

## Features

- Schottky barrier diodes
- Low forward voltage drop
- High Junction Temperature
- Moisture sensitivity: level 1, per J-STD-020
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Add suffix "E" for Halogen Free
- Halogen-free according to IEC 61249-2-21 definition
- AEC-Q101 qualified



DO-214AA (SMB)

## Typical Applications

For use in low voltage, high frequency inverters, free wheeling, and polarity protection application

Maximum Ratings (TA = 25 °C unless otherwise noted)							
Parameter	Symbol	SK52B SK52BE	SK53B SK53BE	SK54B SK54BE	SK55B SK55BE	SK56B SK56BE	Unit
Maximum repetitive peak reverse voltage	$V_{RRM}$	20	30	40	50	60	V
Maximum RMS voltage	$V_{RMS}$	14	21	28	35	42	V
Maximum DC blocking voltage	$V_{DC}$	20	30	40	50	60	V
Maximum average forward rectified current	$I_{F(AV)}$	5.0					A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	120					A
Operating junction and storage temperature range	$T_J, T_{STG}$	- 55 to + 150					°C

Electrical Characteristics (TA = 25 °C unless otherwise noted)								
Parameter	Test Conditions	Symbol	SK52B SK52BE	SK53B SK53BE	SK54B SK54BE	SK55B SK55BE	SK56B SK56BE	Unit
Maximum instantaneous forward voltage	$I_F=5A, T_A=25^\circ C$	$V_F$	0.55			0.67		V
Maximum DC reverse current at rated DC blocking voltage	$T_A=25^\circ C$	$I_R$	0.20			0.15		mA
	$T_A=125^\circ C$		15					
Typical junction capacitance	4.0 V, 1 MHz	$C_J$	96					pF

Thermal Characteristics							
Parameter	Symbol	SK52B SK52BE	SK53B SK53BE	SK54B SK54BE	SK55B SK55BE	SK56B SK56BE	Unit
Typical thermal resistance <sup>(1)</sup>	$R_{\theta JA}$	65			°C/W		
	$R_{\theta JC}$	25					
	$R_{\theta JI}$	15					

Note1: Thermal resistance from junction to lead, mounted on PCB with 8.0×8.0mm copper pads

## Ratings and Characteristics Curves

(TA = 25°C unless otherwise noted)

