

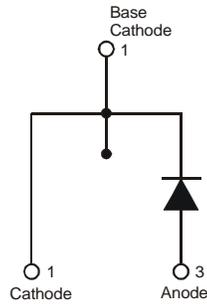
NEW PRODUCT

**Features**

- DIODESTAR™ is a Proprietary Process for High Voltage Rectifiers which Delivers:
  - Ultra-Fast Reverse Recovery ( $t_{rr} < 30ns$ ) Giving a Rapid Switching Response
  - Soft Recovery for Low EMI Noise
  - Excellent High Temperature Stability
  - High Forward Surge Capability
- Enables High Efficiency as the Boost Diode in PFC Circuits
- **Lead Free Finish, RoHS Compliant (Note 1)**

**Mechanical Data**

- Case: TO-220AC
- Case Material: Molded Plastic, UL Flammability Classification Rating 94V-0
- Terminals: Matte Tin Finish annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208 



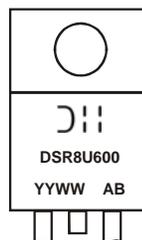
Package Pin Out Configuration

**Ordering Information** (Note 2)

Part Number	Case	Packaging
DSR8U600	TO-220AC	50 pieces/tube
DSR8U600-G	TO-220AC	50 pieces/tube

- 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/datasheets/ap02007.pdf>.
  3. For Green Molding Compound version part number, add "-G" suffix to part number above. Example: DSR8U600-G.

**Marking Information**



DSR8U600 = Product Type Marking Code  
 AB = Foundry and Assembly Code  
 YYWW = Date Code Marking  
 YY = Last two digits of year (ex: 10 = 2010)  
 WW = Week (01 - 53)

**Maximum Ratings** @T<sub>A</sub> = 25°C unless otherwise specified

Single phase, half wave, 60Hz, resistive or inductive load.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	600	V
Working Peak Reverse Voltage	V <sub>RWM</sub>		
DC Blocking Voltage	V <sub>RM</sub>		
Average Rectified Output Current	I <sub>O</sub>	8	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	85	A

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance (Note 4)	R <sub>θJC</sub>	2	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +175	°C

**Electrical Characteristics** @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	V <sub>F</sub>	-	-	2.5	V	I <sub>F</sub> = 8A, T <sub>J</sub> = 25°C
		-	1.3	1.8		I <sub>F</sub> = 8A, T <sub>J</sub> = 125°C
Leakage Current (Note 5)	I <sub>R</sub>	-	-	20	μA	V <sub>R</sub> = 600V, T <sub>J</sub> = 25°C
		-	-	200		V <sub>R</sub> = 600V, T <sub>J</sub> = 125°C
Reverse Recovery Time	t <sub>rr</sub>	-	23	28	ns	I <sub>F</sub> = 1A, V <sub>R</sub> = 30V, di/dt = 100A/μs
Softness Factor	S	-	1.0	-	-	I <sub>F</sub> = 8A, di/dt = 50A/μs, V <sub>R</sub> = 400V, T <sub>J</sub> = 25°C
Reverse Recovery Current	I <sub>RM</sub>	-	1.4	-	A	
Reverse Recovery Charges	Q <sub>rr</sub>	-	74	-	nC	I <sub>F</sub> = 8A, di/dt = 50A/μs, V <sub>R</sub> = 400V, T <sub>J</sub> = 125°C
Softness Factor	S	-	0.6	-	-	
Reverse Recovery Current	I <sub>RM</sub>	-	2.5	-	A	I <sub>F</sub> = 8A, di/dt = 50A/μs, V <sub>R</sub> = 400V, T <sub>J</sub> = 125°C
Reverse Recovery Charges	Q <sub>rr</sub>	-	185	-	nC	
Junction Capacitance	C <sub>J</sub>	-	55	-	pF	4.0V, 1MHz

Notes: 4. Test with additional heatsink, (Black Aluminum, 45mm\*20mm\*12mm)  
5. Short duration pulse test used to minimize self-heating effect.

