



# 1N5391GP thru 1N5399GP

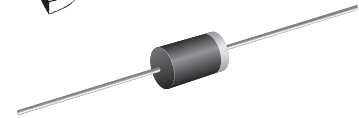
Vishay General Semiconductor

## Glass Passivated Junction Rectifier

### Major Ratings and Characteristics

$I_{F(AV)}$	1.5 A
$V_{RRM}$	50 V to 1000 V
$I_{FSM}$	50 A
$I_R$	5.0 $\mu$ A
$V_F$	1.4 V
$T_j$ max.	175 °C

**SUPERRECTIFIER®**



DO-204AC (DO-15)

Patented\*

\* Glass-plastic encapsulation technique is covered by Patent No. 3,996,602, and brazed-lead assembly by Patent No. 3,930,306

### Features

- Superrectifier structure for High Reliability application
- Cavity-free glass-passivated junction
- Low forward voltage drop
- Low leakage current, typical  $I_R$  less than 0.1  $\mu$ A
- High forward surge capability
- Meets environmental standard MIL-S-19500
- Solder Dip 260 °C, 40 seconds



### Mechanical Data

**Case:** DO-204AC, molded epoxy over glass body  
Epoxy meets UL-94V-0 Flammability rating

**Terminals:** Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D

E3 suffix for commercial grade, HE3 suffix for high reliability grade (AEC Q101 qualified)

**Polarity:** Color band denotes cathode end

### Typical Applications

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

### Maximum Ratings

( $T_A = 25$  °C unless otherwise noted)

Parameter	Symbol	1N53 91GP	1N53 92GP	1N53 93GP	1N53 94GP	1N53 95GP	1N53 96GP	1N53 97GP	1N53 98GP	1N53 99GP	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									$\mu$ A
* Operating junction and storage temperature range	$T_J, T_{STG}$	- 65 to + 175									°C

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## Electrical Characteristics

( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)

Parameter	Test condition	Symbol	1N53 91GP	1N53 92GP	1N53 93GP	1N53 94GP	1N53 95GP	1N53 96GP	1N53 97GP	1N53 98GP	1N53 99GP	Unit
* Maximum instantaneous forward voltage	at 1.5 A $T_A = 70\text{ }^\circ\text{C}$	$V_F$	1.4									V
* Maximum DC reverse current at rated DC blocking voltage	$T_A = 25\text{ }^\circ\text{C}$ $T_A = 150\text{ }^\circ\text{C}$	$I_R$	5.0 300									$\mu\text{A}$
Typical reverse recovery time	at $I_F = 0.5\text{ A}$ , $I_R = 1.0\text{ A}$ , $I_{rr} = 0.25\text{ A}$	$t_{rr}$	2.0									$\mu\text{s}$
Typical junction capacitance	at 4.0V, 1MHz	$C_J$	15									pF

## Thermal Characteristics

( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)

Parameter	Symbol	1N53 91GP	1N53 92GP	1N53 93GP	1N53 94GP	1N53 95GP	1N53 96GP	1N53 97GP	1N53 98GP	1N53 99GP	Unit
Typical thermal resistance <sup>(1)</sup>	$R_{\theta JA}$	45									$^\circ\text{C/W}$

Notes:

(1) Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length, P.C.B. mounted

\*JEDEC registered values

## Ratings and Characteristics Curves

( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)