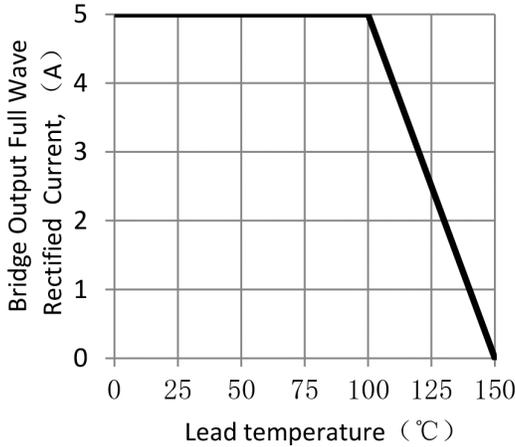


Figure 1. Forward Current Derating Curve

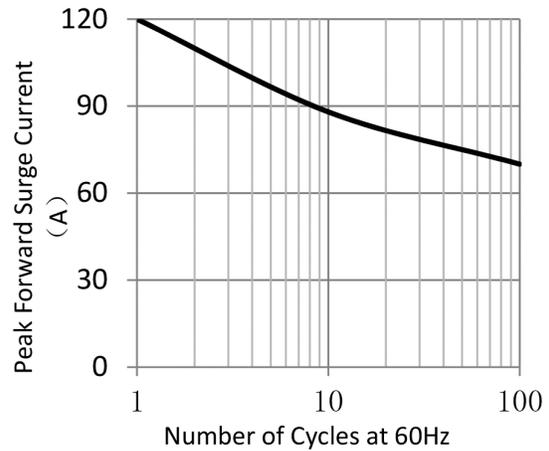


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

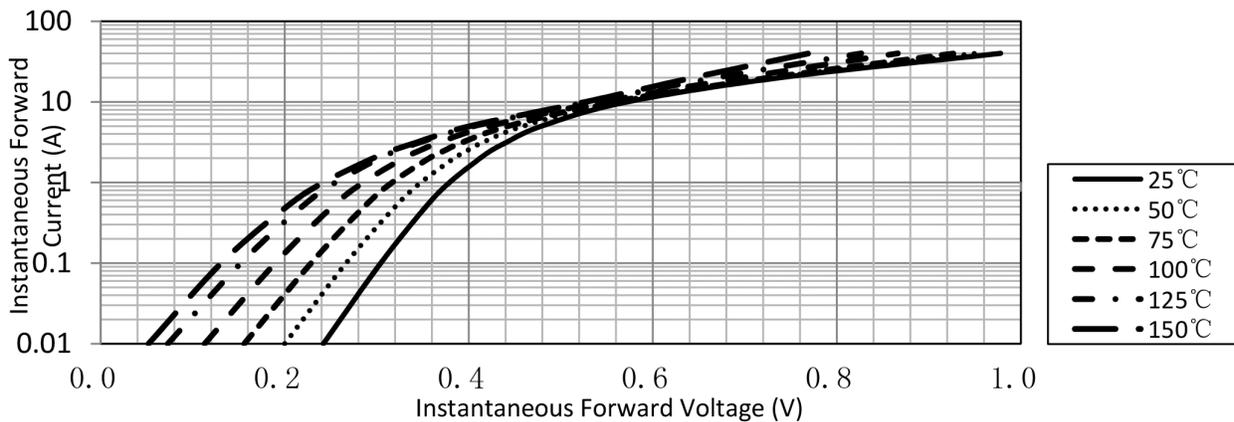


Figure 3. Typical Instantaneous Forward Characteristics (SK52B thru SK54B)

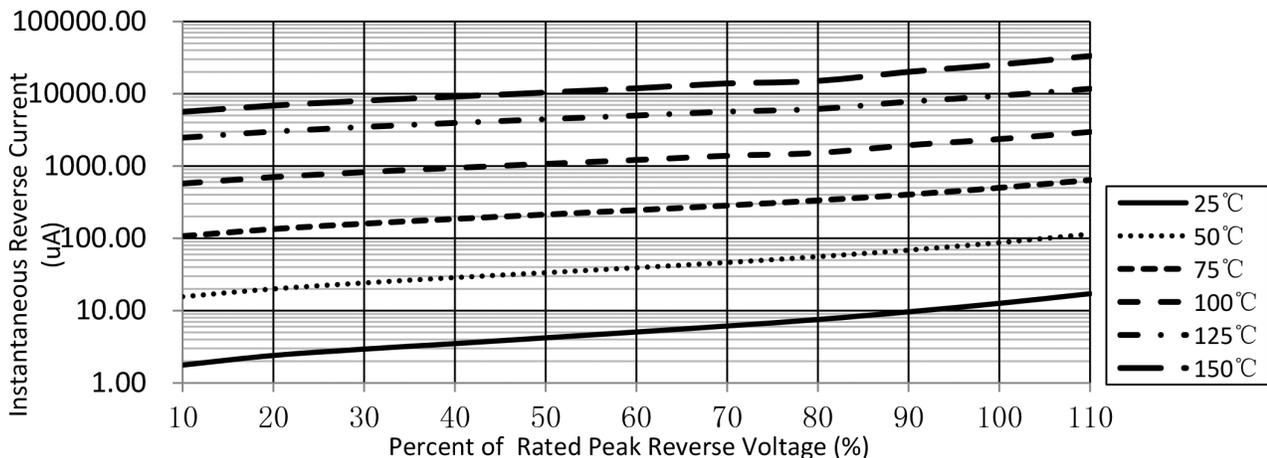


Figure 4. Typical Reverse Characteristics (SK52B thru SK54B)

