



# THE DATASHEET OF SBG3040CT

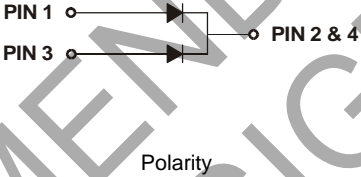


**Features**

- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- High Surge Capability
- High Current Capability and Low Forward Voltage Drop
- Surge Overload Rating to 250A Peak
- For Use in Low Voltage, High Frequency Inverters, Free Wheeling, and Polarity Protection Applications

**Mechanical Data**

- Case: TO263
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Tin. Solderable per MIL-STD-202, Method 208<sup>③</sup>
- Polarity: See Diagram
- Weight: 1.7 grams (Approximate)

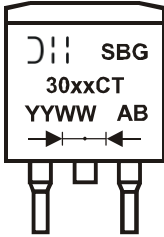


**Ordering Information** (Note 1)

Part Number	Case	Packaging
SBG3030CT-T-F	TO263	800/Tape & Reel, 13-inch
SBG3040CT-T-F	TO263	800/Tape & Reel, 13-inch
SBG3045CT-T-F	TO263	800/Tape & Reel, 13-inch

Note: 1. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

**Marking Information**



SBG30xxCT = Product Type Marking Code Where  
 xx = 30, 40, or 45 Depending on Device Type  
 D|| = Manufacturers' Code Marking  
 YYWW = Date Code Marking  
 YY = Last Two Digits of Year (ex: 02 for 2002)  
 WW = Week Code (01 to 53)  
 AB = Foundry and Assembly Code

**Maximum Ratings** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

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

Characteristic	Symbol	SBG 3030CT	SBG 3040CT	SBG 3045CT	Unit
Peak Repetitive Reverse Voltage	$V_{RRM}$				V
Working Peak Reverse Voltage	$V_{RWM}$	30	40	45	
DC Blocking Voltage (Note 2)	$V_R$				
RMS Reverse Voltage	$V_{R(RMS)}$	21	28	32	V
Average Rectified Output Current @ $T_C = +100^\circ\text{C}$	$I_O$		30		A
Non-Repetitive Peak Forward Surge Current			250		A
8.3ms Single Half Sine-wave Superimposed On Rated Load	$I_{FSM}$				

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Case (Note 3)	$R_{\theta JC}$	1.5	$^\circ\text{C/W}$
Operating Temperature Range	$T_J$	-55 to +125	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-55 to +150	$^\circ\text{C}$

**Electrical Characteristics** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Forward Voltage, Per Element @ $I_F = 15\text{A}$ , $T_C = +25^\circ\text{C}$	$V_{FM}$	0.55	V
Peak Reverse Current @ $T_J = +25^\circ\text{C}$	$I_{RM}$	1.0	mA
at Rated DC Blocking Voltage (Note 2) @ $T_J = +100^\circ\text{C}$		75	
Typical Total Capacitance (Note 4)	$C_T$	420	pF

- Notes:
- Short duration pulse test used to minimize self-heating effect.
  - Thermal resistance junction to case mounted on heatsink.
  - Measured at 1.0MHz and applied reverse voltage of 4.0V DC and per element.

