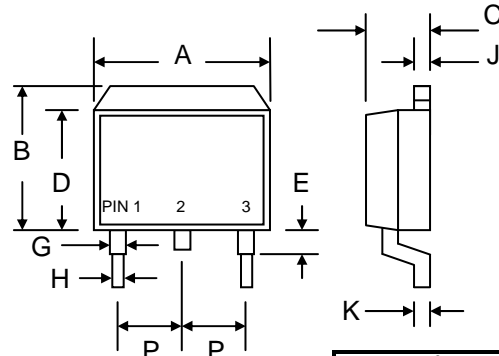


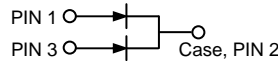
### Features

- Low Forward Voltage
- Epitaxial Construction with Oxide Passivation
- Guard Ring for Transient and ESD Protection
- Surge Overload Rating to 250A Peak
- Low Power Loss, High Efficiency
- Fast Switching
- For Use in Low Voltage, High Frequency Inverters, Free Wheeling, and Switching Power Supplies



### Mechanical Data

- Case: D<sup>2</sup>PAK/TO-263, Molded Plastic
- Terminals: Plated Leads Solderable per MIL-STD-202, Method 208
- Polarity: See Diagram
- Weight: 1.7 grams (approx.)
- Mounting Position: Any
- Marking: Type Number
- **Lead Free: For RoHS / Lead Free Version, Add "-LF" Suffix to Part Number, See Page 4**



D <sup>2</sup> PAK/TO-263		
Dim	Min	Max
A	9.80	10.40
B	9.60	10.60
C	4.40	4.80
D	8.50	9.10
E	—	2.80
G	1.00	1.40
H	—	0.99
J	1.20	1.40
K	0.30	0.70
P	2.35	2.75
All Dimensions in mm		

### Maximum Ratings and Electrical Characteristics @T<sub>A</sub>=25°C unless otherwise specified

Single Phase, half wave, 60Hz, resistive or inductive load. For capacitive load, derate current by 20%.

Characteristic	Symbol	SB	SB	SB	SB	SB	SB	SB	SB	Unit
		4020DC	4030DC	4040DC	4045DC	4050DC	4060DC	4080DC	40100DC	
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub> V <sub>RWM</sub> V <sub>R</sub>	20	30	40	45	50	60	80	100	V
RMS Reverse Voltage	V <sub>R(RMS)</sub>	14	21	28	32	35	42	56	70	V
Average Rectified Output Current @T <sub>C</sub> = 100°C	I <sub>O</sub>	40 20								A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load (JEDEC Method)	I <sub>FSM</sub>	250								A
Forward Voltage per diode @I <sub>F</sub> = 20A, T <sub>J</sub> = 25°C @I <sub>F</sub> = 20A, T <sub>J</sub> = 125°C	V <sub>FM</sub>	0.70 0.60			0.75 0.65		0.85 0.75			V
Peak Reverse Current At Rated DC Blocking Voltage	I <sub>RM</sub>	1.0 20								mA
Typical Junction Capacitance (Note 1)	C <sub>J</sub>	1100				650				pF
Thermal Resistance Junction to Ambient (Note 2) Thermal Resistance Junction to Case (Note 2)	R <sub>JA</sub> R <sub>JC</sub>	50 1.5								°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150								°C

Note: 1. Measured at 1.0 MHz and applied reverse voltage of 4.0V D.C.  
2. Mounted on FR-4 PCB with minimum recommended pad layout per diode.