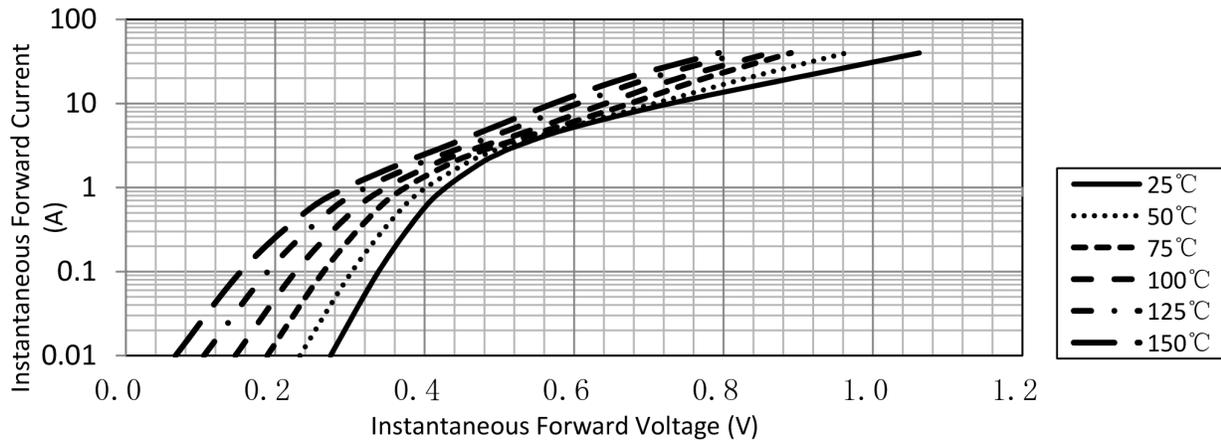


Figure 5. Typical Instantaneous Forward Characteristics (SK55B thru SK56B)

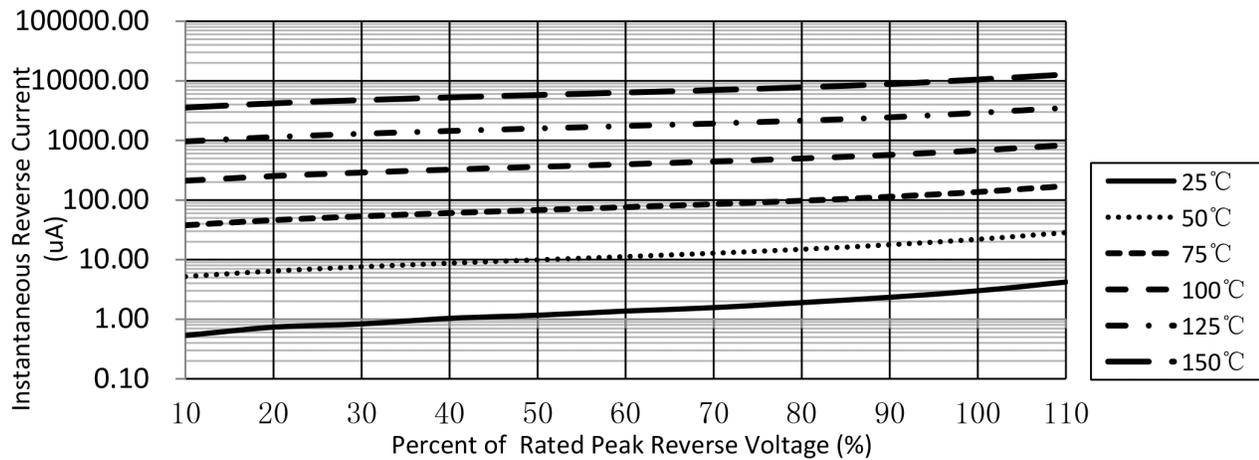
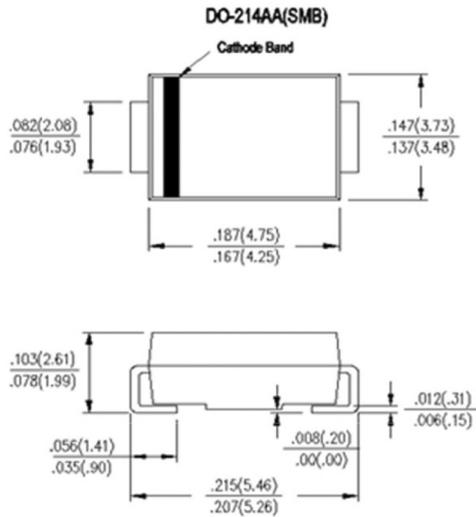


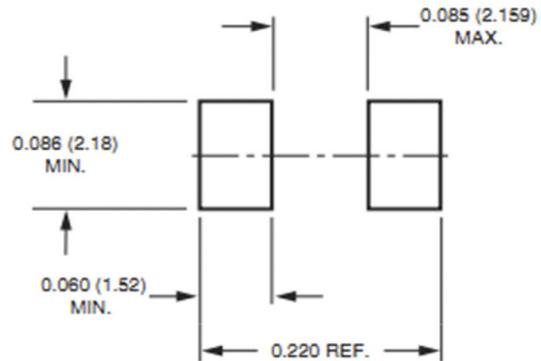
Figure 6. Typical Reverse Characteristics (SK55B thru SK56B)