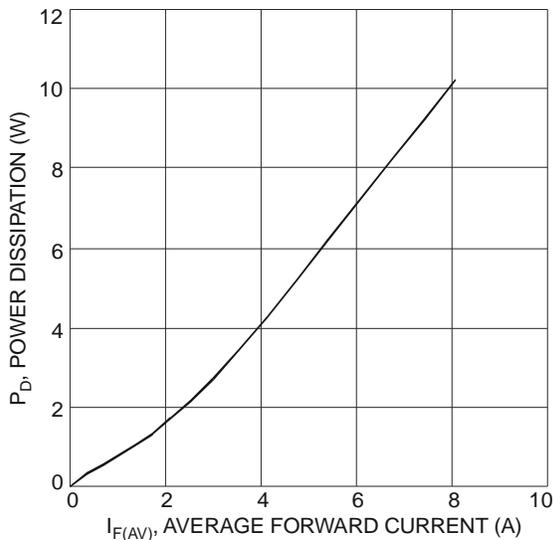


Fig. 1 Forward Power Dissipation

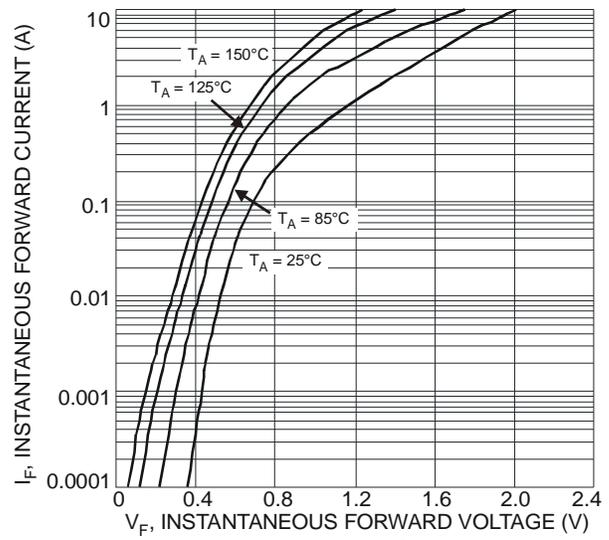


Fig. 2 Typical Forward Characteristics

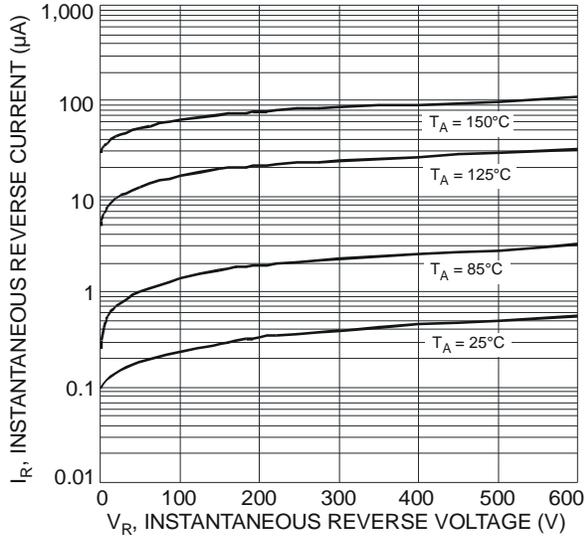


Fig. 3 Typical Reverse Characteristics

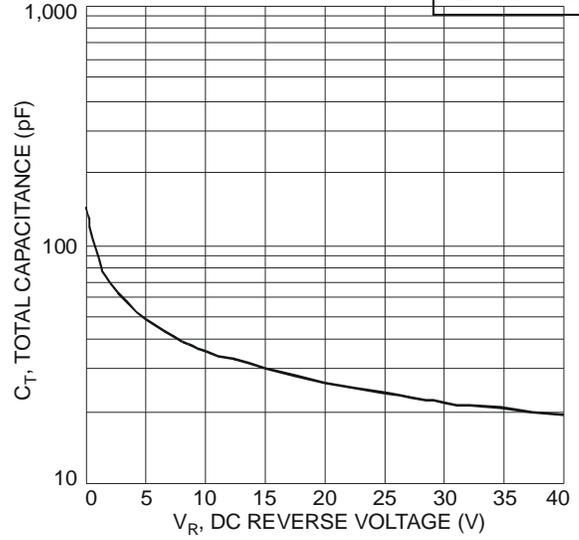


Fig. 4 Total Capacitance vs. Reverse Voltage

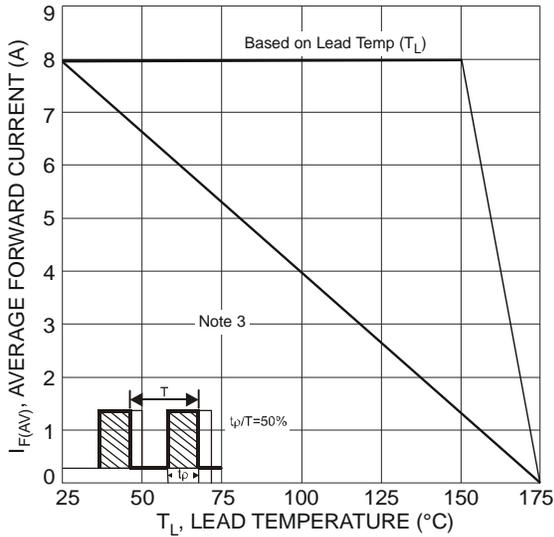


Fig. 5 Forward Current Derating Curve

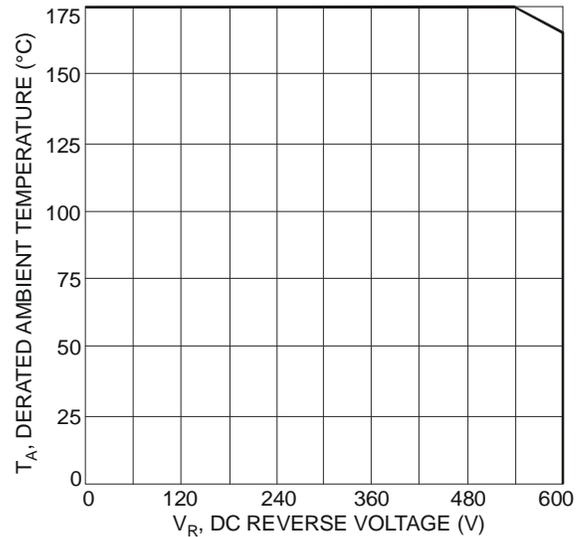
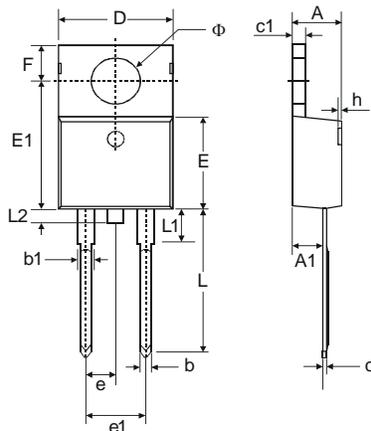


Fig. 6 Operating Temperature Derating

**Package Outline Dimensions**



TO-220AC		
Dim	Min	Max
A	4.47	4.67
A1	2.52	2.82
b	0.71	0.91
b1	1.17	1.37
c	0.31	0.53
c1	1.17	1.37
D	10.01	10.31
E	8.50	8.90
E1	12.06	12.46
e	2.54 Typ	
e1	4.98	5.18
F	2.59	2.89
h	0.00	0.30
L	13.40	13.80
L1	3.56	3.96
L2	-	1.00
phi	3.735	3.935
All Dimensions in mm		

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