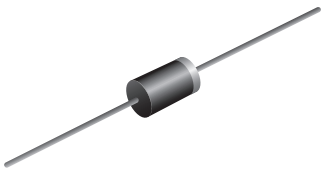
Glass Passivated Junction Plastic Rectifier

SUPERECTIFIER®



DO-15 (DO-204AC)

FEATURES

- Superectifier structure for high reliability application
- Cavity-free glass-passivated junction
- Low forward voltage drop
- Low leakage current, typical I_R less than 0.1 µA
- High forward surge capability
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	1.5 A
V_{RRM}	50 V to 1000 V
I_{FSM}	50 A
I_R	5.0 µA
V_F	1.4 V
T_J max.	175 °C
Package	DO-15 (DO-204AC)
Circuit configuration	Single

TYPICAL APPLICATIONS

For use in general purpose rectification of power supplies, inverters, converters, and freewheeling diodes applications.

MECHANICAL DATA

Case: DO-15 (DO-204AC), molded epoxy over glass body
Molding compound meets UL 94 V-0 flammability rating
Base P/N-E3 - RoHS-compliant, commercial grade

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
E3 suffix meets JESD 201 class 1A whisker test

Polarity: color band denotes cathode end

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted) (1)

PARAMETER	SYMBOL	1N5391GP	1N5392GP	1N5393GP	1N5394GP	1N5395GP	1N5396GP	1N5397GP	1N5398GP	1N5399GP	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	50	100	200	300	400	500	600	800	1000	V
Maximum RMS voltage	V_{RMS}	35	70	140	210	280	350	420	560	700	V
Maximum DC blocking voltage	V_{DC}	50	100	200	300	400	500	600	800	1000	V
Maximum average forward rectified current 0.375" (9.5 mm) lead length at T_L = 70 °C	$I_{F(AV)}$	1.5									A
Peak forward surge current 8.3 ms single half sine-wave super-imposed on rated load	I_{FSM}	50									A
Maximum full load reverse current, full cycle average 0.375" (9.5 mm) lead length at T_A = 70 °C	$I_{R(AV)}$	300									µA
Operating junction and storage temperature range	T_J, T_{STG}	-65 to +175									°C

Note

(1) JEDEC® registered values

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ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)													
PARAMETER	TEST CONDITIONS		SYMBOL	1N5391GP	1N5392GP	1N5393GP	1N5394GP	1N5395GP	1N5396GP	1N5397GP	1N5398GP	1N5399GP	UNIT
Maximum instantaneous forward voltage	1.5 A	T_A = 70 °C	V_F (1)	1.4									V
Maximum DC reverse current at rated DC blocking voltage		T_A = 25 °C	I_R (1)	5.0									μA
		T_A = 150 °C		300									
Typical reverse recovery time	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 0.25 A		t_{rr}	2.0									μs
Typical junction capacitance	4.0 V, 1 MHz		C_J	15									pF

Note
(1) JEDEC registered values

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)											
PARAMETER	SYMBOL	1N5391GP	1N5392GP	1N5393GP	1N5394GP	1N5395GP	1N5396GP	1N5397GP	1N5398GP	1N5399GP	UNIT
Typical thermal resistance	$R_{\theta JA}$ (1)	45									°C/W

Note
(1) Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length, PCB mounted

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
1N5397GP-E3/54	0.425	54	4000	13" diameter paper tape and reel
1N5397GP-E3/73	0.425	73	2000	Ammo pack packaging

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RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