## Package Outline Dimensions

in inches (millimeters)



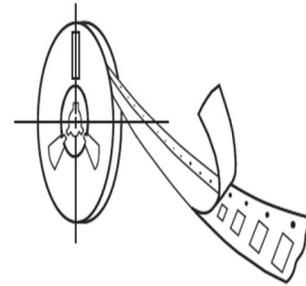
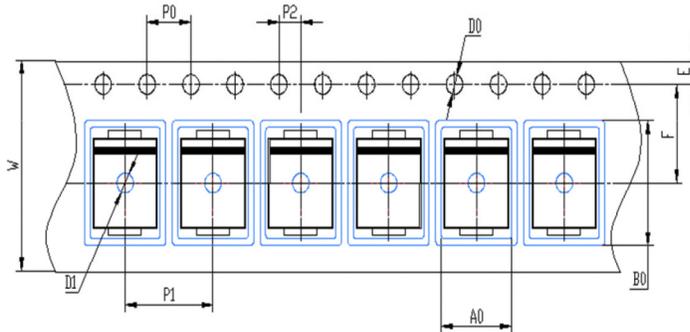
## Mounting Pad Layout



## Packing Information

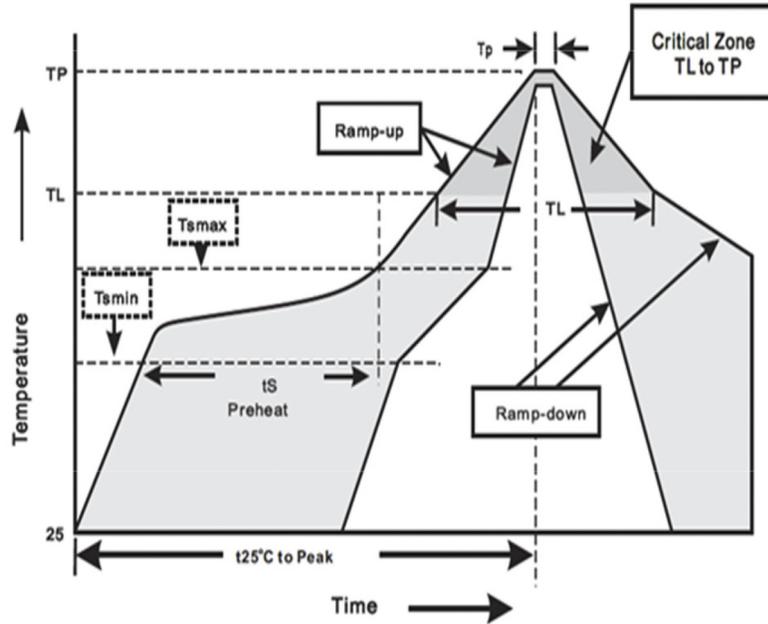
3000 pcs/Reel, 18 Reels/Box; 12mm Tape, 13" Reel

## Tape & Reel Specification



Symbo	SMB (mm)
W	12 ± 0.2
E	1.75 ± 0.1
F	5.5 ± 0.05
D0	1.5 ± 0.1
D1	1.50 +0.1/-0
P0	4.0 ± 0.1
P1	8.0 ± 0.1
P2	2.0 ± 0.05
A0	3.95 ± 0.1
B0	5.74 ± 0.1

## Soldering Parameters



Reflow Soldering		Sn-Pb Eutectic Assembly	Pb-Free assembly
Pre Heat	- Temperature Min (Ts(min))	100°C	150°C
	- Temperature Max (Ts(max))	150°C	200°C
	- Time (min to max) (ts)	60 – 120 secs	60 – 180 secs
Average ramp up rate (Liquidus) Temp (TL) to peak		3°C/second max	3°C/second max
TS(max) to TL - Ramp-up Rate		3°C/second max	3°C/second max
Reflow	- Temperature (TL) (Liquidus)	183°C	217°C
	- Time (min to max) (ts)	60 – 150 seconds	60 – 150 seconds
Peak Temperature (TP)		240+0/-5 °C	240+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 (TP)		6 minutes Max.	8 minutes Max.
Do not exceed		260°C	260°C

Wave Soldering	
Peak Temperature :	260+0/-5°C
Dipping Time :	10 seconds
Soldering :	1 time