

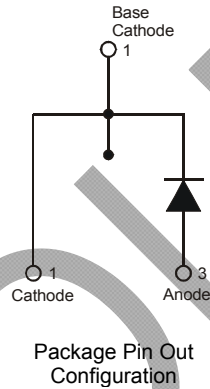
OBSOLETE

Features

- DIODESTAR™ is a Proprietary Process for High Voltage Rectifiers which Delivers:
 - Ultra-Fast Reverse Recovery ($t_{rr} < 30\text{ns}$) 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 ^③

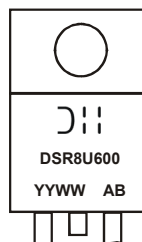


Ordering Information (Note 2)

| 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 @ $T_A = 25^\circ\text{C}$ unless otherwise specified

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

| Characteristic | Symbol | Value | Unit |
|--|-----------|-------|------|
| Peak Repetitive Reverse Voltage | V_{RRM} | 600 | V |
| Working Peak Reverse Voltage | V_{RWM} | | |
| DC Blocking Voltage | V_{RM} | | |
| Average Rectified Output Current | I_O | 8 | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load | I_{FSM} | 85 | A |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|-----------------|-------------|--------------------|
| Typical Thermal Resistance (Note 4) | $R_{\theta JC}$ | 2 | $^\circ\text{C/W}$ |
| Operating and Storage Temperature Range | T_J, T_{STG} | -65 to +175 | $^\circ\text{C}$ |

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|--------------------------|----------|-----|-----|-----|---------------|---|
| Forward Voltage Drop | V_F | - | - | 2.5 | V | $I_F = 8\text{A}, T_J = 25^\circ\text{C}$ |
| | | - | 1.3 | 1.8 | | $I_F = 8\text{A}, T_J = 125^\circ\text{C}$ |
| Leakage Current (Note 5) | I_R | - | - | 20 | μA | $V_R = 600\text{V}, T_J = 25^\circ\text{C}$ |
| | | - | - | 200 | | $V_R = 600\text{V}, T_J = 125^\circ\text{C}$ |
| Reverse Recovery Time | t_{rr} | - | 23 | 28 | ns | $I_F = 1\text{A}, V_R = 30\text{V}, di/dt = 100\text{A}/\mu\text{s}$ |
| Softness Factor | S | - | 1.0 | - | - | $I_F = 8\text{A}, di/dt = 50\text{A}/\mu\text{s}, V_R = 400\text{V}, T_J = 25^\circ\text{C}$ |
| Reverse Recovery Current | I_{RM} | - | 1.4 | - | A | |
| Reverse Recovery Charges | Q_{rr} | - | 74 | - | nC | $I_F = 8\text{A}, di/dt = 50\text{A}/\mu\text{s}, V_R = 400\text{V}, T_J = 125^\circ\text{C}$ |
| Softness Factor | S | - | 0.6 | - | - | |
| Reverse Recovery Current | I_{RM} | - | 2.5 | - | A | $I_F = 8\text{A}, di/dt = 50\text{A}/\mu\text{s}, V_R = 400\text{V}, T_J = 125^\circ\text{C}$ |
| Reverse Recovery Charges | Q_{rr} | - | 185 | - | nC | |
| Junction Capacitance | C_J | - | 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.

