1.0Amp. Surface Mount Schottky Barrier Diodes

SK12SA thru SK1BSA

Features

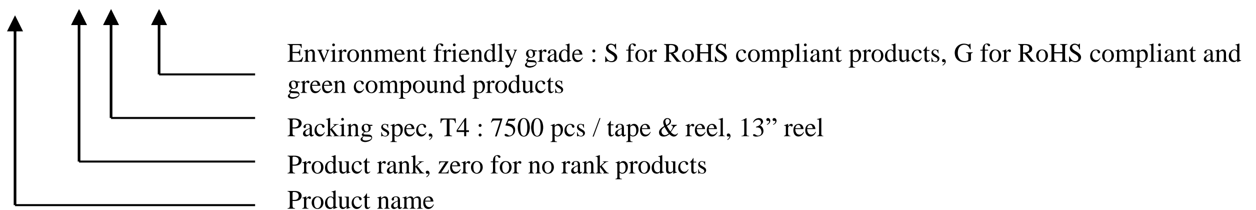
- For surface mounted applications.
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications.
- Plastic material used carries Underwriters Laboratory Flammability Classification 94V-0.
- Low leakage current.
- High surge capability.
- High temperature soldering: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

Mechanical Data

- Case: Molded plastic, JEDEC DO-214AC/SMA.
- Terminals: Solder plated, solderable per MIL-STD-750 method 2026.
- Polarity: Indicated by cathode band.
- Mounting position: Any.
- Weight: 0.064 gram, 0.002 ounce.

Ordering Information

Device	Package	Shipping	Marking
SK12SA-0-T4-G	SMA (Pb-free lead plating and halogen-free package)	7500 pcs / Tape & Reel	SK12
SK13SA-0-T4-G			SK13
SK14SA-0-T4-G			SK14
SK15SA-0-T4-G			SK15
SK16SA-0-T4-G			SK16
SK18SA-0-T4-G			SK18
SK1BSA-0-T4-G			SK1B

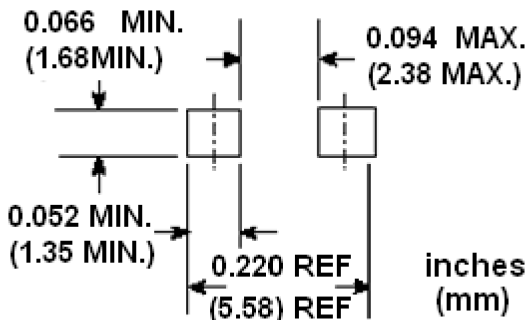


Maximum Ratings and Electrical Characteristics

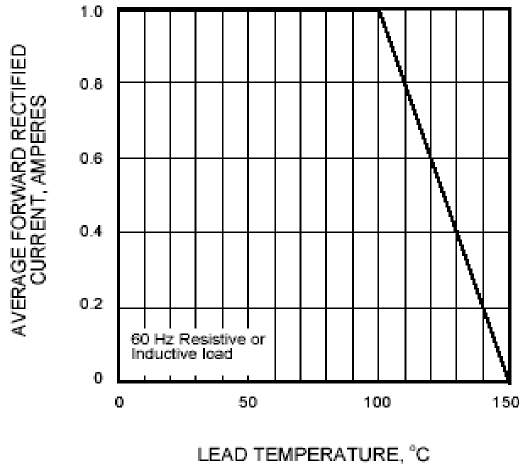
(Rating at 25°C ambient temperature unless otherwise specified. Single phase, half wave, 60Hz, resistive or inductive load. For capacitive load, derate current by 20%.)

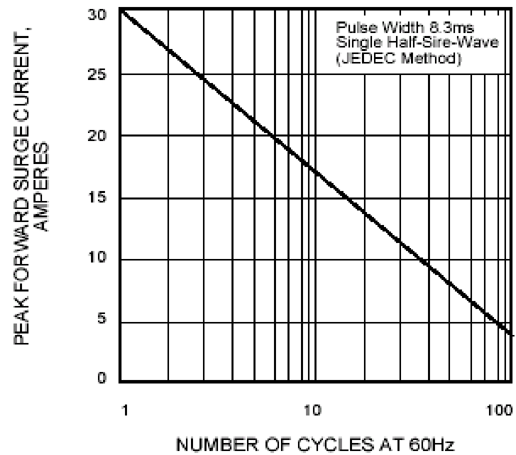
Parameter		Symbol	Type							Units
			SK12	SK13	SK14	SK15	SK16	SK18	SK1B	
Repetitive peak reverse voltage		V_{RRM}	20	30	40	50	60	80	100	V
Maximum RMS voltage		V_{RMS}	14	21	28	35	42	56	70	V
Maximum DC blocking voltage		V_R	20	30	40	50	60	80	100	V
Maximum instantaneous forward Voltage @ I_F=1A (Note 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	I_R	0.5							mA
	TJ=100˚C		10							
Typical thermal resistance, junction to lead		$R_{th, JA}$	85							˚C/W
Typical thermal resistance, junction to case		$R_{th, JC}$	18							˚C/W
Power Dissipation	T_A=25˚C	P_D	1.5							W
	T_C=25˚C		7							
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

