



**THE DATASHEET OF  
SBG3030CT-T-F**

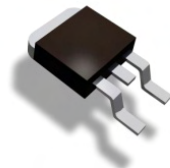


**Features**

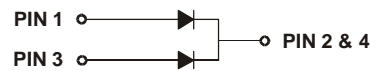
- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- High Surge Capability
- High Current Capability and Low Forward Voltage Drop
- Surge Overload Rating to 250A Peak
- For Use in Low Voltage, High Frequency Inverters, Free Wheeling, and Polarity Protection Applications
- **Lead Free Finish/RoHS Compliant Version (Note 1)**

**Mechanical Data**

- Case: TO-263
- 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
- Polarity: See Diagram
- Weight: 1.7 grams (approximate)



Top View



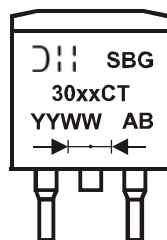
Polarity

**Ordering Information** (Note 2)

Part Number	Case	Packaging
SBG3030CT-T-F	TO-263	800/Tape & Reel, 13-inch
SBG3040CT-T-F	TO-263	800/Tape & Reel, 13-inch
SBG3045CT-T-F	TO-263	800/Tape & Reel, 13-inch

Notes: 1. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied, see EU Directive 2002/95/EC Annex Notes  
 2. For packaging details, go to our website at <http://www.diodes.com>.

**Marking Information**



SBG30xxCT = Product Type Marking Code Where  
 xx = 30, 40, or 45 Depending on Device Type  
 = Manufacturers' Code Marking  
 YYWW = Date Code Marking  
 Y = Last Digit of Year (ex: 2 for 2002)  
 WW = Week Code (01 - 53)

**Maximum Ratings** @ $T_A = 25^\circ\text{C}$  unless otherwise specified

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

Characteristic	Symbol	SBG 3030CT	SBG 3040CT	SBG 3045CT	Unit
Peak Repetitive Reverse Voltage	$V_{RRM}$	30	40	45	V
Working Peak Reverse Voltage	$V_{RWM}$				
DC Blocking Voltage (Note 3)	$V_R$				
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 8.3ms Single half sine-wave superimposed on rated load	$I_{FSM}$		250		A

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Case (Note 4)	$R_{\theta JC}$	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 3) @ $T_J = 100^\circ\text{C}$		75	
Typical Total Capacitance (Note 5)	$C_T$	420	pF

