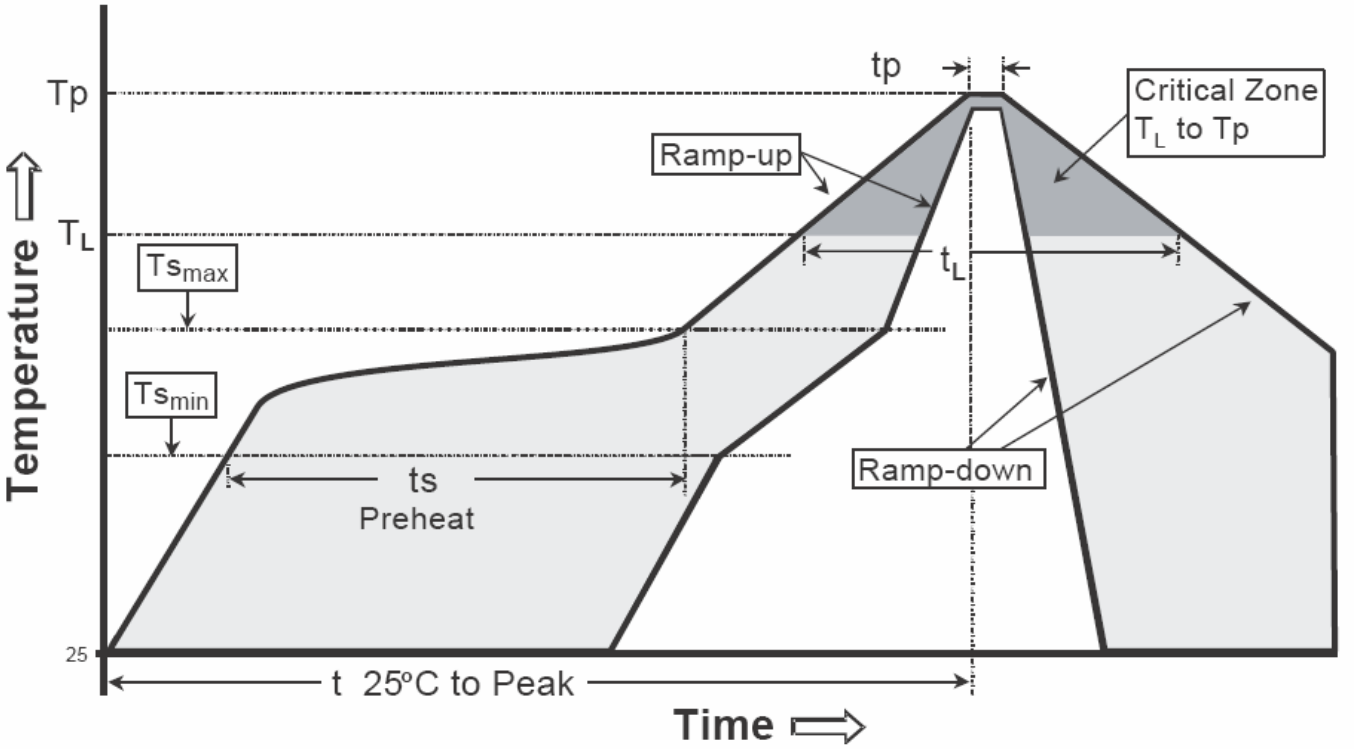
Ordering Information

Device	Package	Shipping	Marking
SK12SB	SMB	3000 pcs / Tape & Reel	SK12
SK13SB	SMB	3000 pcs / Tape & Reel	SK13
SK14SB	SMB	3000 pcs / Tape & Reel	SK14
SK15SB	SMB	3000 pcs / Tape & Reel	SK15
SK16SB	SMB	3000 pcs / Tape & Reel	SK16
SK18SB	SMB	3000 pcs / Tape & Reel	SK18
SK1BSB	SMB	3000 pcs / Tape & Reel	SK1B

Recommended wave soldering condition

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

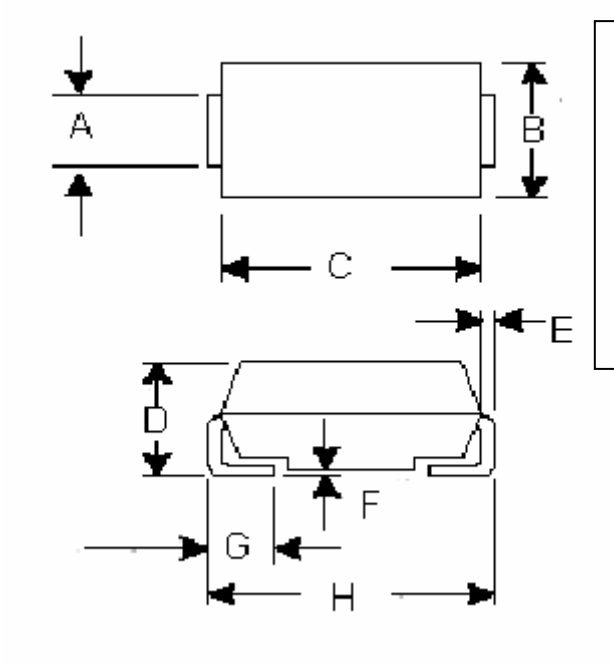
Recommended temperature profile for IR reflow



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(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.

SMB/DO-214AA Dimension



Marking Code :

SK12SB	SK13SB	SK14SB	SK15SB
SK12	SK13	SK14	SK15

SK16SB	SK18SB	SK1BSB	
SK16	SK18	SK1B	

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

*:Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.075	0.083	1.91	2.11	E	0.006	0.012	0.152	0.305
B	0.130	0.155	3.30	3.94	F	0.002	0.008	0.051	0.203
C	0.160	0.185	4.06	4.70	G	0.030	0.060	0.76	1.52
D	0.083	0.096	2.13	2.44	H	0.200	0.220	5.08	5.59

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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