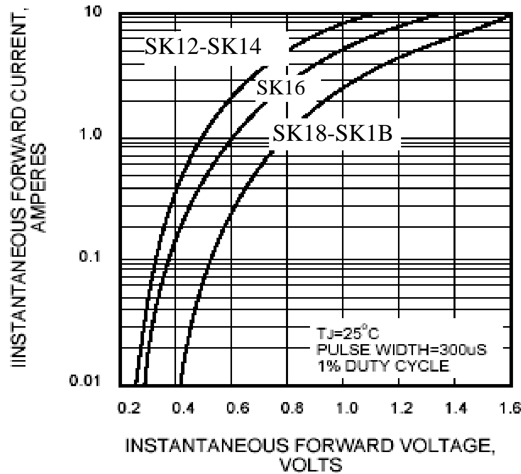
Recommended soldering footprint

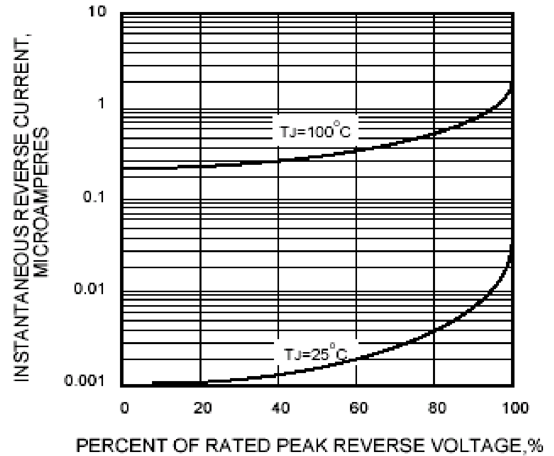


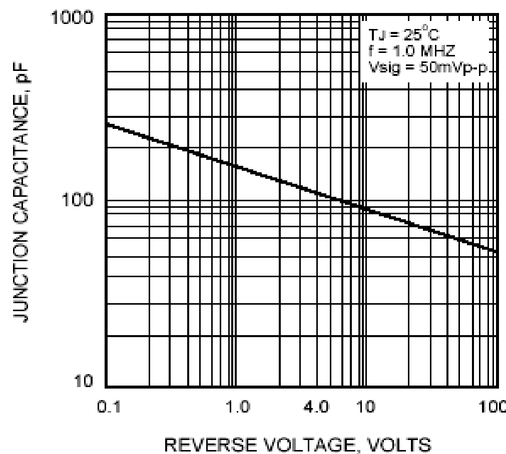
