

## 5Amp. MOS BARRIER RECTIFIER

# SKM545USB

$I_{F(AV)}$	5A
$V_{RRM}$	45V
$V_F$ at 125°C	0.42V
$T_j$	150°C

### Features

- 150°C operating junction temperature
- Softest, fast switching capability
- Reduced ultra-low forward voltage drop (VF) ; better efficiency and cooler operation.
- Lead-Free Finish; RoHS Compliant
- Halogen and Antimony Free. “Green” Device
- MCD technology provides a superior avalanche capability than schottky diodes

### Mechanical Data

- Case: SMB/DO-214AA molded plastic
- Mounting Position: Any
- Weight: 0.093 grams (approximate)
- Terminals: Terminals: Pure tin plated, solderable per MIL-STD-750 method 2026
- Epoxy: UL 94V-0 rate flame retardant
- Polarity : As marked.



DO-214AA (SMB)



Anode

Cathode

### Ordering Information

Device	Package	Shipping
SKM545USB-0-T6-G	<b>DO-214AA (SMB)</b> (RoHS compliant package)	3000/Tape & Reel

## Marking Information



M545U = Product Type Marking Code

Y M = Date Code Marking

Y = Last One Digits of Year (ex: 4 for 2014)

M = Month code (1 ~ 9、10→A、11→B、12→C)

## 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	Min.	Typ.	Max.	Units
Maximum DC blocking voltage	V <sub>DC</sub>			45	V
Maximum Recurrent peak reverse voltage	V <sub>RRM</sub>			45	V
Maximum RMS voltage	V <sub>RMS</sub>			32	V
Maximum instantaneous forward voltage at I <sub>F</sub> =15A	V <sub>F</sub>	T <sub>C</sub> =25°C	0.46	0.49	v
		T <sub>C</sub> =125°C	0.42	0.45	
Maximum instantaneous reverse current at	I <sub>R</sub>	V <sub>R</sub> =45 V, T <sub>C</sub> =25°C	60	300	μA
		V <sub>R</sub> =45 V, T <sub>C</sub> =125°C	15	35	mA
Maximum Average forward rectified current @ T <sub>C</sub> =100°C	I <sub>F(AV)</sub>			5	A
Non-repetitive peak forward surge current @ 8.3ms single half sine wave superimposed on rated load (JEDEC method)	I <sub>FSM</sub>	120			A
Peak Repetitive Reverse Surge Current (2uS-1Khz)	I <sub>RRM</sub>			2	A
Storage temperature range	T <sub>stg</sub>	-55		150	°C
Operating junction temperature range	T <sub>J</sub>	-55		150	°C

## Thermal Data

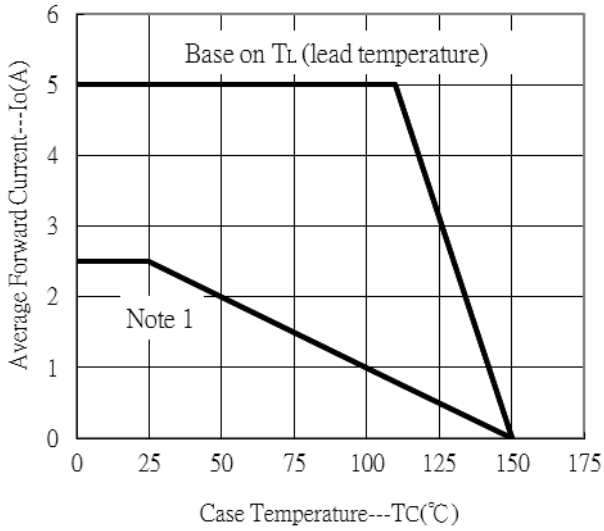
Parameter	Symbol	Value	Unit
Typical Thermal Resistance, Junction-to-ambient(1)	R <sub>th,j-a</sub>	75	°C/W
Typical Resistance, Junction-to-case(2)	R <sub>th,j-c</sub>	18	°C/W

