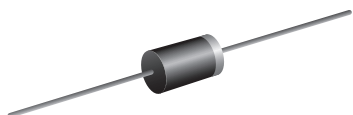




## Fast Switching Plastic Rectifier



DO-204AL (DO-41)

### FEATURES

- Fast switching for high efficiency
- Low forward voltage drop
- Low leakage current
- 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](http://www.vishay.com/doc?99912)

RoHS  
COMPLIANT

### TYPICAL APPLICATIONS

For use in fast switching rectification of power supply, inverters, converters and freewheeling diodes for consumer, and telecommunication.

#### Note

- These devices are not AEC-Q101 qualified.

### MECHANICAL DATA

**Case:** DO-204AL, molded epoxy 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

| PRIMARY CHARACTERISTICS |                                         |
|-------------------------|-----------------------------------------|
| $I_{F(AV)}$             | 1.0 A                                   |
| $V_{RRM}$               | 50 V, 100 V, 200 V, 400 V, 600 V, 800 V |
| $I_{FSM}$               | 30 A                                    |
| $t_{rr}$                | 100 ns, 200 ns                          |
| $I_R$                   | 10 $\mu$ A                              |
| $V_F$                   | 1.3 V                                   |
| $T_J$ max.              | 125 °C                                  |
| Package                 | DO-204AL (DO-41)                        |
| Diode variation         | Single die                              |

| MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)                                |             |               |         |         |         |         |         |      |
|----------------------------------------------------------------------------------------|-------------|---------------|---------|---------|---------|---------|---------|------|
| PARAMETER                                                                              | SYMBOL      | SRP100A       | SRP100B | SRP100D | SRP100G | SRP100J | SRP100K | UNIT |
| Maximum repetitive peak reverse voltage                                                | $V_{RRM}$   | 50            | 100     | 200     | 400     | 600     | 800     | V    |
| Maximum RMS voltage                                                                    | $V_{RMS}$   | 35            | 70      | 140     | 280     | 420     | 560     | V    |
| Maximum DC blocking voltage                                                            | $V_{DC}$    | 50            | 100     | 200     | 400     | 600     | 800     | V    |
| Maximum average forward rectified current 0.375" (9.5 mm) lead length at $T_A = 55$ °C | $I_{F(AV)}$ | 1.0           |         |         |         |         |         | A    |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load     | $I_{FSM}$   | 30            |         |         |         |         |         | A    |
| Operating junction temperature range                                                   | $T_J$       | - 50 to + 125 |         |         |         |         |         | °C   |
| Storage temperature range                                                              | $T_{STG}$   | - 50 to + 150 |         |         |         |         |         | °C   |



| ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                                                                          |                         |                 |         |         |         |         |         |         |      |
|----------------------------------------------------------------------------|--------------------------------------------------------------------------|-------------------------|-----------------|---------|---------|---------|---------|---------|---------|------|
| PARAMETER                                                                  | TEST CONDITIONS                                                          |                         | SYMBOL          | SRP100A | SRP100B | SRP100D | SRP100G | SRP100J | SRP100K | UNIT |
| Maximum instantaneous forward voltage                                      | 1.0 A                                                                    |                         | V <sub>F</sub>  | 1.3     |         |         |         |         |         | V    |
| Maximum DC reverse current at rated DC blocking voltage                    |                                                                          | T <sub>A</sub> = 25 °C  | I <sub>R</sub>  | 10      |         |         |         |         |         | μA   |
|                                                                            |                                                                          | T <sub>A</sub> = 100 °C |                 | 200     |         |         |         |         |         |      |
| Maximum reverse recovery time                                              | I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1.0 A, I <sub>rr</sub> = 0.25 A |                         | t <sub>rr</sub> | 100     |         |         |         | 200     |         | ns   |
| Typical junction capacitance                                               | 4.0 V, 1 MHz                                                             |                         | C <sub>J</sub>  | 12      |         |         |         |         |         | pF   |

| THERMAL CHARACTERISTICS ( $T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted) |                       |         |         |         |         |         |         |                      |  |
|--------------------------------------------------------------------------------------|-----------------------|---------|---------|---------|---------|---------|---------|----------------------|--|
| PARAMETER                                                                            | SYMBOL                | SRP100A | SRP100B | SRP100D | SRP100G | SRP100J | SRP100K | UNIT                 |  |
| Typical thermal resistance                                                           | $R_{\theta JA}^{(1)}$ | 41      |         |         |         |         |         | $^{\circ}\text{C/W}$ |  |

## 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                    |
| SRP100J-E3/54                  | 0.33            | 54                     | 5500          | 13" diameter paper tape and reel |
| SRP100J-E3/73                  | 0.33            | 73                     | 3000          | Ammo pack packaging              |