Characteristic Curves



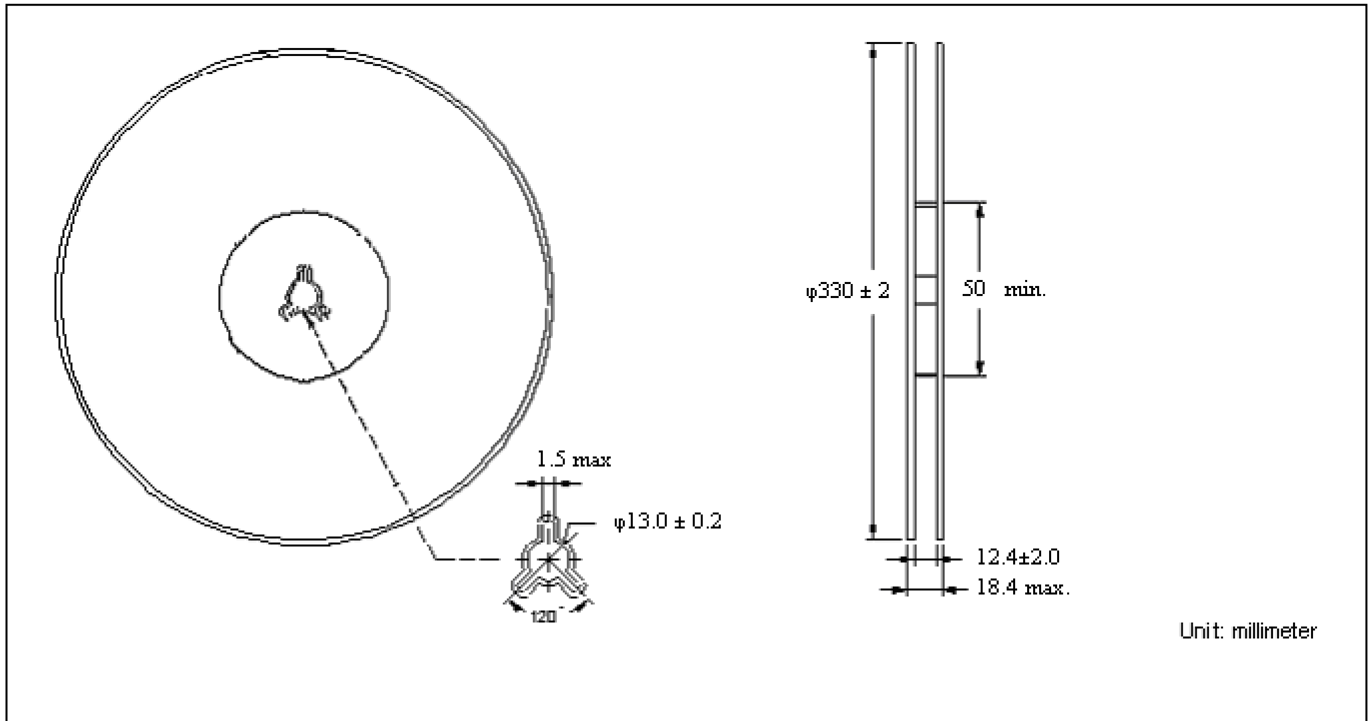




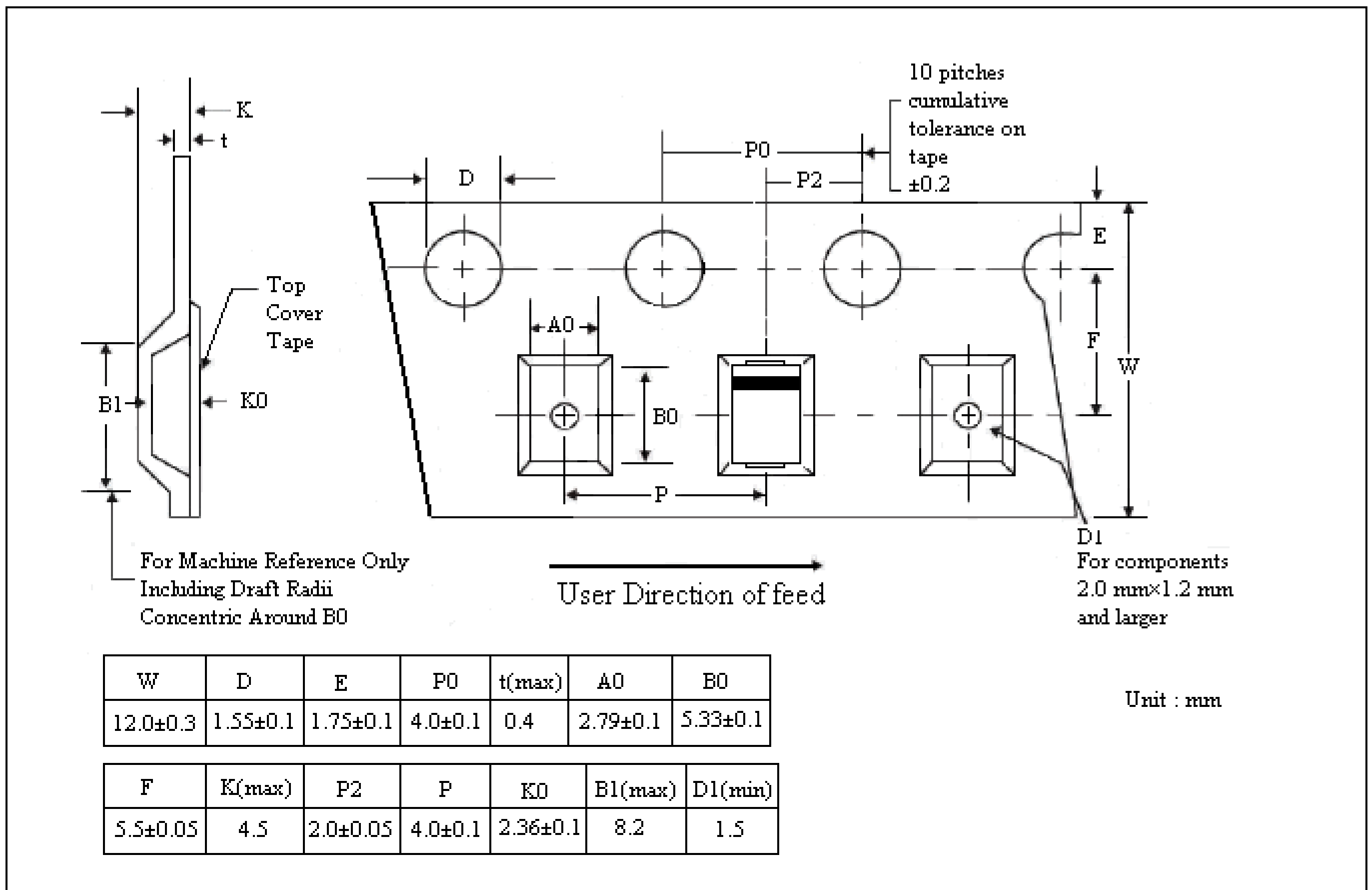




Reel Dimension