Note

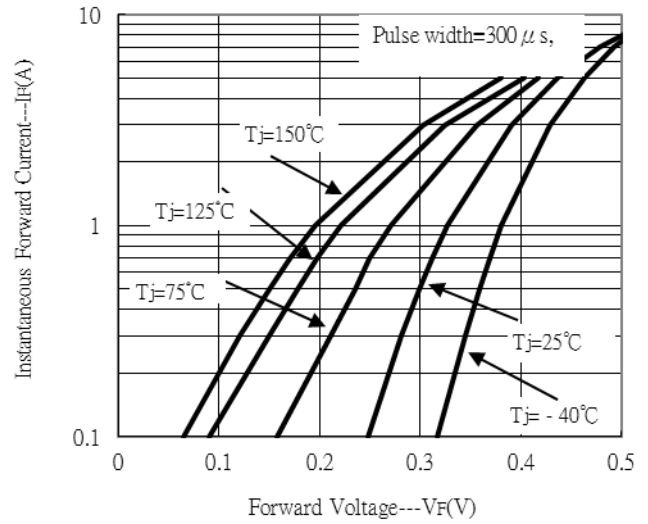
- FR-4 PCB, 2oz. Copper. Minimum recommended pad layout.
- Short duration pulse test used to minimize self-heating effect.

