# Miniature Clamper/Damper Glass Passivated Rectifier


Patented*

DO-204AC (DO-15)

* Glass Encapsulation technique is covered by Patent No. 3,996,602, brazed-lead assembly to Patent No. 3,930,306

## FEATURES

- Superectifier structure
- Cavity-free glass-passivated junction
- Low forward voltage drop
- Typical $I_R$ less than 0.1 µA
- High forward surge capability
- Meets environmental standard MIL-S-19500
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

RoHS COMPLIANT

## TYPICAL APPLICATIONS

For use in high voltage rectification of power supplies, inverters, converters and freewheeling diodes specially designed for clamping circuits, horizontal deflection systems and damper applications.

| PRIMARY CHARACTERISTICS | |
|---|---|
| $I_{F(AV)}$ | 1.5 A |
| $V_{RRM}$ | 1400 V, 1500 V |
| $I_{FSM}$ | 40 A |
| $I_R$ | 5.0 µA |
| $V_F$ | 1.1 V |
| $T_J$ max. | 175 °C |

## 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-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test

**Polarity:** Color band denotes cathode end

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

| PARAMETER | SYMBOL | CGP15 | DGP15 | UNIT |
|---|---|---|---|---|
| Maximum repetitive peak reverse voltage | $V_{RRM}$ | 1400 | 1500 | V |
| Maximum RMS voltage | $V_{RMS}$ | 980 | 1050 | V |
| Maximum DC blocking voltage | $V_{DC}$ | 1400 | 1500 | V |
| Maximum average forward rectified current 0.375" (9.5 mm) lead length at $T_A$ = 50 °C | $I_{F(AV)}$ | 1.5 | | A |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | $I_{FSM}$ | 40 | | A |
| Maximum full load reverse current, full cycle average 0.375" (9.5 mm) lead length at $T_A$ = 100 °C | $I_{R(AV)}$ | 50 | | µA |
| Operating junction and storage temperature range | $T_J$, $T_{STG}$ | - 65 to + 175 | | °C |

| ELECTRICAL CHARACTERISTICS ($T_A$ = 25 °C unless otherwise noted) | | | | | | |
|---|---|---|---|---|---|---|
| **PARAMETER** | **TEST CONDITIONS** | | **SYMBOL** | **CGP15** | **DGP15** | **UNIT** |
| Maximum instantaneous forward voltage (1) | $I_F$ = 1.0 A | | $V_F$ | 1.1 | | V |
| Maximum reverse current | rated $V_R$ | $T_A$ = 25 °C<br>$T_A$ = 100 °C | $I_R$ | 5.0<br>100 | | µA |
| Maximum reverse recovery time | $I_F$ = 0.5 A, $I_R$ = 50 mA | | $t_{rr}$ | 15 | 20 | µs |
| Reverse recovery time | $I_F$ = 0.5 A, $I_R$ = 1.0 A,<br>$I_{rr}$ = 0.25 A | typical<br>maximum | $t_{rr}$ | 1.0<br>1.5 | | µs |
| Typical junction capacitance | 4.0 V, 1 MHz | | $C_J$ | 15 | | pF |

**Note:**

(1) Pulse test: 300 µs pulse width, 1 % duty cycle

| THERMAL CHARACTERISTICS ($T_A$ = 25 °C unless otherwise noted) | | | | |
|---|---|---|---|---|
| **PARAMETER** | **SYMBOL** | **CGP15** | **DGP15** | **UNIT** |
| Typical thermal resistance (1) | $R_{\theta JA}$ | 55 | | °C/W |

**Note:**

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

| ORDERING INFORMATION (Example) | | | | |
|---|---|---|---|---|
| **PREFERRED P/N** | **UNIT WEIGHT (g)** | **PREFERRED PACKAGE CODE** | **BASE QUANTITY** | **DELIVERY MODE** |
| CGP15-E3/54 | 0.425 | 54 | 4000 | 13" diameter paper tape and reel |
| CGP15-E3/73 | 0.425 | 73 | 2000 | Ammo pack packaging |