Carrier Tape Dimension



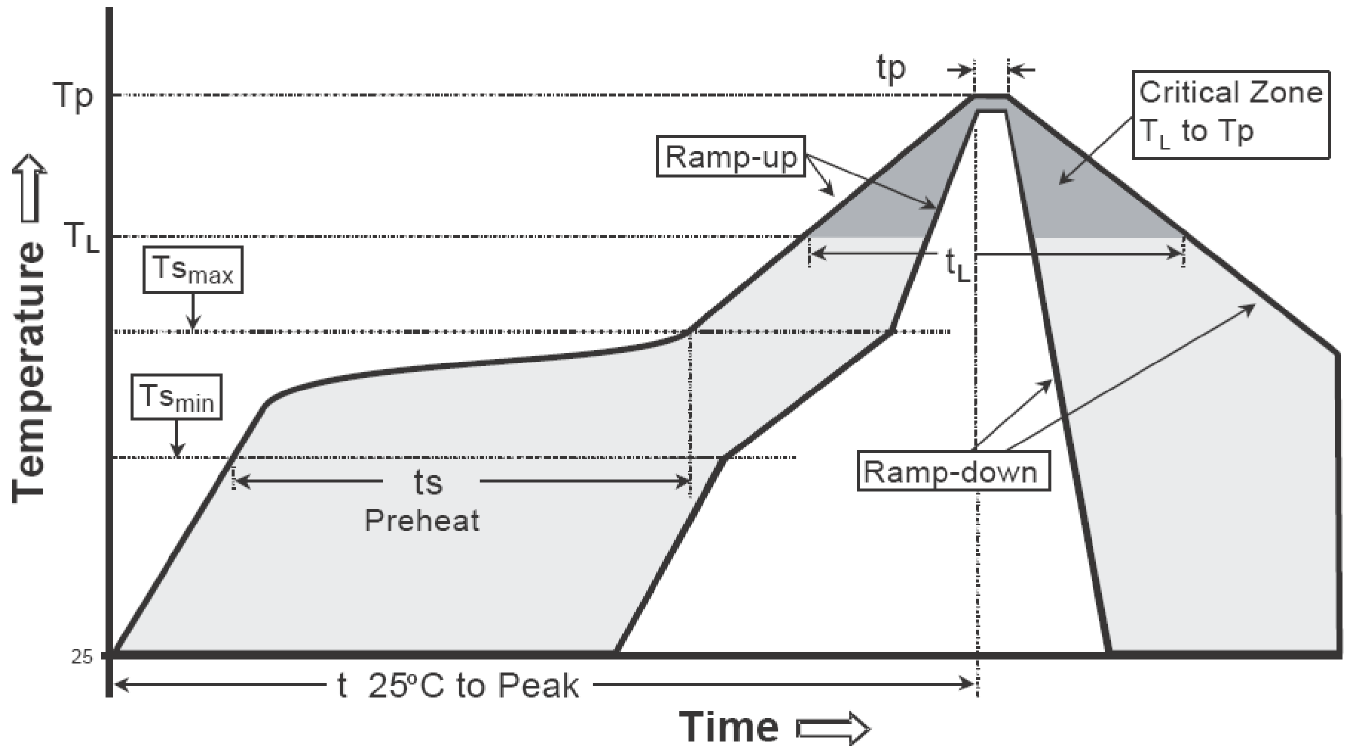
W	D	E	P0	t(max)	A0	B0
12.0±0.3	1.55±0.1	1.75±0.1	4.0±0.1	0.4	2.79±0.1	5.33±0.1