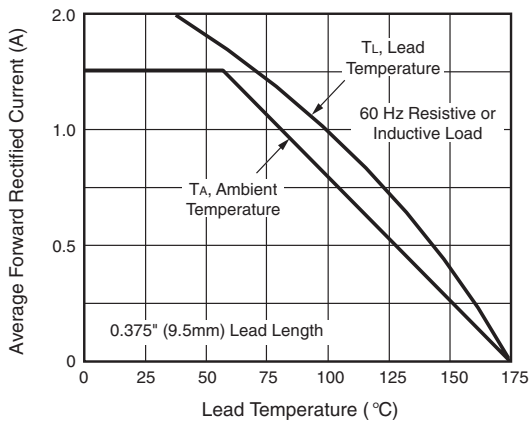


Figure 1. Forward Current Derating Curve

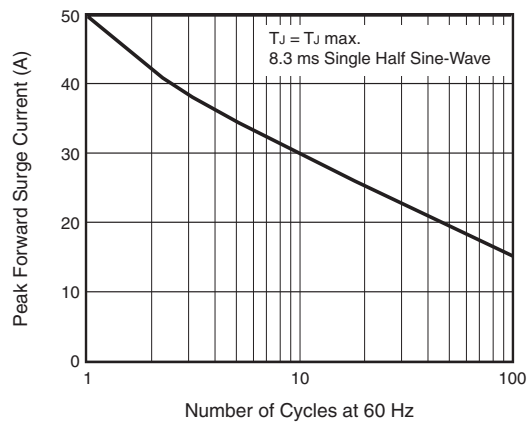


Figure 2. Maximum Non-repetitive Peak Forward Surge Current

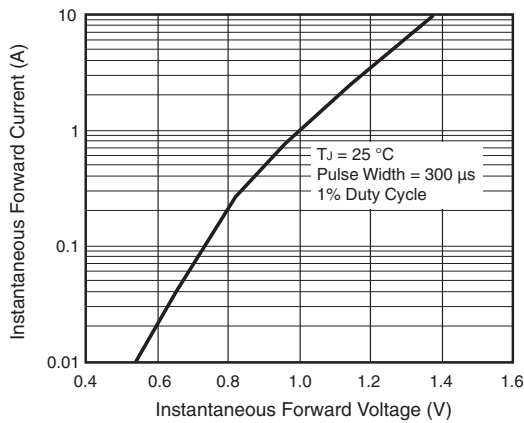


Figure 3. Typical Instantaneous Forward Characteristics

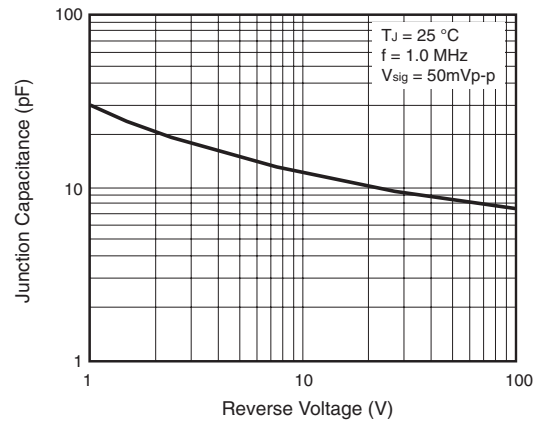


Figure 5. Typical Junction Capacitance

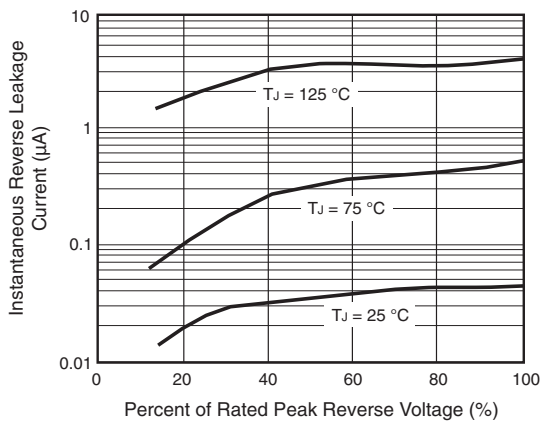


Figure 4. Typical Reverse Characteristics

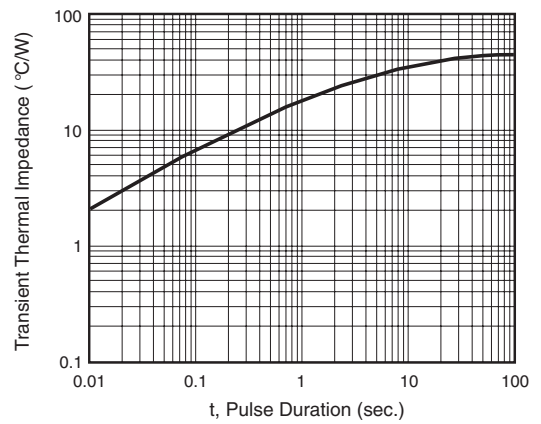
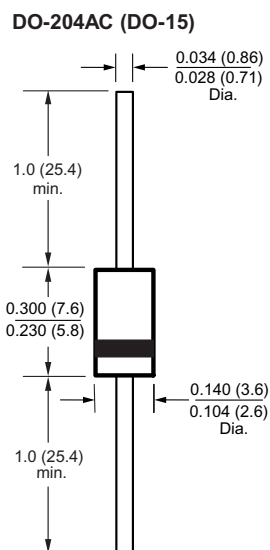


Figure 6. Typical Transient Thermal Impedance

## Package outline dimensions in inches (millimeters)





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