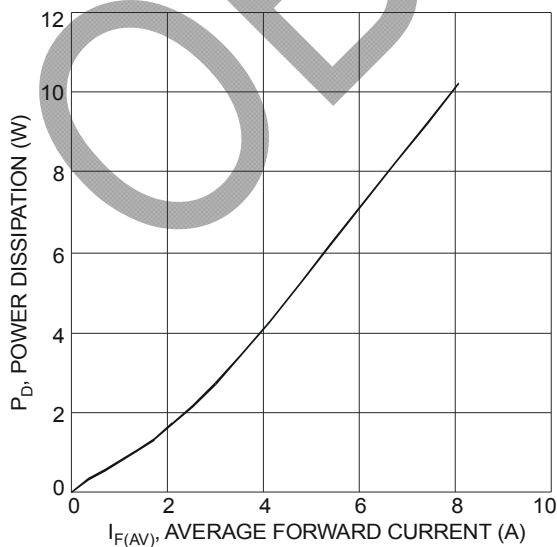


Fig. 1 Forward Power Dissipation

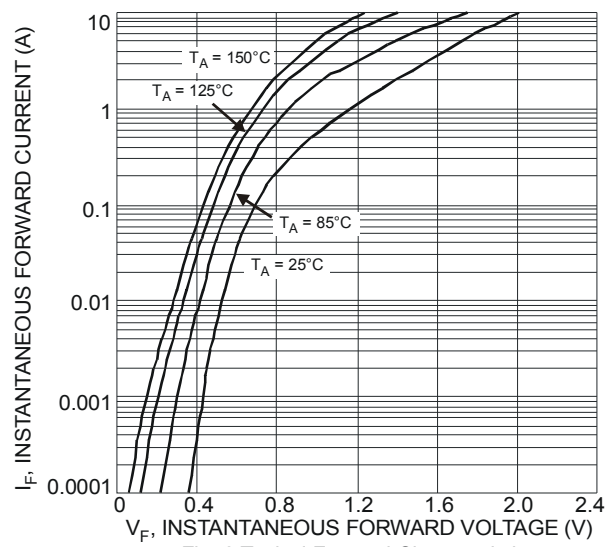


Fig. 2 Typical Forward Characteristics

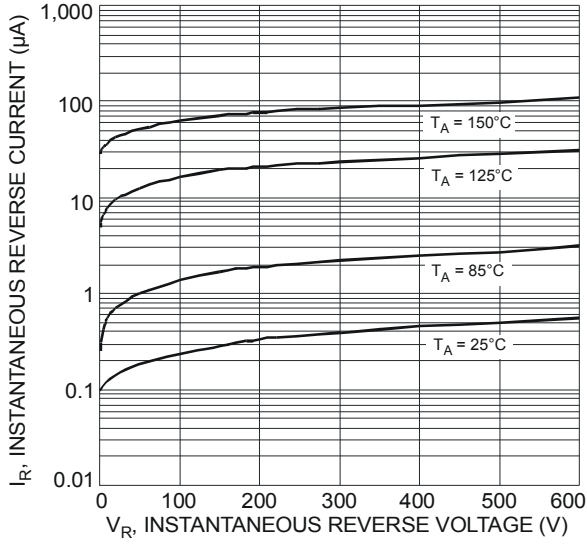


Fig. 3 Typical Reverse Characteristics

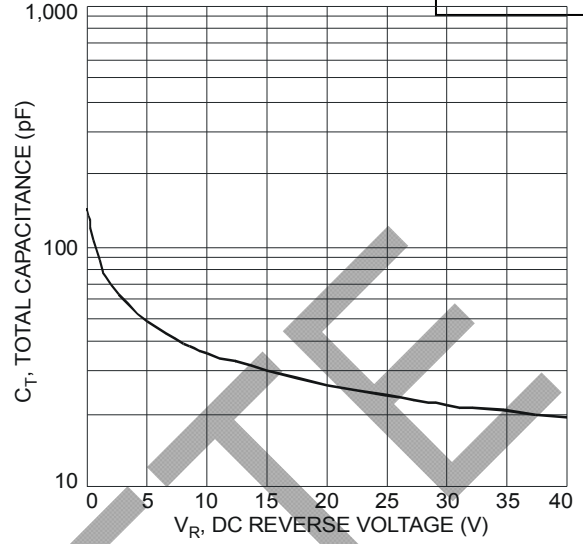


Fig. 4 Total Capacitance vs. Reverse Voltage

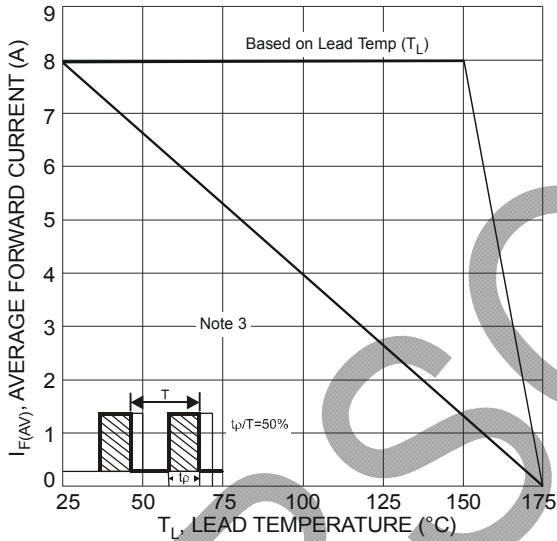


Fig. 5 Forward Current Derating Curve

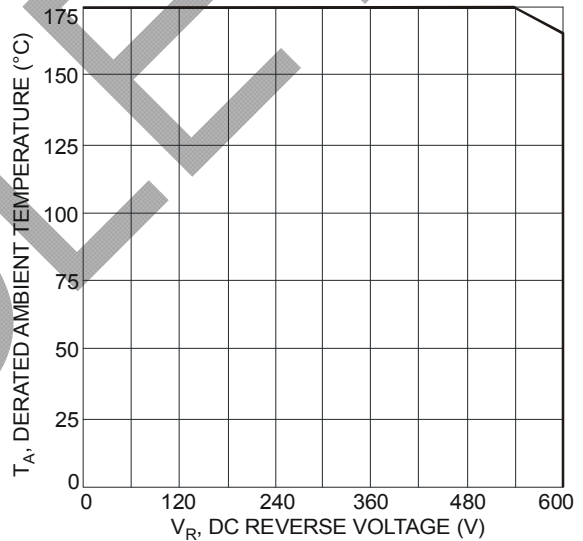
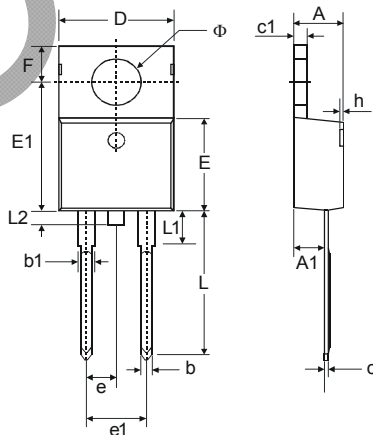


Fig. 6 Operating Temperature Derating

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 |
| Φ | 3.735 | 3.935 |
| All Dimensions in mm | | |

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