## RATINGS AND CHARACTERISTICS CURVES ( $T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

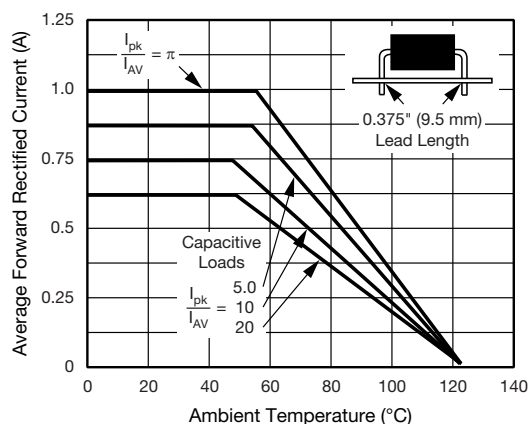


Fig. 1 - Forward Current Derating Curves

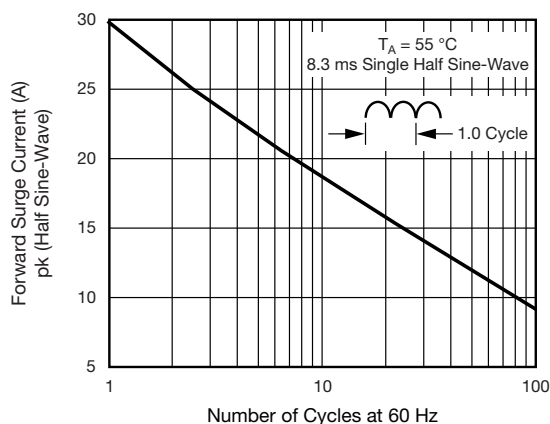


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

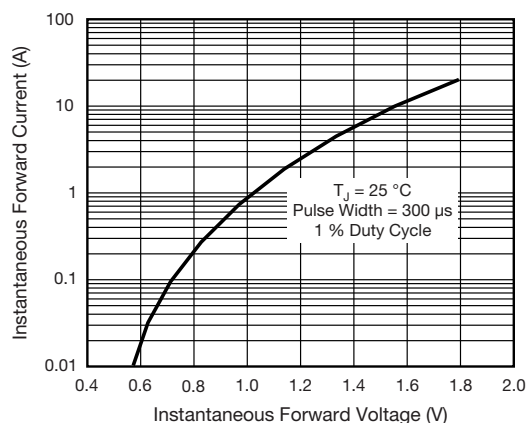


Fig. 3 - Typical Instantaneous Forward Characteristics

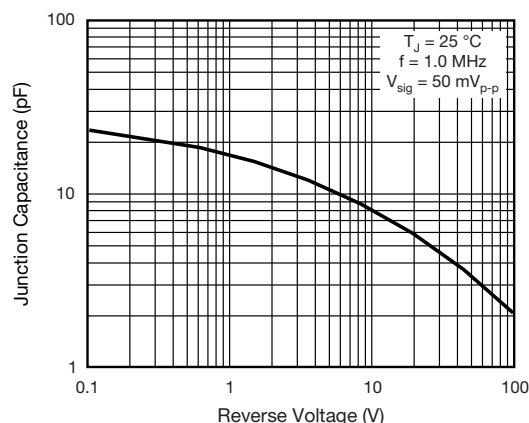


Fig. 5 - Typical Junction Capacitance

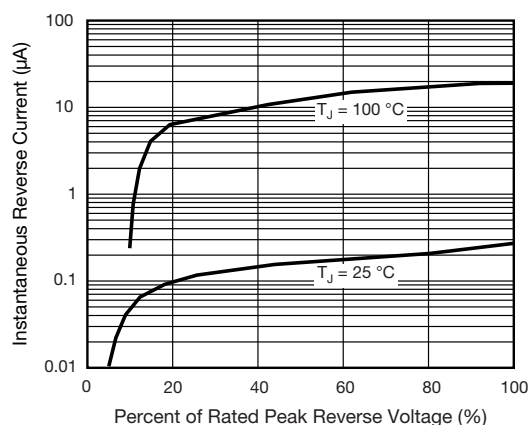


Fig. 4 - Typical Reverse Characteristics

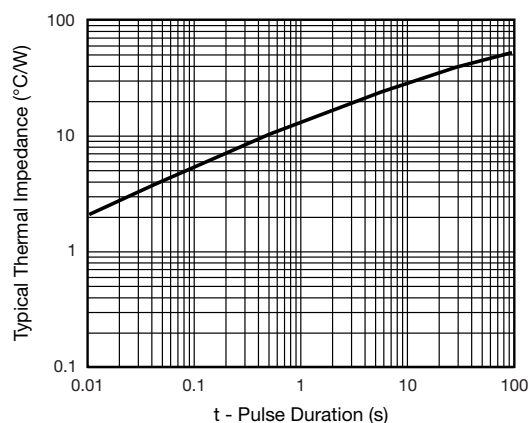
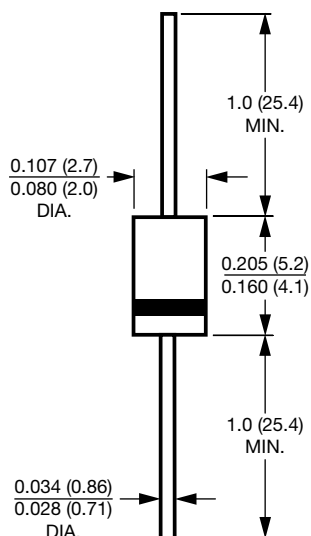


Fig. 6 - Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### DO-204AL (DO-41)





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