DSR6U600D1 / DSR6U600D1S

6A DIODESTAR RECTIFIER

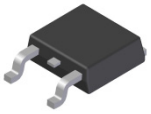
Features

- 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)**

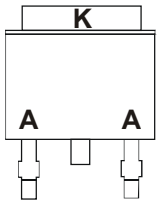
Mechanical Data

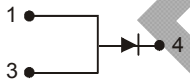
- Case: TO252 (DPAK)
- Case Material: Molded Plastic, UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208 e3
- Weight: 0.4 grams (approximate)

TO252

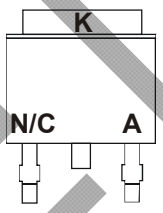


Top View





Package Pin-Out Configuration
DSR6U600D1



Package Pin-Out Configuration
DSR6U600D1S

Ordering Information (Note 2)

Part Number	Case	Packaging
DSR6U600D1-13	TO252	2500 pieces/reel
DSR6U600D1S-13	TO252	2500 pieces/reel

Notes: 1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2). All applicable RoHS exemptions applied.
2. For packaging details, go to our website at http://www.diodes.com.

Marking Information

DSR6U600(S) = Product Type Marking Code
AB = Foundry and Assembly Code
YYWW = Date Code Marking
YY = Last two digits of year (ex: 08 = 2008)
WW = Week (01 - 53)

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}	600	V
Average Rectified Output Current	I_O	6	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	60	A
Repetitive Peak Avalanche Power (1μs, 25°C)	P_{ARM}	4,000	W

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Maximum Thermal Resistance Thermal Resistance Junction to Soldering (Note 3) Thermal Resistance Junction to Ambient (Note 3)	 $R_{\theta JS}$ $R_{\theta JA}$	 10 47	°C/W
Operating and Storage Temperature Range	T_J, 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	-	2.1	2.6	V	I_F = 6A, T_J = 25°C
Leakage Current (Note 4)	I_R	-	-	50	μA	V_R = 600V, T_J = 25°C
Reverse Recovery Time	t_{rr}	-	21	25	ns	I_F = 0.5A, I_R = 1A, I_{RR} = 0.25A
		-	33	45		I_F = 1A, V_R = 30V, di/dt = 50A/μs
Softness Factor	S	-	0.5	-	-	I_F = 6A, dI/dt = 200A/μs, V_R = 400V, T_J = 125°C
Reverse Recovery Current	I_{RM}	-	4.3	-	A	
Reverse Recovery Charges	Q_{rr}	-	220	-	nC	
Junction Capacitance	C_J	-	30	-	pF	V_R = 4.0V, f = 1MHz

Notes: 3. Device mounted on Polymide substrate, 1" x 1", 2oz, copper, double-sided, PC boards.
4. Short duration pulse test used to minimize self-heating effect.