**Typical Characteristics**

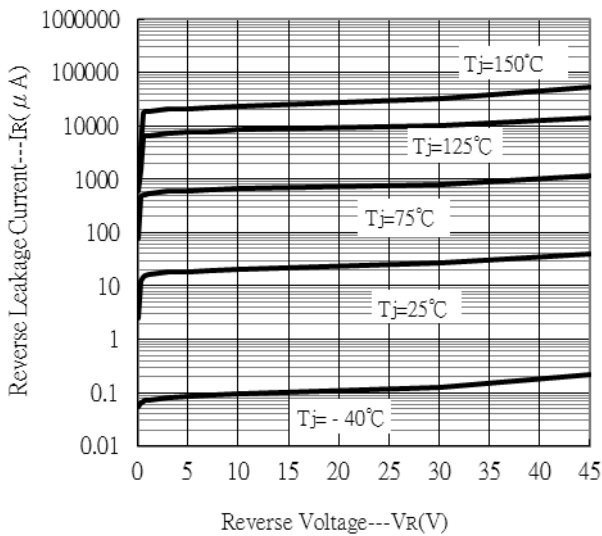
Forward Current Derating Curve



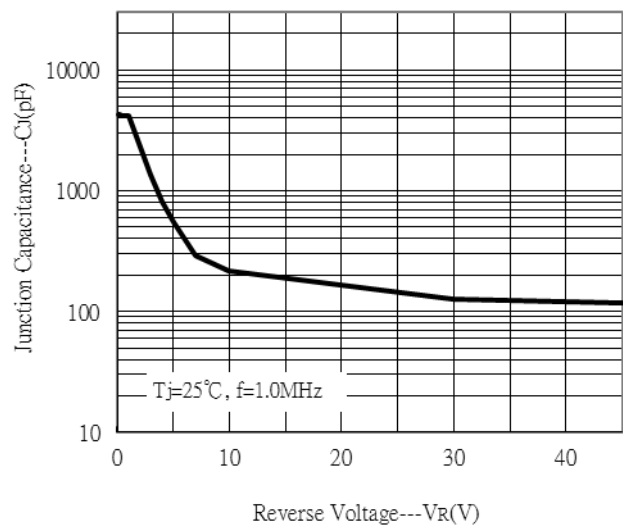
Forward Current vs Forward Voltage



Reverse Leakage Current vs Reverse Voltage

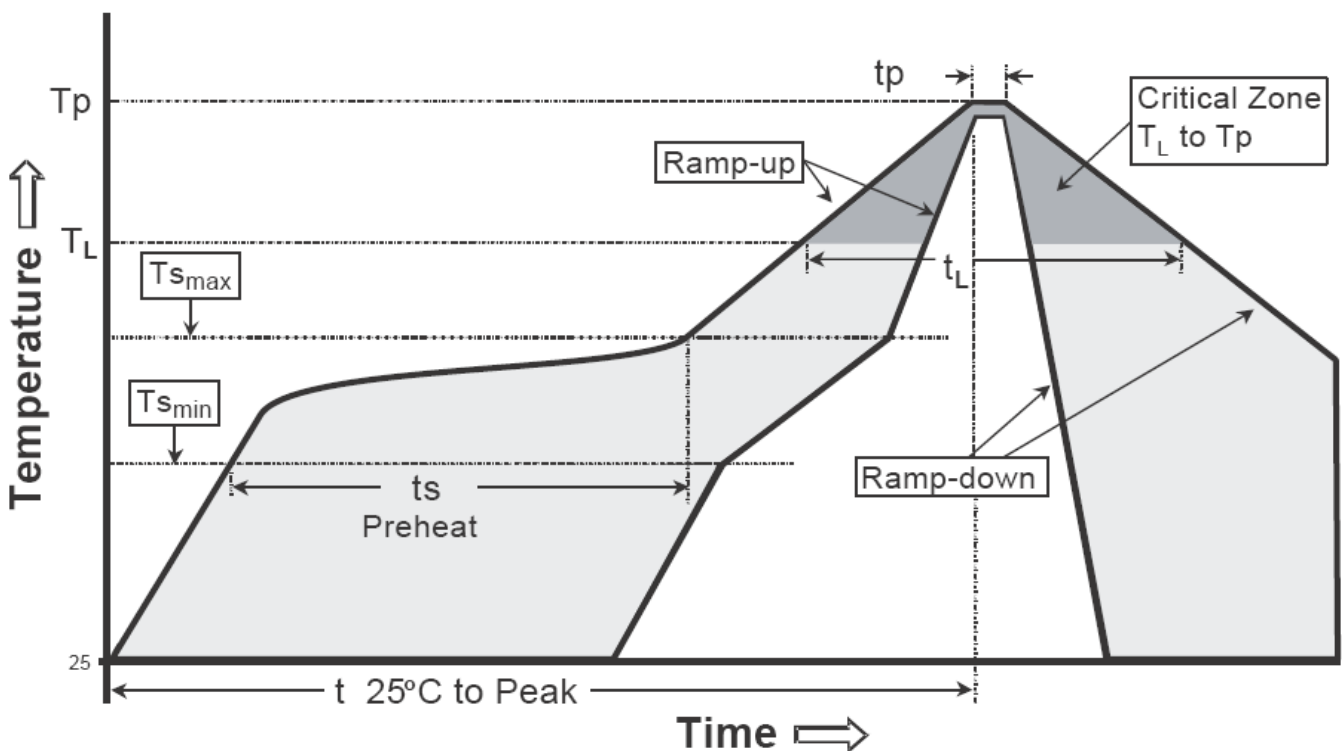


Junction Capacitance vs Reverse Voltage



**Recommended wave soldering condition**

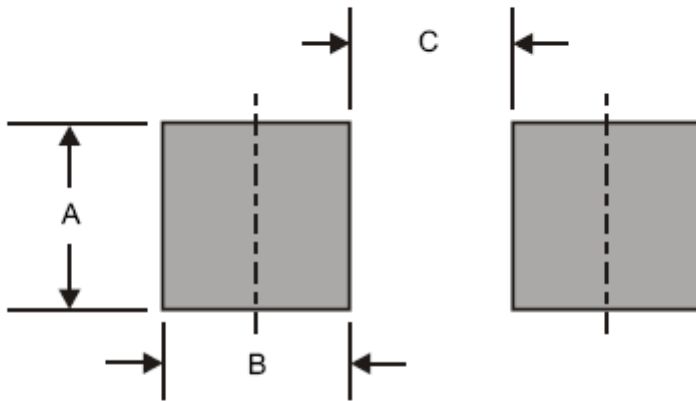
Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

**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)	100°C	150°C
-Temperature Max(Ts max)	150°C	200°C
-Time(ts min to ts max)	60-120 seconds	60-180 seconds
Time maintained above:		
-Temperature (TL)	183°C	217°C
- Time (tL)	60-150 seconds	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.