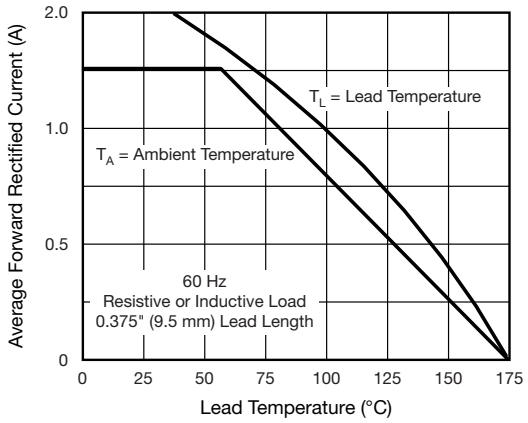

Fig. 1 - Forward Current Derating Curve

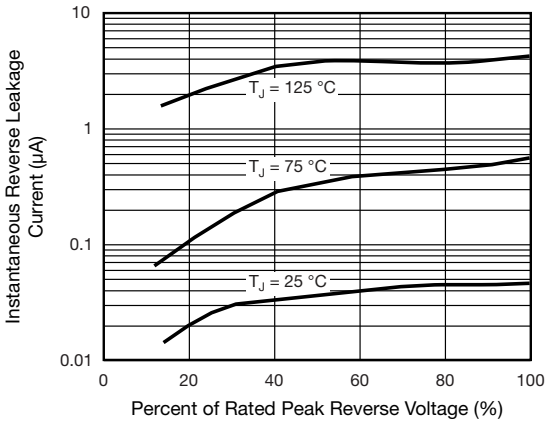

Fig. 4 - Typical Reverse Characteristics

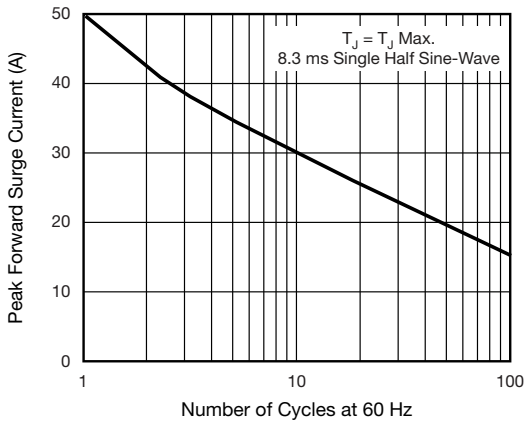

Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

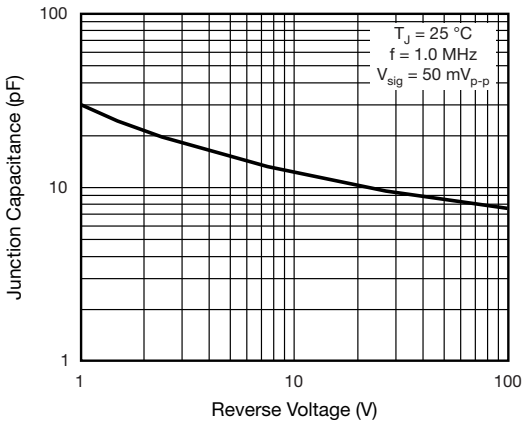

Fig. 5 - Typical Junction Capacitance

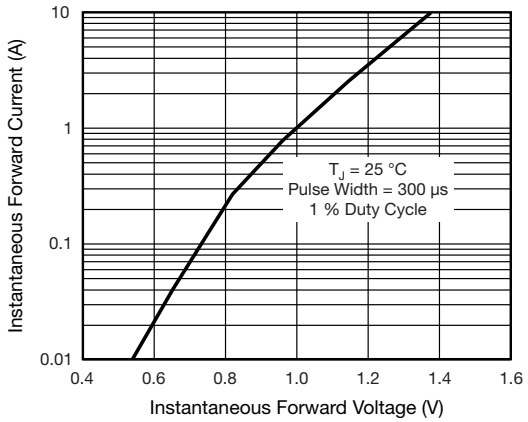

Fig. 3 - Typical Instantaneous Forward Characteristics

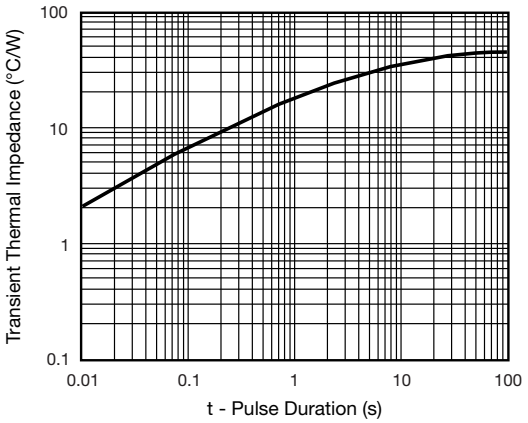

Fig. 6 - Typical Transient Thermal Impedance

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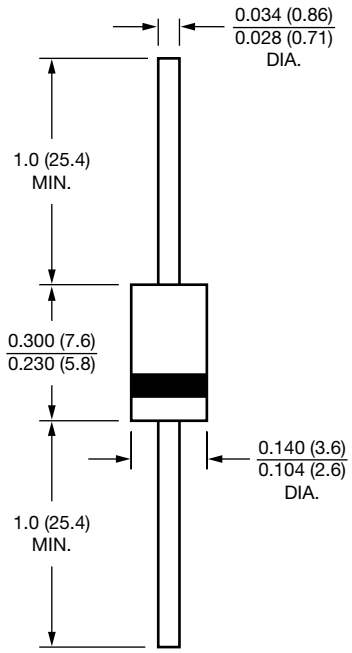
PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-15 (DO-204AC)



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