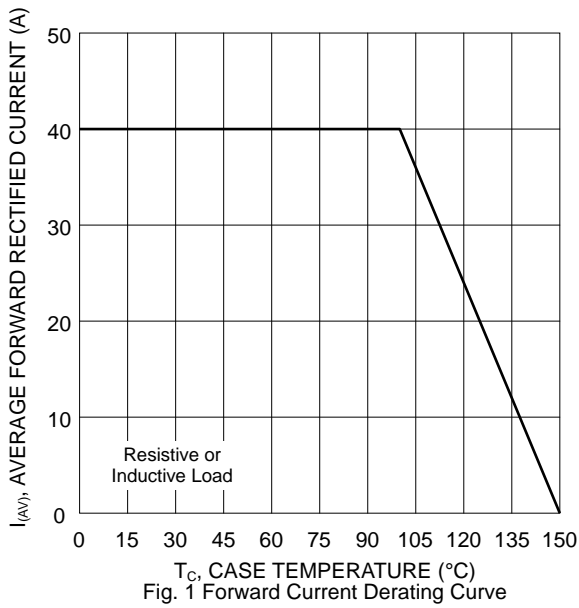


Fig. 1 Forward Current Derating Curve

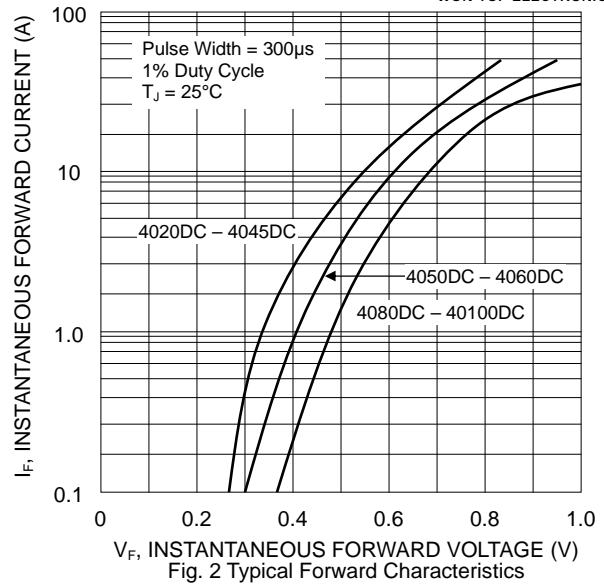


Fig. 2 Typical Forward Characteristics

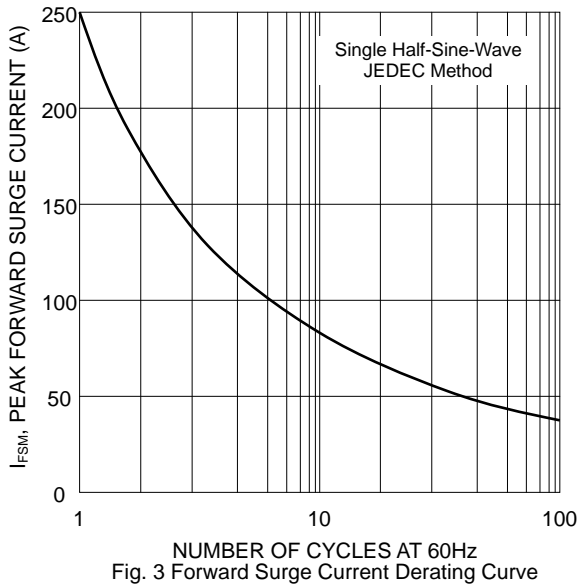


Fig. 3 Forward Surge Current Derating Curve

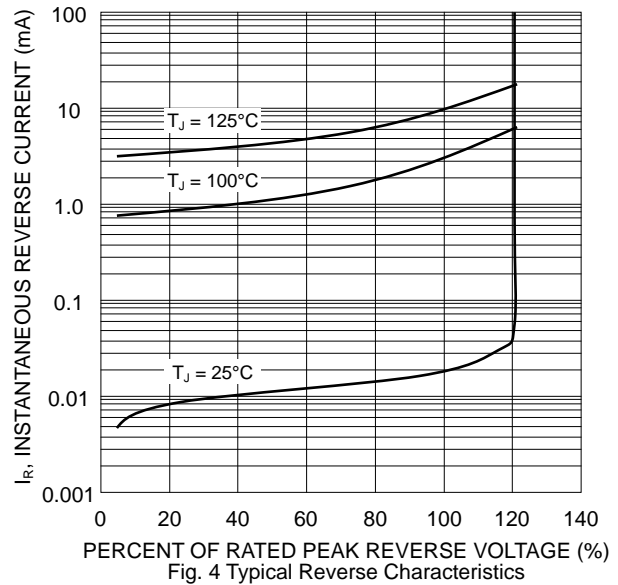


Fig. 4 Typical Reverse Characteristics

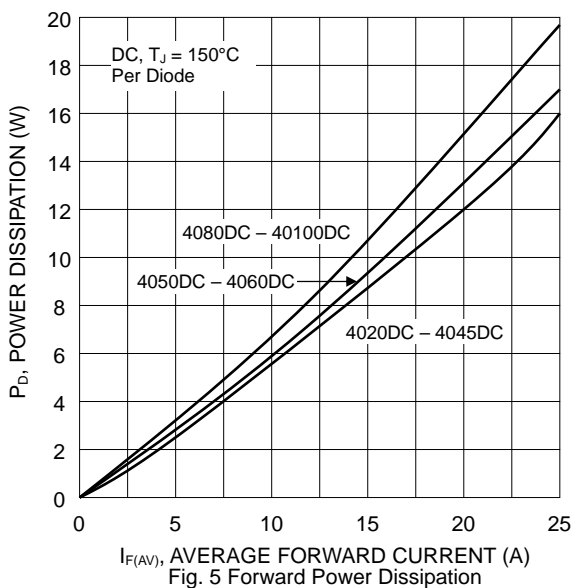


Fig. 5 Forward Power Dissipation

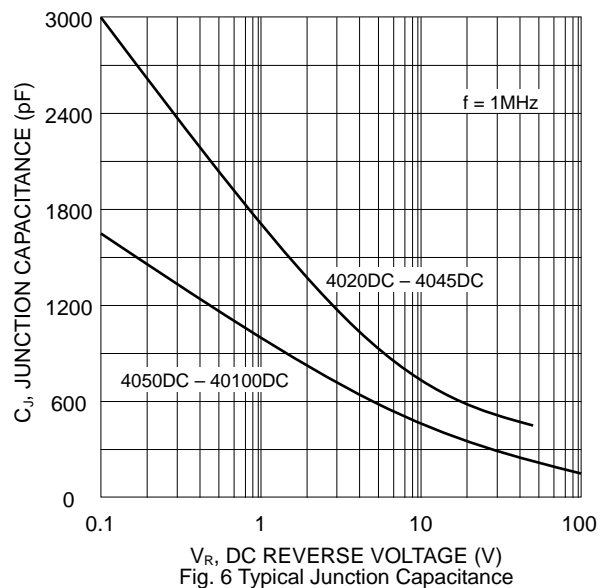
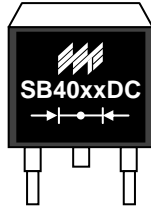


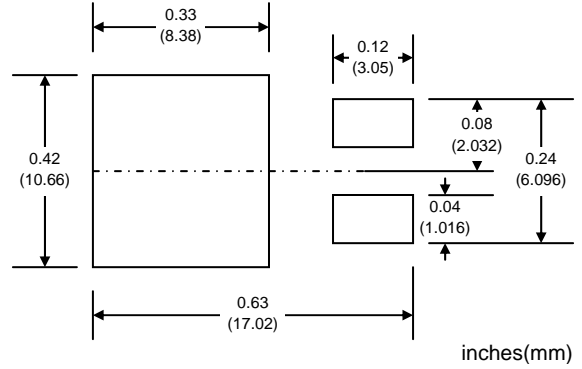
Fig. 6 Typical Junction Capacitance

## MARKING INFORMATION



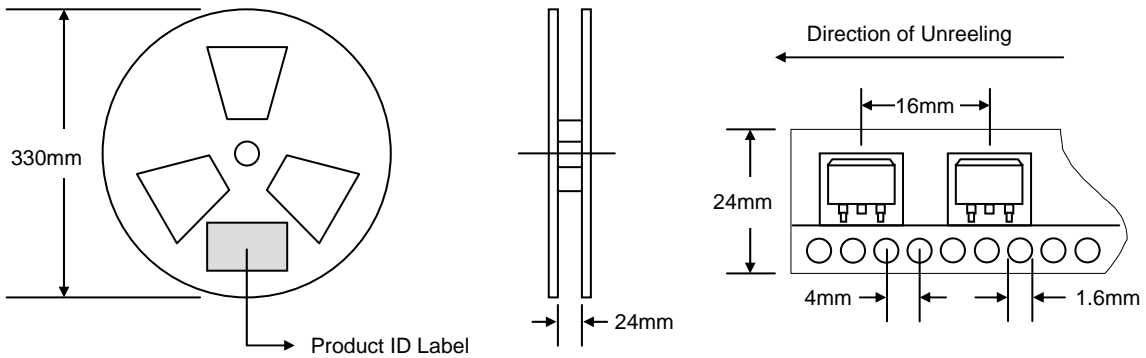
SB40xxDC = Device Number  
 xx = 20, 30, 40, 45, 50, 60, 80 or 100  
 Polarity = As Marked on Body

## RECOMMENDED FOOTPRINT



## PACKAGING INFORMATION

### TAPE & REEL




Reel Diameter (mm)	Quantity (PCS)	Inner Box Size L x W x H (mm)	Quantity (PCS)	Carton Size L x W x H (mm)	Quantity (PCS)	Approx. Gross Weight (KG)
330	800	340 x 337 x 45	800	370 x 370 x 420	6,400	15.0

**Note:** 1. Paper reel, white or gray color.  
 2. Components are packed in accordance with EIA standard 481-1 and 481-2.

## ORDERING INFORMATION

Product No.	Package Type	Shipping Quantity
SB4020DC-T3	D <sup>2</sup> PAK	800/Tape & Reel
SB4030DC-T3	D <sup>2</sup> PAK	800/Tape & Reel
SB4040DC-T3	D <sup>2</sup> PAK	800/Tape & Reel
SB4045DC-T3	D <sup>2</sup> PAK	800/Tape & Reel
SB4050DC-T3	D <sup>2</sup> PAK	800/Tape & Reel
SB4060DC-T3	D <sup>2</sup> PAK	800/Tape & Reel
SB4080DC-T3	D <sup>2</sup> PAK	800/Tape & Reel
SB40100DC-T3	D <sup>2</sup> PAK	800/Tape & Reel

1. Shipping quantity given is for minimum packing quantity only. For minimum order quantity, please consult the Sales Department.
2. **To order RoHS / Lead Free version (with Lead Free finish), add "-LF" suffix to part number above. For example, SB4020DC-T3-LF.**

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**WARNING:** DO NOT USE IN LIFE SUPPORT EQUIPMENT. WTE power semiconductor products are not authorized for use as critical components in life support devices or systems without the express written approval.

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**Internet:** http://www.wontop.com

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