


## Features

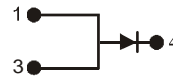
- DIODESTAR™ is a Proprietary Process for High Voltage Rectifiers which Delivers:
  - Ultra-Fast Reverse Recovery ( $t_{rr} < 30\text{ns}$ ) Giving a Rapid Switching Response
  - Soft Recovery for Low EMI Noise
  - Excellent High Temperature Stability
  - High Forward Surge Capability
- Enables High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

## Mechanical Data

- Case: DPAK (TO252-3L)
- 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 
- Weight: 0.4 grams (approximate)



Top View



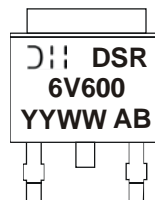
Package Pin Out Configuration

## Ordering Information (Note 2)

Part Number	Case	Packaging
DSR6V600D1-13	DPAK (TO252-3L)	2500 pieces/reel

- Notes:
1. No purposefully added lead.
  2. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

## Marking Information



DSR6V600 = 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<sub>A</sub> = 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	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>	6	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	60	A

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Maximum Thermal Resistance			
Thermal Resistance Junction to Case (Note 3)	R <sub>θJC</sub>	10	°C/W
Thermal Resistance Junction to Ambient (Note 3)	R <sub>θJA</sub>	47	
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>	-	-	3.0	V	I <sub>F</sub> = 6A, T <sub>J</sub> = 25°C
Leakage Current (Note 4)	I <sub>R</sub>	-	-	50	μA	V <sub>R</sub> = 600V, T <sub>J</sub> = 25°C
Reverse Recovery Time	t <sub>rr</sub>	-	19	23	ns	I <sub>F</sub> = 0.5A, I <sub>R</sub> = 1A, I <sub>RR</sub> = 0.25A
		-	28	35		
Softness Factor	S	-	0.3	-	-	I <sub>F</sub> = 6A, di/dt = 200A/μs, V <sub>R</sub> = 400V, T <sub>J</sub> = 125°C
Reverse Recovery Current	I <sub>RM</sub>	-	3.6	-	A	
Reverse Recovery Charges	Q <sub>rr</sub>	-	135	-	nC	
Junction Capacitance	C <sub>J</sub>	-	30	-	pF	4.0V, 1MHz

