Marking Information

SBR12U45 = Product Type Marking Code
= Manufacturers' Code Marking
YYWWK = Date Code Marking
YY = Last Two Digits of Year (ex: 14 for 2014)
WW = Week Code (01 ~ 53)
K = Factory Designator

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

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

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_{RM}	45	V
Average Rectified Output Current	I_O	12	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	300	A

Thermal Characteristics

Characteristic		Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5)		$R_{\theta JA}$	66	°C/W
Operating Temperature Range	$V_R \le 80\% V_{RRM}$	T_J	-65 to +150	°C
	DC Forward Mode (Note 7)	T_J	≤200	°C
Storage Temperature Range		T_{STG}	-65 to +175	°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	V_F	—	0.40	0.48	V	I_F = 10A, T_J = +25°C
		—	0.42	0.50		I_F = 12A, T_J = +25°C
		—	0.38	0.45		I_F = 12A, T_J = +125°C
Leakage Current (Note 6)	I_R	—	70	200	μA	V_R = 40V, T_J = +25°C
		—	90	300		V_R = 45V, T_J = +25°C
		—	19	—	mA	V_R = 45V, T_J = +125°C
		—	60	—		V_R = 45V, T_J = +150°C

Notes: 5. FR-4 PCB, 2oz. Copper, minimum recommended pad layout per http://www.diodes.com.pdf.
6. Short duration pulse test used to minimize self-heating effect.
7. Max junction temperature +200°C guaranteed for 2 hours at maximum output.