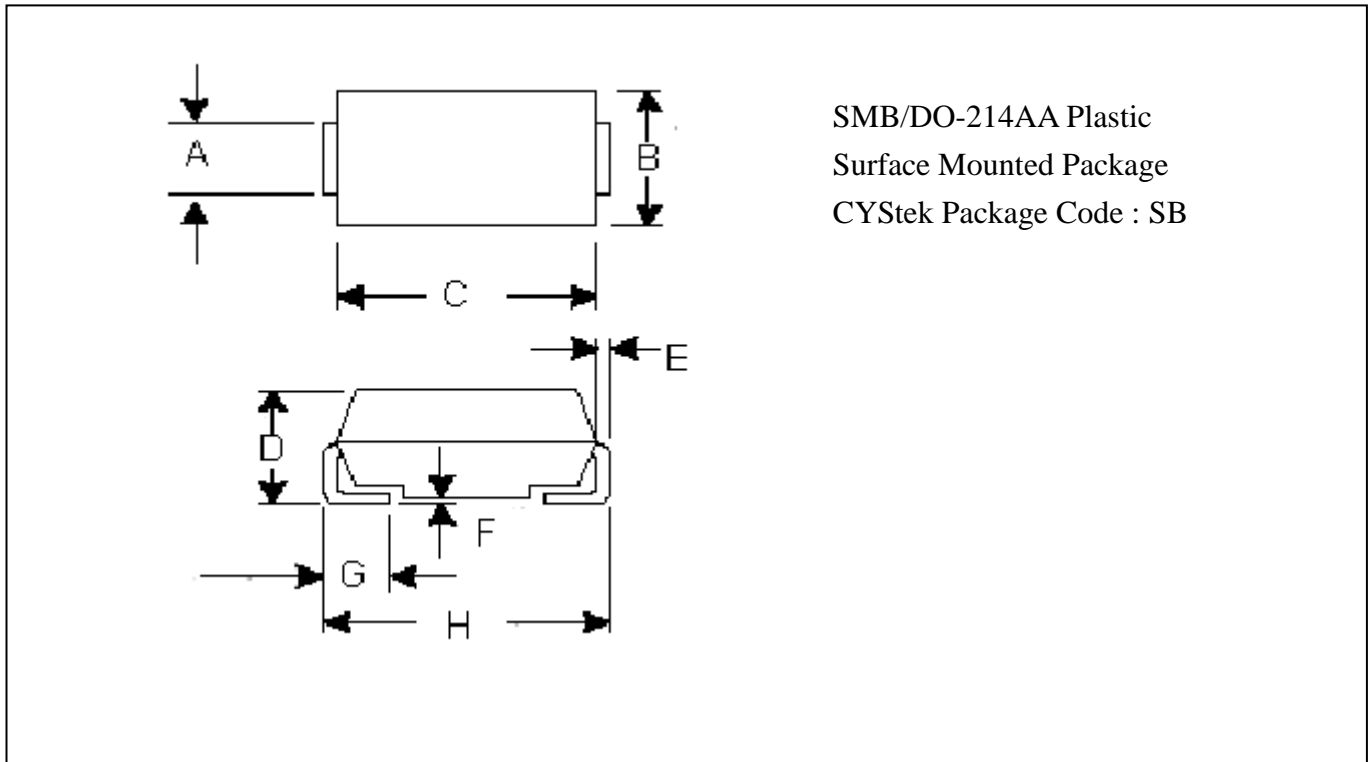
**Recommended Footprint**



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

**SMB/DO-214AA Dimension**



\*:Typical

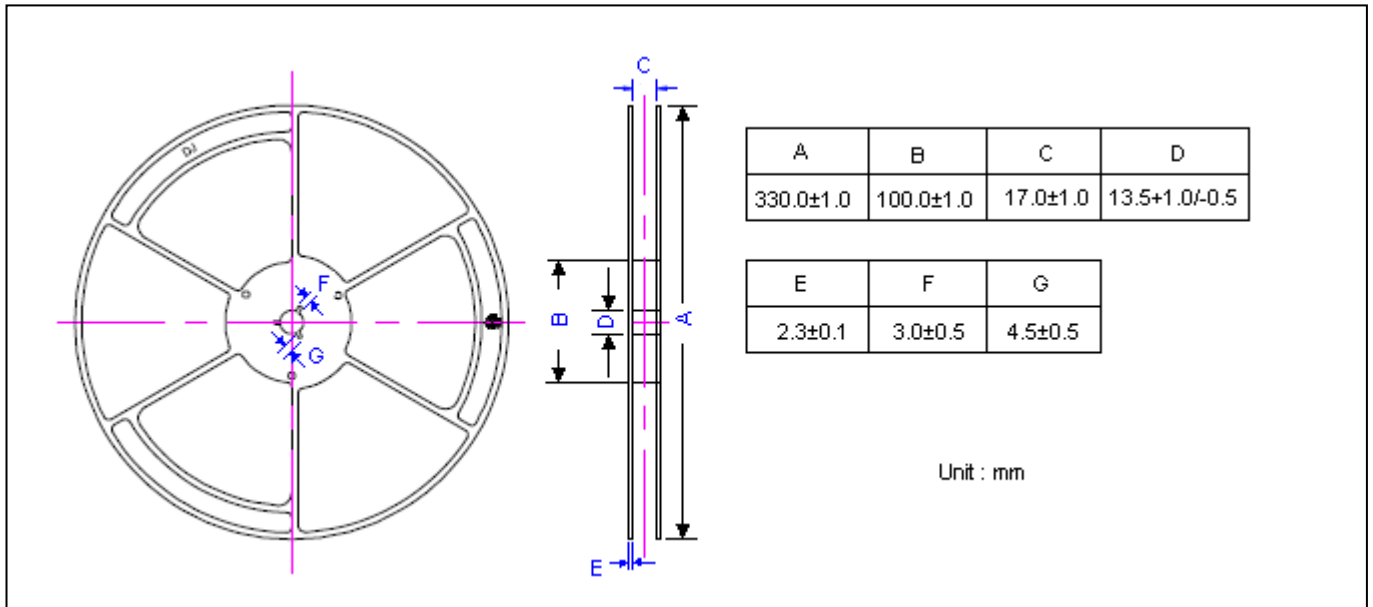
DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.075	0.083	1.91	2.11	E	0.006	0.012	0.152	0.305
B	0.130	0.155	3.30	3.94	F	0.002	0.008	0.051	0.203
C	0.160	0.185	4.06	4.70	G	0.030	0.060	0.76	1.52
D	0.083	0.096	2.13	2.44	H	0.200	0.220	5.08	5.59