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

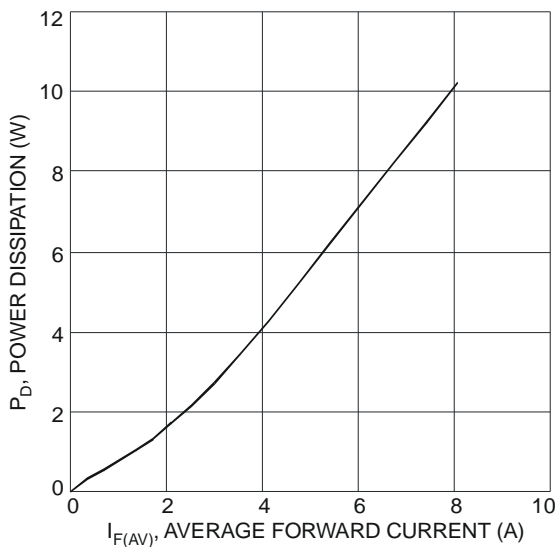


Fig. 1 Forward Power Dissipation

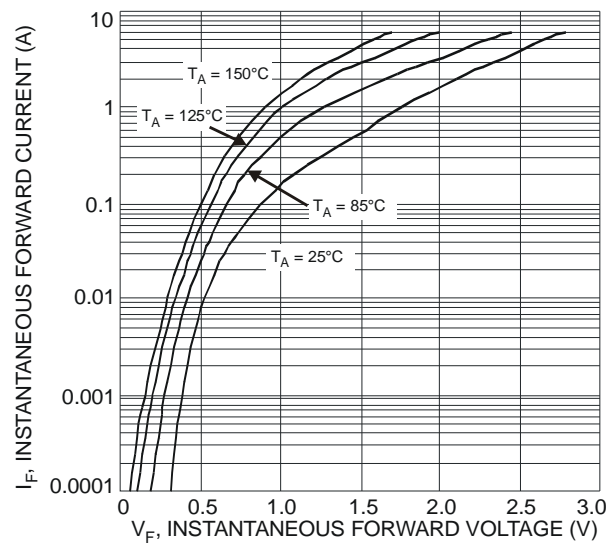


Fig.2 Typical Forward Characteristics

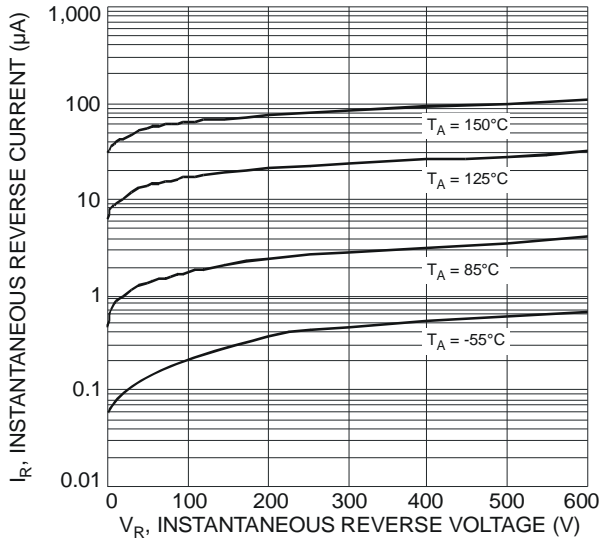


Fig. 3 Typical Reverse Characteristics

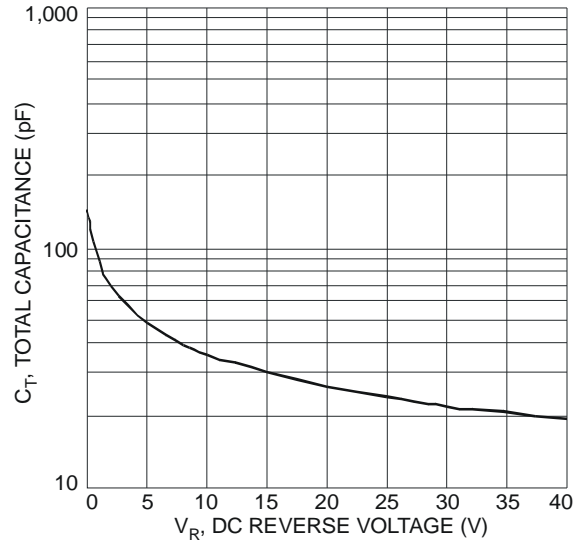


Fig. 4 Total Capacitance vs. Reverse Voltage

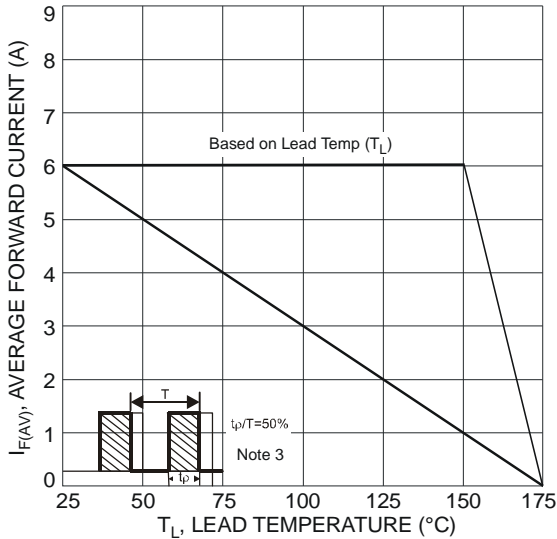


Fig. 5 Forward Current Derating Curve

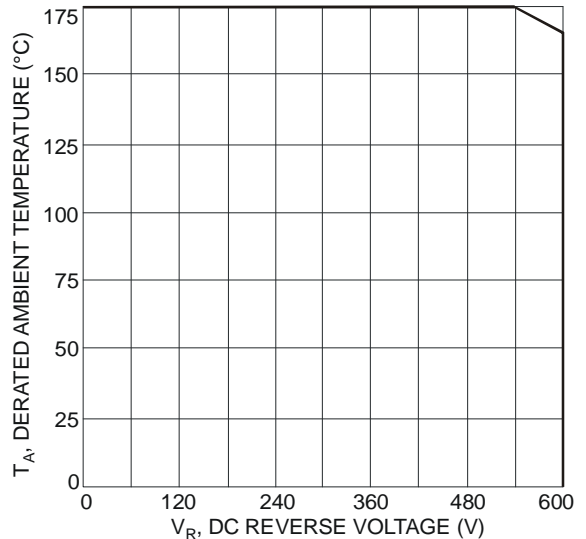
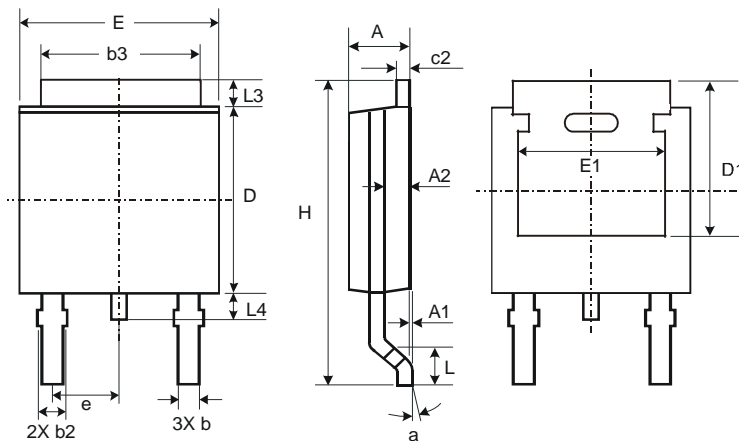


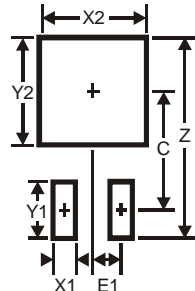
Fig. 6 Operating Temperature Derating

**Package Outline Dimensions**



TO252-3L			
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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