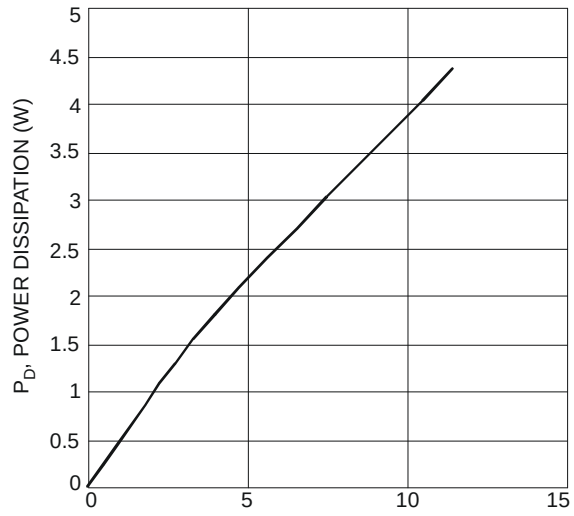


Fig. 1 Forward Power Dissipation

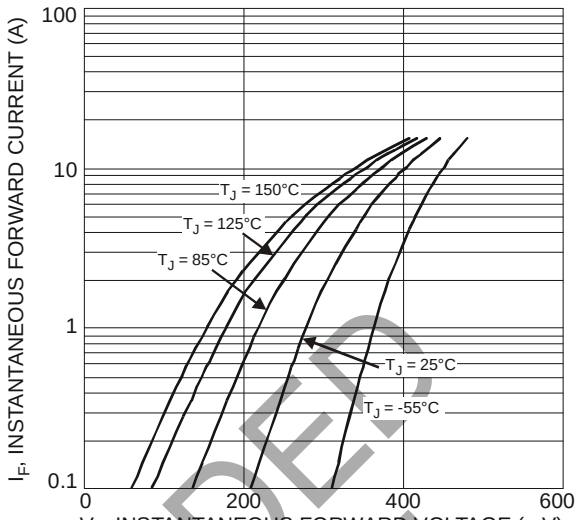


Fig. 2 Typical Forward Characteristics

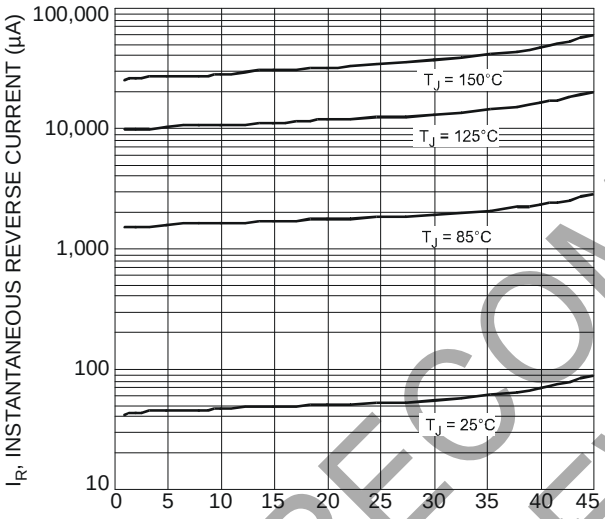


Fig. 3 Typical Reverse Characteristics

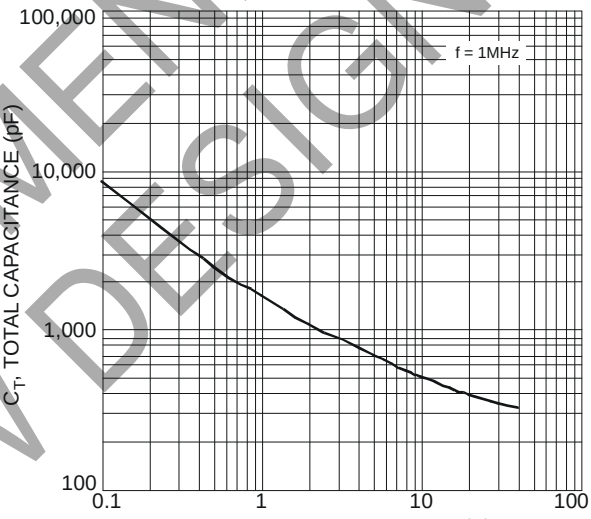


Fig. 4 Total Capacitance vs. Reverse Voltage

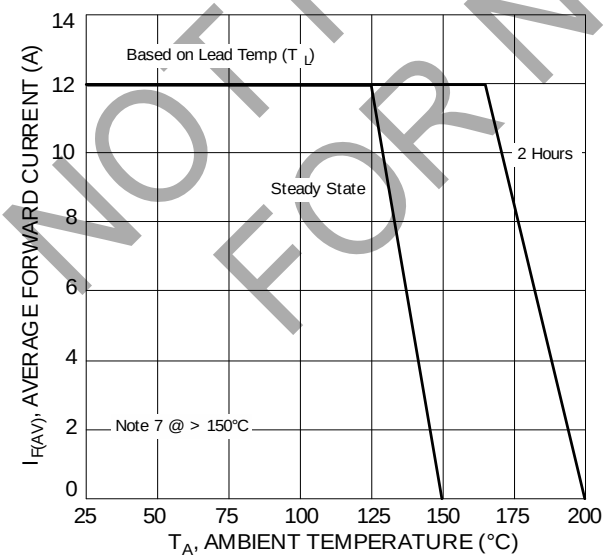


Fig. 5 Forward Current Derating Curve

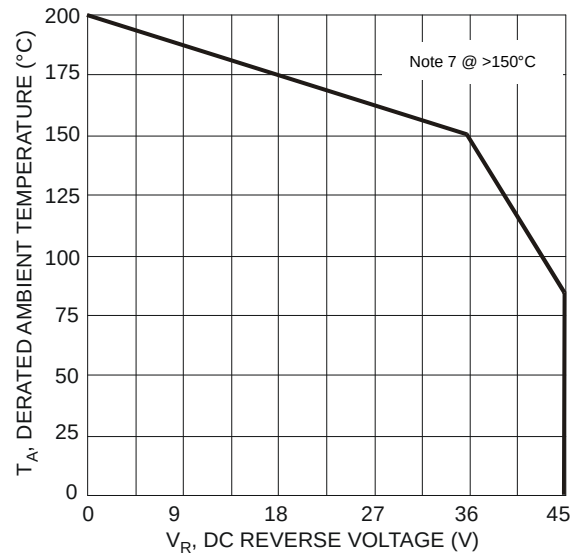
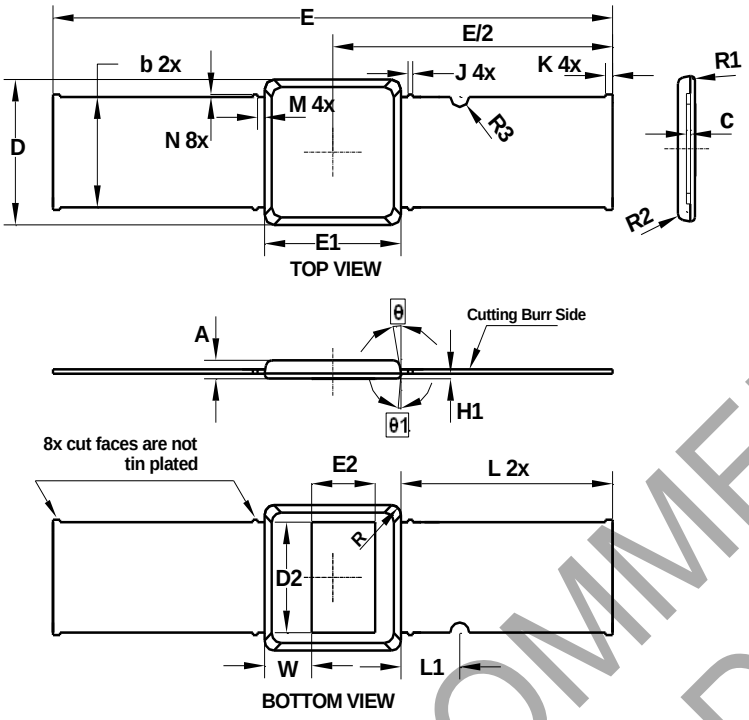


Fig. 6 Operating Temperature Derating

Package Outline Dimensions

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

POWERDI5SP

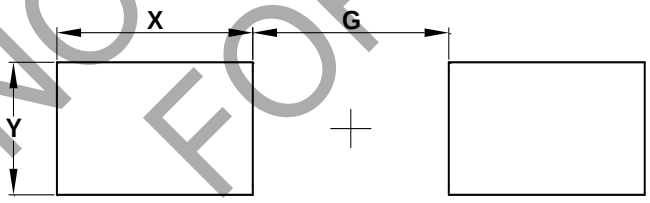


POWERDI5SP			
Dim	Min	Max	Typ
A	-	0.75	-
b	4.30	4.50	4.40
c	0.155	0.195	-
D	5.70	5.90	5.80
D2	4.40	-	-
E	23.6	24.0	23.8
E1	5.70	5.90	5.80
E2	2.74	-	-
H1	0.19	0.21	0.20
J	-	-	0.20
K	-	-	0.30
L	-	-	9.00
L1	-	-	2.50
M	-	-	0.30
N	0	0.20	-
R	-	-	0.40
R1	-	-	0.15
R2	-	-	0.25
R3	-	-	0.40
W	1.66	2.06	-
θ	8°	12°	-
θ1	3°	7°	-
All Dimensions in mm			

Suggested Pad Layout

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

POWERDI5SP



Dimensions	Value (in mm)
G	8.101
X	8.100
Y	5.100

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