F	K(max)	P2	P	K0	B1(max)	D1(min)
5.5±0.05	4.5	2.0±0.05	4.0±0.1	2.36±0.1	8.2	1.5

Recommended wave soldering condition

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

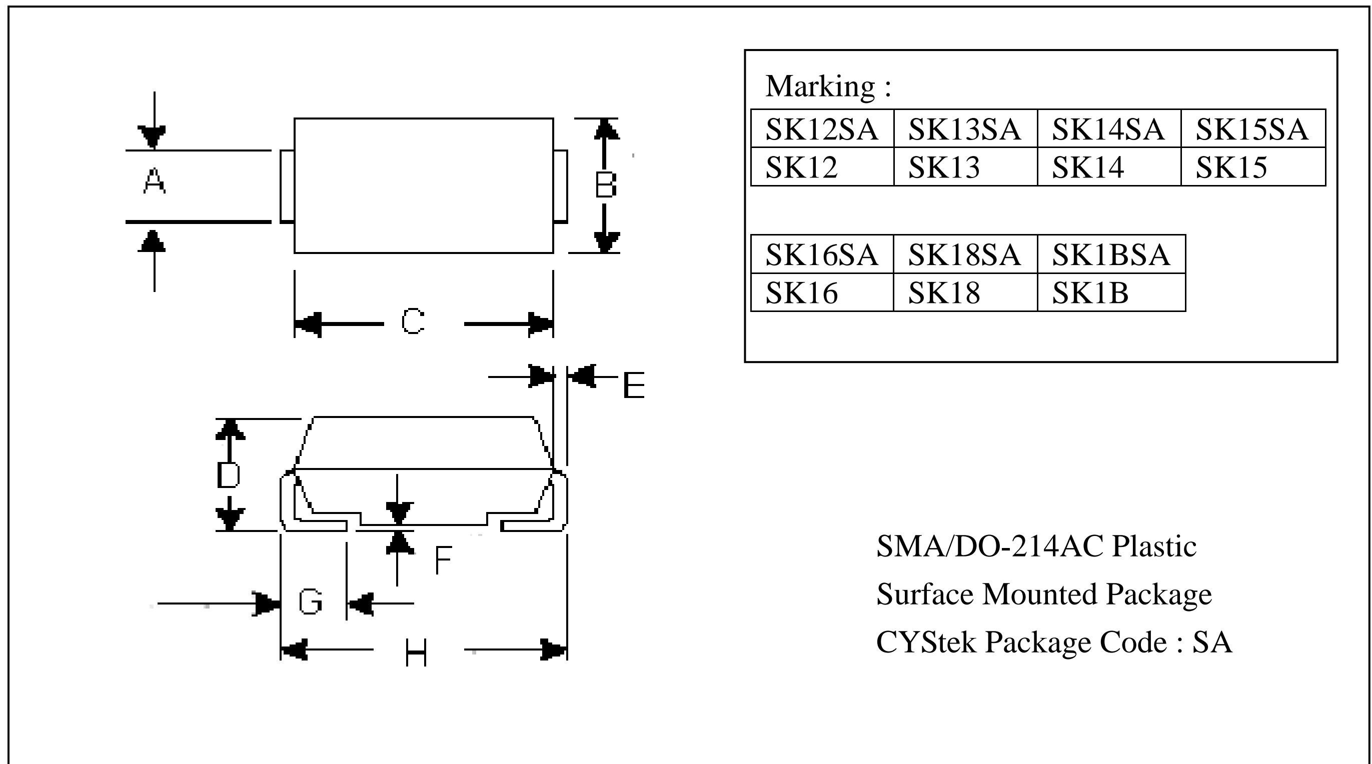
Recommended temperature profile for IR reflow



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 (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.

SMA/DO-214AC Dimension



*:Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.052	0.062	1.32	1.60	E	0.006	0.012	0.15	0.31
B	0.098	0.114	2.50	2.90	F	0.002	0.008	0.05	0.20
C	0.154	0.181	3.90	4.60	G	0.030	0.060	0.76	1.52
D	0.067	0.091	1.70	2.30	H	0.188	0.208	4.80	5.28

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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