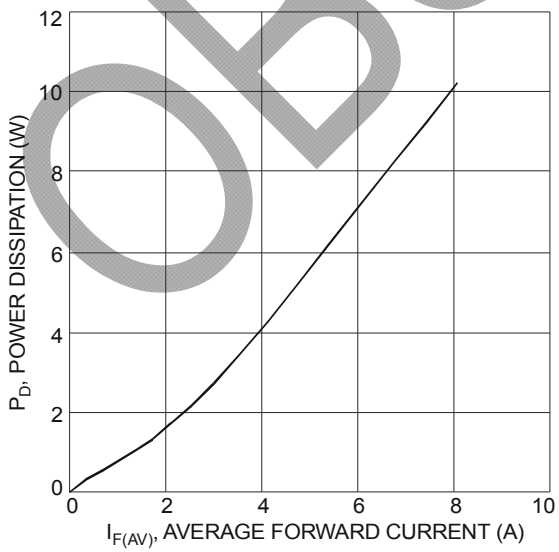


Fig. 1 Forward Power Dissipation

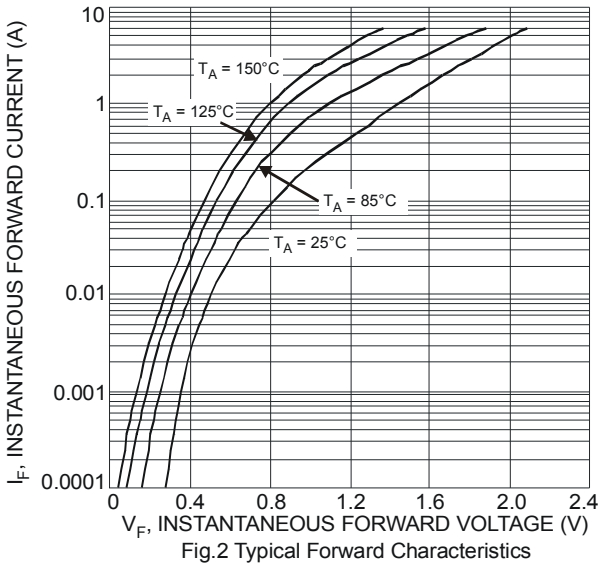


Fig.2 Typical Forward Characteristics

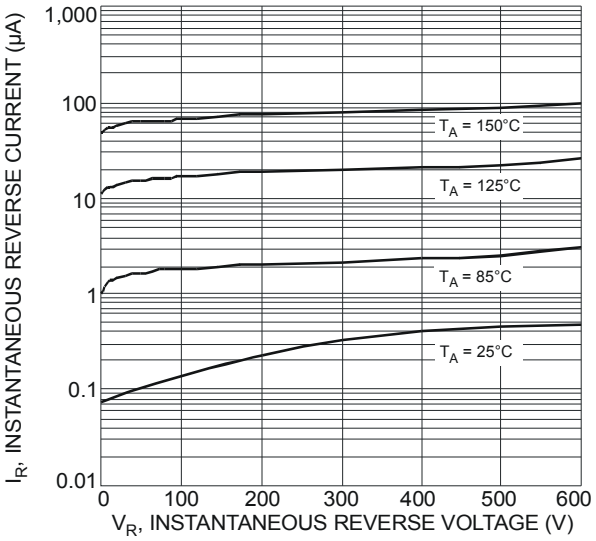


Fig. 3 Typical Reverse Characteristics

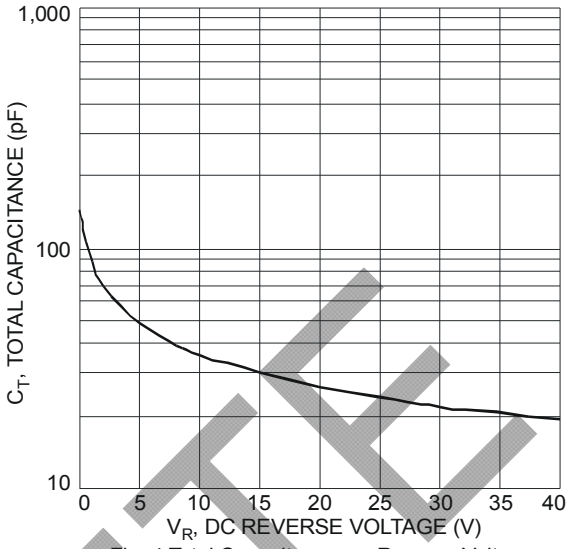


Fig. 4 Total Capacitance vs. Reverse Voltage

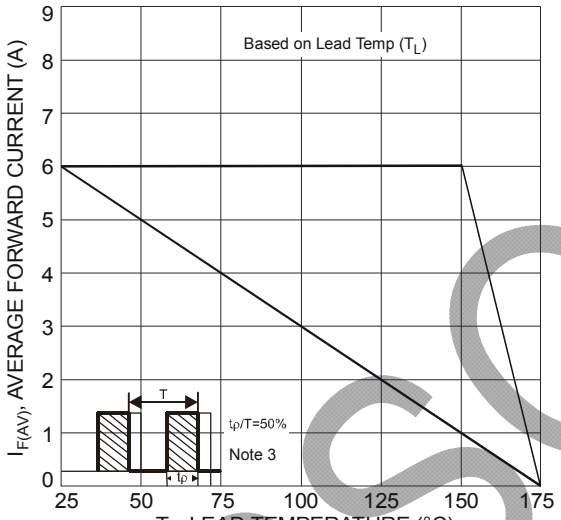


Fig. 5 Forward Current Derating Curve

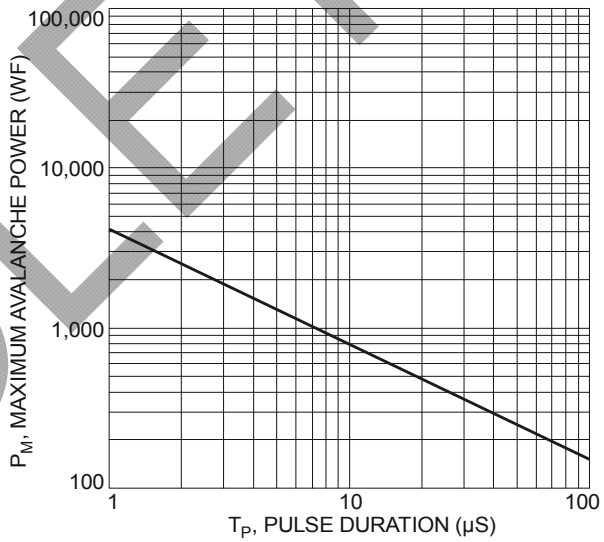


Fig. 6 Maximum Avalanche Power

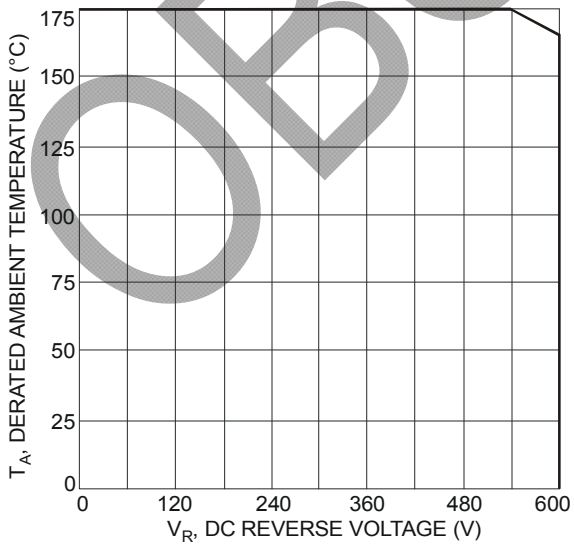
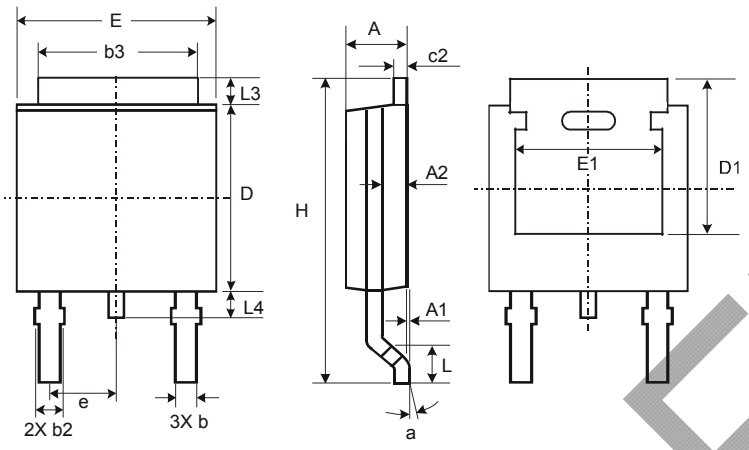


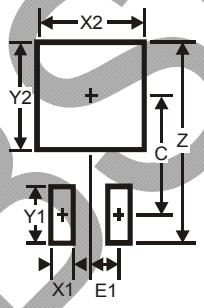
Fig. 7 Operating Temperature Derating

Package Outline Dimensions



TO252			
Dim	Min	Max	Typ
A	2.19	2.39	2.29
A1	0.00	0.13	0.08
A2	0.97	1.17	1.07
b	0.64	0.88	0.783
b2	0.76	1.14	0.95
b3	5.21	5.46	5.33
c2	0.45	0.58	0.531
D	6.00	6.20	6.10
D1	5.21	–	–
e	–	–	2.286
E	6.45	6.70	6.58
E1	4.32	–	–
H	9.40	10.41	9.91
L	1.40	1.78	1.59
L3	0.88	1.27	1.08
L4	0.64	1.02	0.83
a	0°	10°	–
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
Z	11.6
X1	1.5
X2	7.0
Y1	2.5
Y2	7.0
C	6.9
E1	2.3

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