



#### **6A DIODESTAR RECTIFIER**

# Features

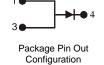
- DIODESTAR<sup>TM</sup> is a Proprietary Process for High Voltage Rectifiers which Delivers:
  - Ultra-Fast Reverse Recovery (t<sub>rr</sub> < 30ns) Giving a Rapid Switching Response
  - Soft Recovery for Low EMI Noise
  - Excellent High Temperature Stability
  - High Forward Surge Capability
  - Enables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

### **Mechanical Data**

- Case: 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)







#### 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.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub> V <sub>RWM</sub> V <sub>RM</sub>	600	V
Average Rectified Output Current	lo	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**

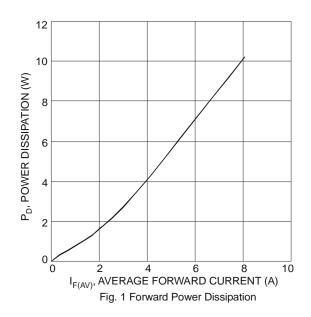
Characteristic	Symbol	Value	Unit
Maximum Thermal Resistance Thermal Resistance Junction to Case (Note 3) Thermal Resistance Junction to Ambient (Note 3)	R <sub>θ</sub> JC R <sub>θJA</sub>	10 47	⁰C/W
Operating and Storage Temperature Range	TJ, TSTG	-65 to +175	°C

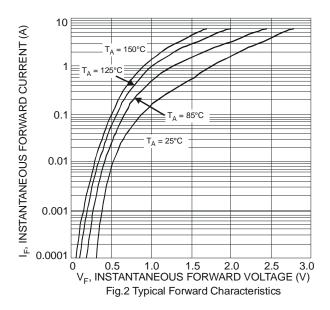
# **Electrical Characteristics** @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Min	Тур	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	μΑ	$V_{R} = 600V, T_{J} = 25^{\circ}C$
Reverse Recovery Time		-	19	23	ns	I <sub>F</sub> = 0.5A, I <sub>R</sub> = 1A, I <sub>RR</sub> = 0.25A
	t <sub>rr</sub>	-	28	35		$I_F = 1A, V_R = 30V,$ di/dt = 50A/µs
Softness Factor	S	-	0.3	-	-	I <sub>F</sub> = 6A, dl/dt = 200A/μs, V <sub>R</sub> = 400V, T <sub>J</sub> = 125⁰C
Reverse Recovery Current	I <sub>RM</sub>	-	3.6	-	А	
Reverse Recovery Charges	Q <sub>rr</sub>	-	135	-	nC	
Junction Capacitance	CJ	-	30	-	pF	4.0V, 1MHz

Notes:

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

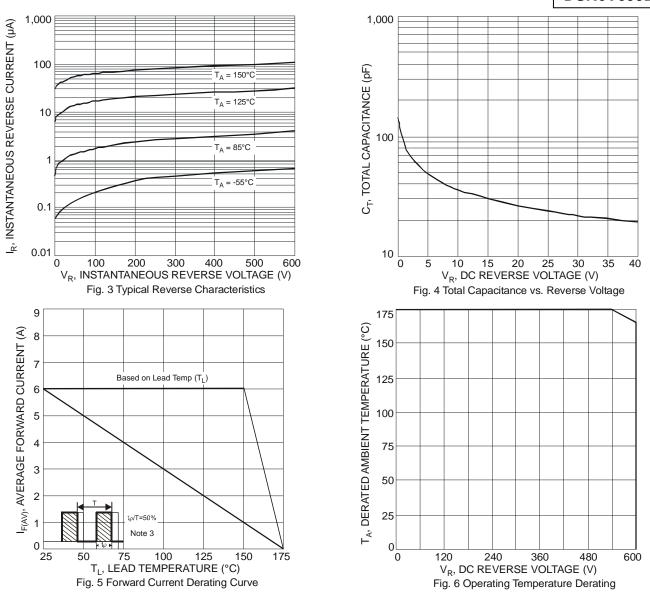




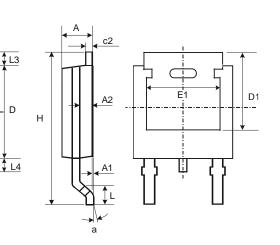




NEW PRODUCT



# Package Outline Dimensions



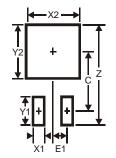
TO252-3L					
Dim	Min	Max	Тур		
Α	2.19	2.39	2.29		
A1	0.00	0.13	0.08		
A2	0.97	1.17	1.07		
b	0.64	0.88	0.783		
b2	0.76	1.14	0.95		
b3	5.21	5.46	5.33		
c2	0.45	0.58	0.531		
D	6.00	6.20	6.10		
D1	5.21	-	-		
е	-	-	2.286		
Ε	6.45	6.70	6.58		
E1	4.32	-	-		
Н	9.40	10.41	9.91		
L	1.40	1.78	1.59		
L3	0.88	1.27	1.08		
L4	0.64	1.02	0.83		
а	0°	10°	-		
All Dimensions in mm					

DSR6V600D1 Document number: DS33404 Rev. 3 - 2





## **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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