## RATINGS AND CHARACTERISTICS CURVES

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

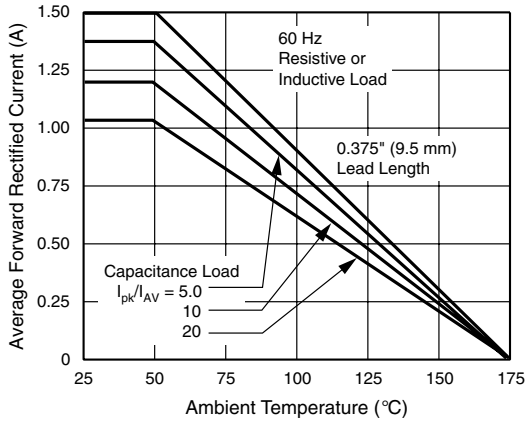


Figure 1. Forward Current Derating Curve

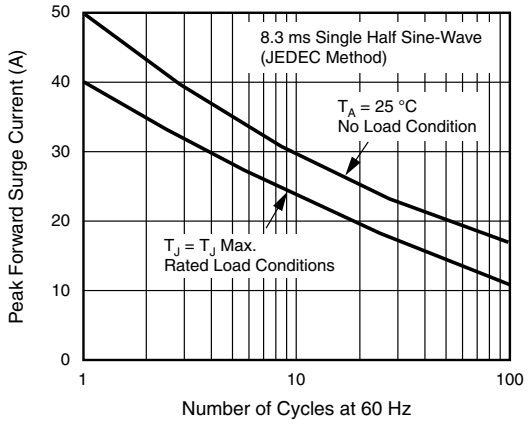


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current



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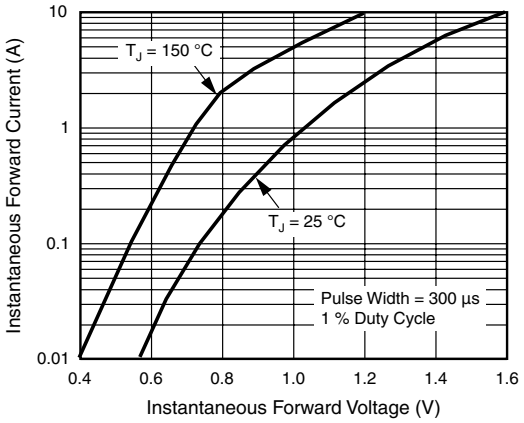



Figure 3. Typical Instantaneous Forward Characteristics

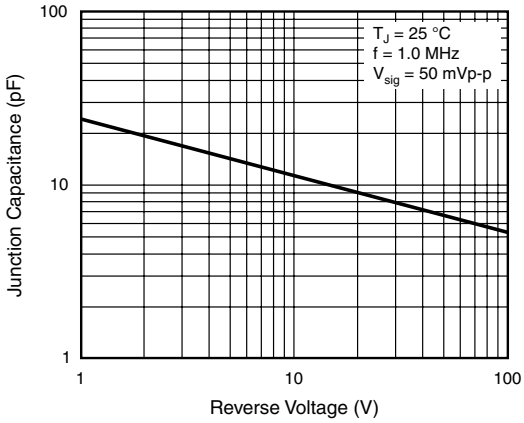



Figure 5. Typical Junction Capacitance

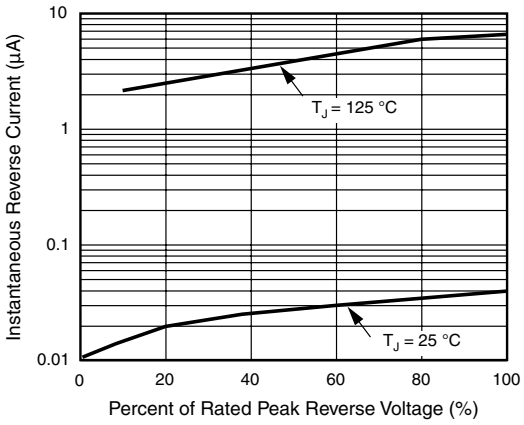
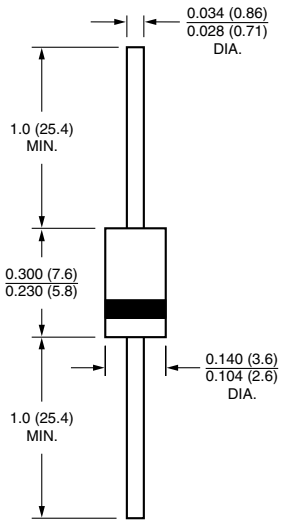



Figure 4. Typical Reverse Characteristics

## **PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**DO-204AC (DO-15)**



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