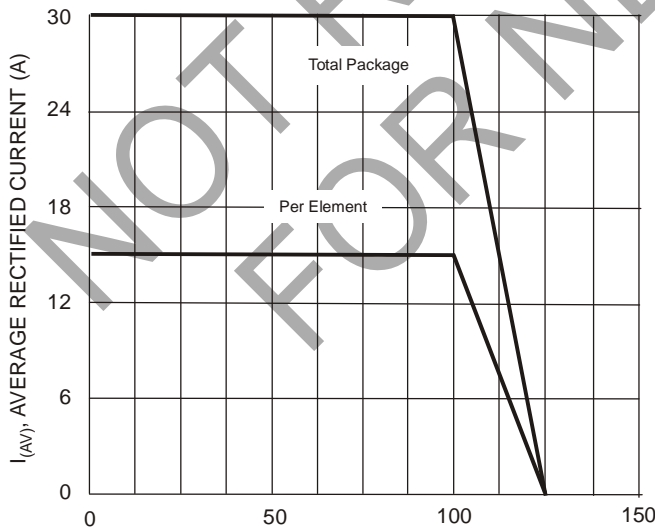


Fig. 1 Forward Derating Curve

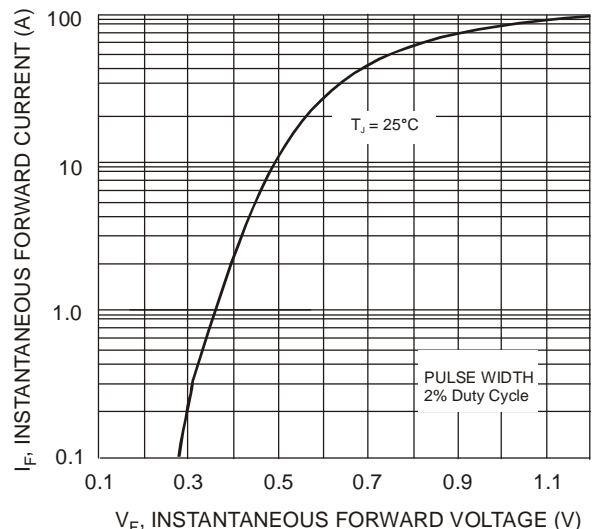


Fig. 2 Typical Forward Characteristics, Per Element

NOT RECOMMENDED FOR NEW DESIGN -  
NO ALTERNATE PART



SBG3030CT - SBG3045CT

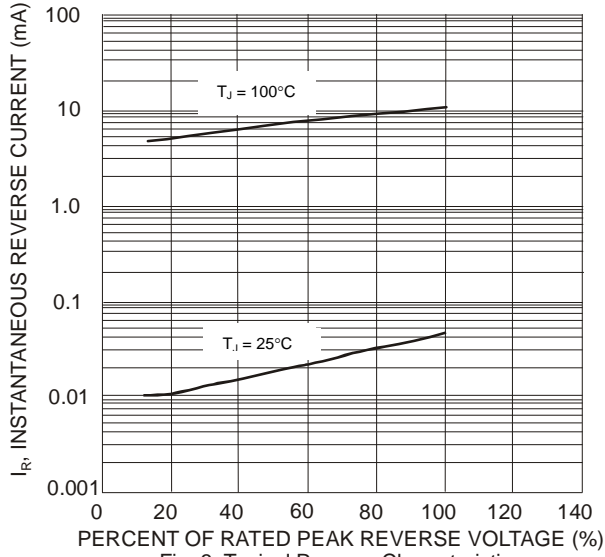


Fig. 3 Typical Reverse Characteristics

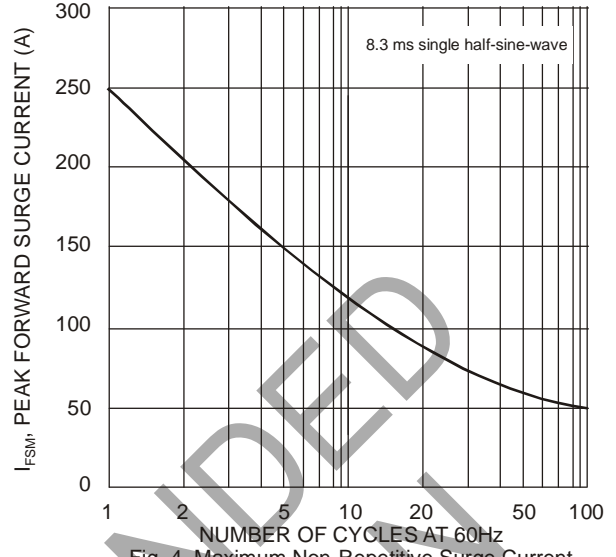


Fig. 4 Maximum Non-Repetitive Surge Current

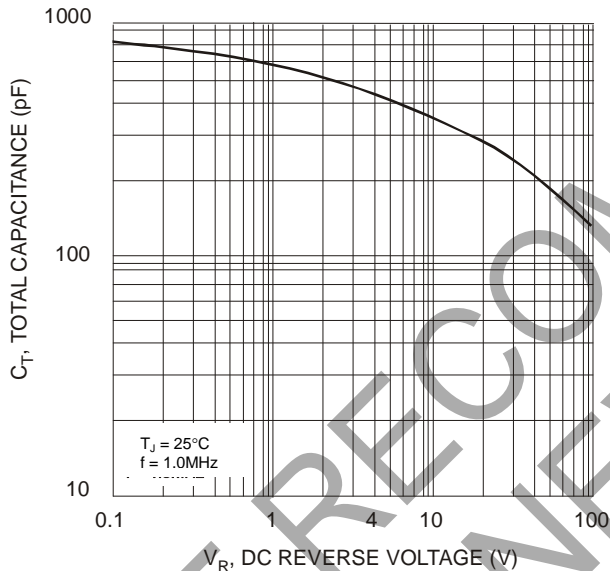


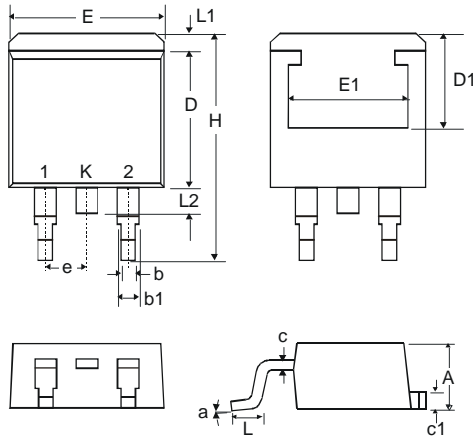
Fig. 5 Typical Total Capacitance, Per Element

NOT RECOMMENDED FOR NEW DESIGN

## Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

TO263

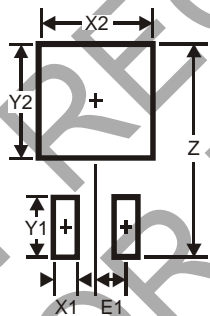


TO263		
Dim	Min	Max
A	4.07	4.82
b	0.51	0.99
b1	1.15	1.77
c	0.356	0.58
c1	1.143	1.65
D	8.39	9.65
D1	6.55	—
E	9.66	10.66
E1	6.23	—
e	2.54 Typ	
H	14.61	15.87
L	1.78	2.79
L1	—	1.67
L2	—	1.77
a	0°	8°
All Dimensions in mm		

## Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

TO263



Dimensions	Value (in mm)
Z	16.9
X1	1.1
X2	10.8
Y1	3.5
Y2	7.01
E1	2.5

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