

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


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} | 400 V, 600 V, 800 V, 1000 V |
| I_{FSM} | 20 A |
| t_{rr} | 150 ns, 250 ns, 500 ns |
| I_R | 5.0 μ 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 | BA157 | BA158 | BA159D | BA159 | UNIT |
| Maximum repetitive peak reverse voltage | V_{RRM} | 400 | 600 | 800 | 1000 | V |
| Maximum RMS voltage | V_{RMS} | 280 | 420 | 560 | 700 | V |
| Maximum DC blocking voltage | V_{DC} | 400 | 600 | 800 | 1000 | 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 10 ms single half sine-wave superimposed on rated load | I_{FSM} | 20 | | | | A |
| Maximum operation junction temperature | T_J | - 65 to + 125 | | | | °C |
| Maximum storage temperature | T_{STG} | - 65 to + 150 | | | | °C |

| ELECTRICAL CHARACTERISTICS ($T_A = 25$ °C unless otherwise noted) | | | | | | | | |
|--|---|--|----------|-------|-------|--------|-------|---------|
| PARAMETER | TEST CONDITIONS | | SYMBOL | BA157 | BA158 | BA159D | BA159 | UNIT |
| Maximum instantaneous forward voltage | 1.0 A | | V_F | 1.3 | | | | V |
| Maximum DC reverse current at rated DC blocking voltage | $T_A = 25$ °C | | I_R | 5.0 | | | | μ A |
| Maximum reverse recovery time | $I_F = 0.5$ A, $I_R = 1.0$ A, $I_{rr} = 0.25$ A | | t_{rr} | 150 | 250 | 500 | | ns |
| Typical junction capacitance | 4.0 V, 1 MHz | | C_J | 12 | | | | pF |



| ORDERING INFORMATION (Example) | | | | |
|--------------------------------|-----------------|------------------------|---------------|----------------------------------|
| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| BA158-E3/54 | 0.33 | 54 | 5500 | 13" diameter paper tape and reel |
| BA158-E3/73 | 0.33 | 73 | 3000 | Ammo pack packaging |

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

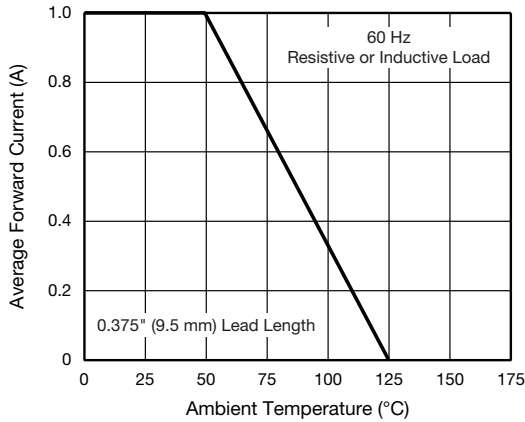


Fig. 1 - Forward Current Derating Curve

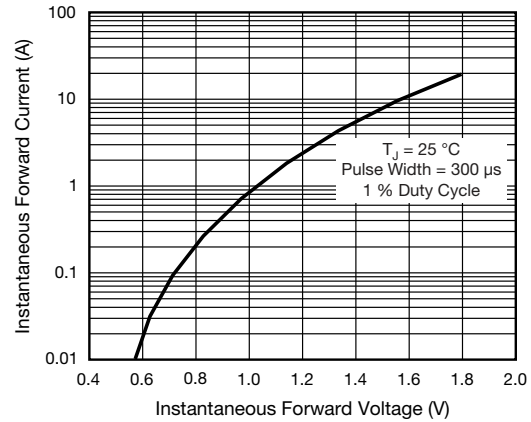


Fig. 3 - Typical Instantaneous Forward Characteristics

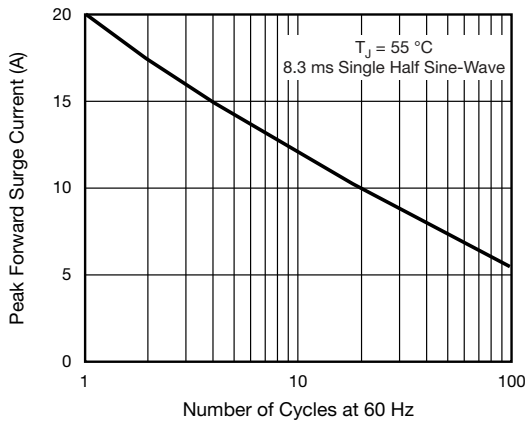


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

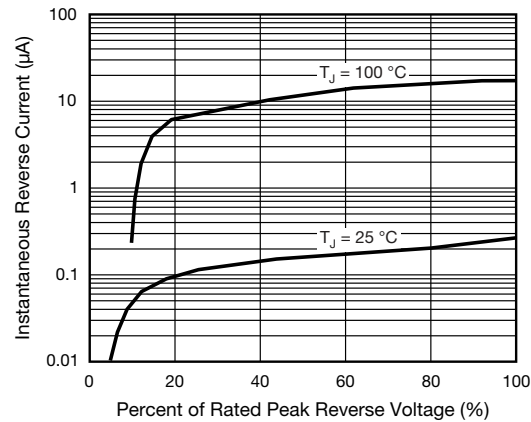


Fig. 4 - Typical Reverse Characteristics



Fig. 5 - Typical Junction Capacitance

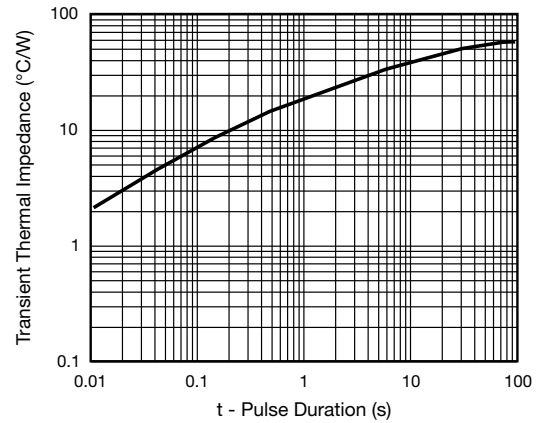


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AL (DO-41)





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