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

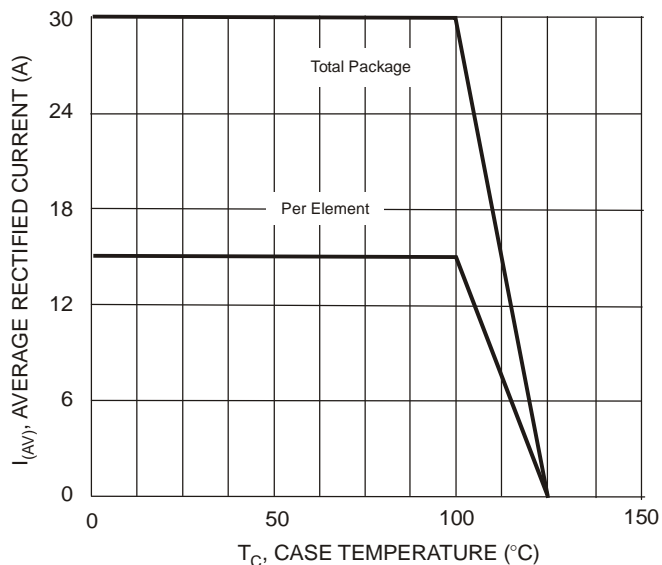


Fig. 1 Forward Derating Curve

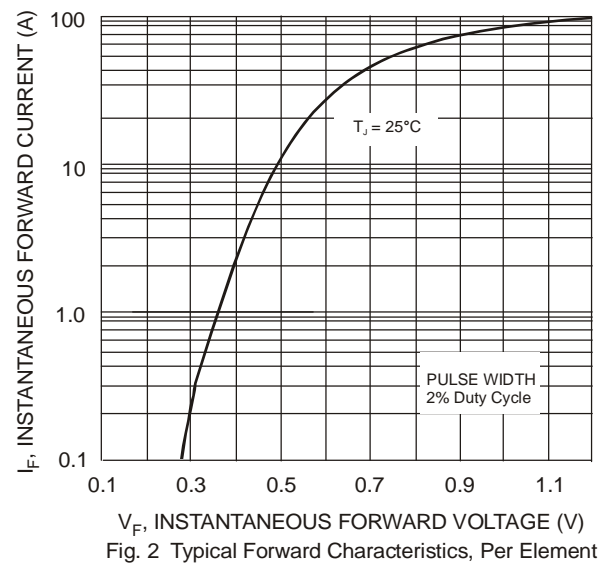


Fig. 2 Typical Forward Characteristics, Per Element

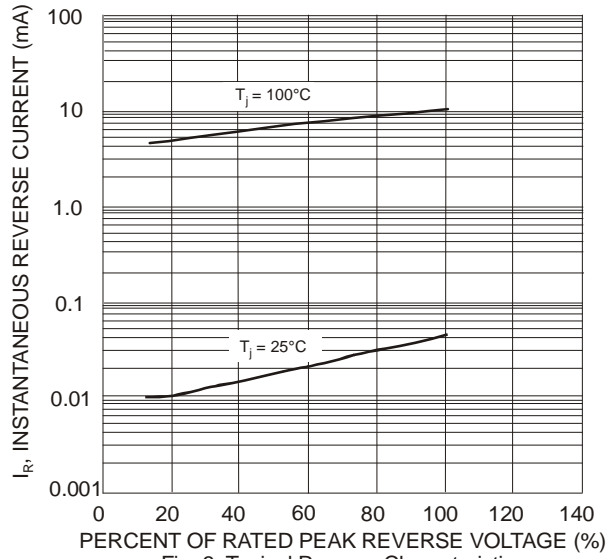


Fig. 3 Typical Reverse Characteristics

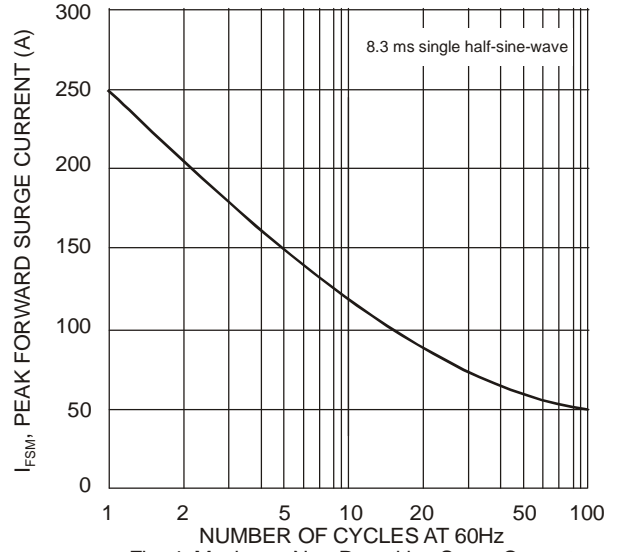


Fig. 4 Maximum Non-Repetitive Surge Current

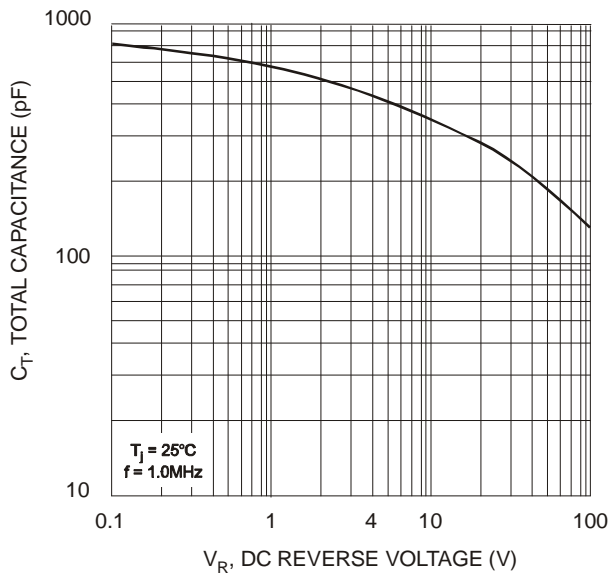
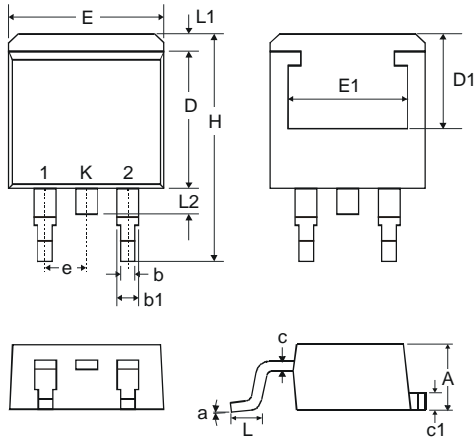


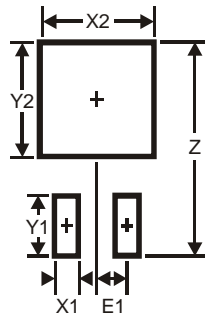
Fig. 5 Typical Total Capacitance, Per Element

**Package Outline Dimensions**



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**



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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