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.

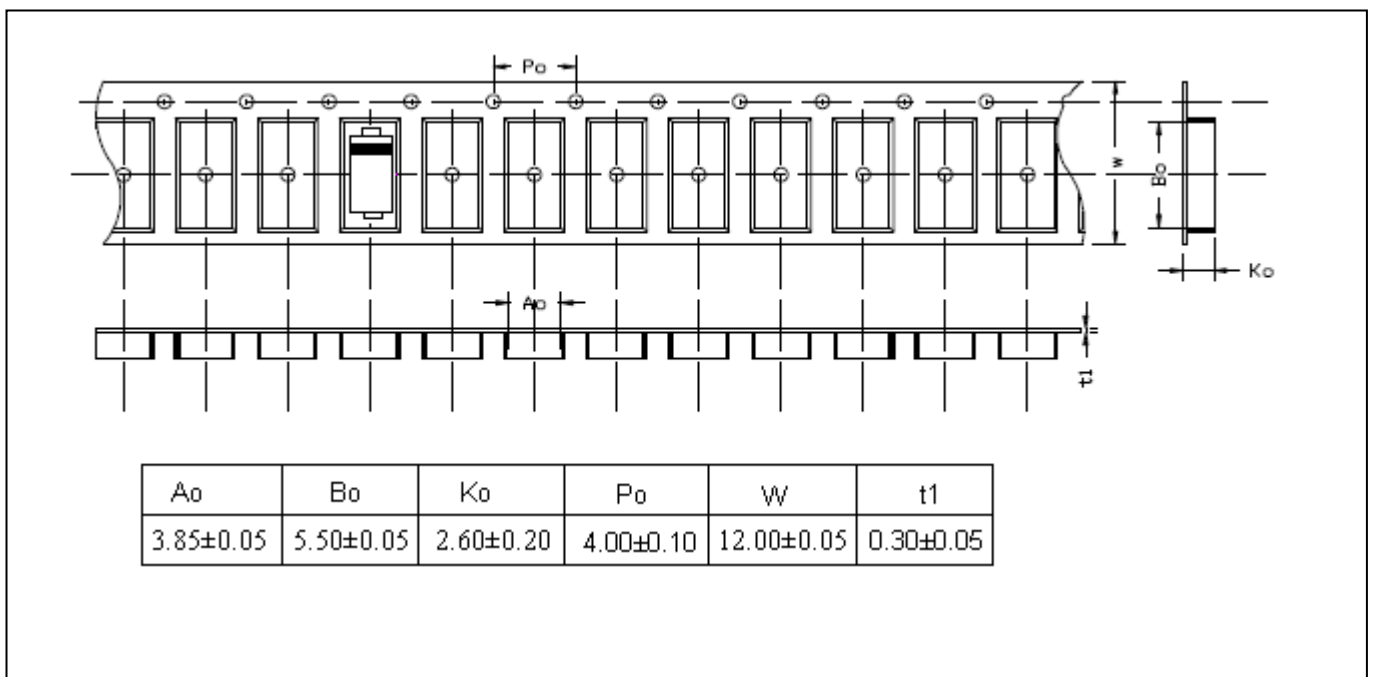
**Material :**

- Lead : Pure tin plated.
- Mold Compound : Epoxy resin family, flammability solid burning class:UL94V-0.

## Packing Information



## Carrier Tape Dimension



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