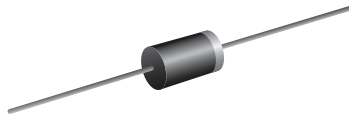


Glass Passivated Junction Plastic Rectifier

SUPERECTIFIER®

DO-204AL (DO-41)

FEATURES

- Superectifier structure for high reliability application
- Cavity-free glass-passivated junction
- Low forward voltage drop
- Low leakage current
- High forward surge capability
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912


RoHS
COMPLIANT

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: DO-204AL, molded epoxy over glass body

Molding compound meets UL 94 V-0 flammability rating
 Base P/N-E3 - RoHS-compliant, commercial grade
 Base P/NHE3 - RoHS-compliant, AEC-Q101 qualified

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix meets JESD 201 class 2 whisker test

Polarity: Color band denotes cathode end

Note

- For part numbers with "E" suffix, they are "-E3" commercial grade only

| PRIMARY CHARACTERISTICS | |
|-------------------------|---------------------|
| $I_{F(AV)}$ | 1.0 A |
| V_{RRM} | 50 V to 1600 V |
| I_{FSM} | 30 A, 25 A |
| I_R | 5.0 μ A |
| V_F | 1.1 V, 1.2 V, 1.3 V |
| T_J max. | 175 °C |
| Package | DO-204AL (DO-41) |
| Diode variations | Single die |

| MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted) | | | | | | | | | | | | | | | |
|--|----------------|---------------------|---|---|---|---|---|---------------|---|---|---|---|---|----|---------|
| PARAMETER | SYMBOL | A | B | D | G | J | K | M | N | Q | T | V | W | Y | UNIT |
| Maximum repetitive peak reverse voltage | V_{RRM} | 50 to 1600 (fig. 5) | | | | | | | | | | | | | V |
| Maximum average forward rectified current 0.375" (9.5 mm) lead length (fig. 1) | $I_{F(AV)}$ | 1.0 | | | | | | | | | | | | | A |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | I_{FSM} | 30 | | | | | | 25 | | | | | | A | |
| Maximum full load reverse current, full cycle average, 0.375" (9.5 mm) lead length at $T_A = 75$ °C | $I_{R(AV)}$ | 30 | | | | | | | | | | | | | μ A |
| Operating junction and storage temperature range | T_J, T_{STG} | - 65 to + 175 | | | | | | - 65 to + 150 | | | | | | °C | |



| ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | | | | | | | | | | | | | |
|--|--|-----------------|-----|---|---|-----|---|---|-----|---|---|---|---|---|----|------|
| PARAMETER | TEST CONDITIONS | SYMBOL | A | B | D | G | J | K | M | N | Q | T | V | W | Y | UNIT |
| Maximum instantaneous forward voltage | 1.0 A | V _F | 1.1 | | | 1.2 | | | 1.3 | | | | | | V | |
| Maximum DC reverse current at rated DC blocking voltage | T _A = 25 °C | I _R | 5.0 | | | | | | | | | | | | μA | |
| | T _A = 125 °C | | 50 | | | | | | | | | | | | | |
| Typical reverse recovery time | I _F = 0.5 A, I _R = 1.0 A, I _{rr} = 0.25 A | t _{rr} | 3.0 | | | | | | | | | | | | μs | |
| Typical junction capacitance | 4.0 V, 1 MHz | C _J | 8.0 | | | 7.0 | | | 5.0 | | | | | | pF | |

| THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | | | | | | | | | | | | | |
|---|---------------------------------|----|---|---|---|---|---|---|---|---|---|---|---|------|------|--|
| PARAMETER | SYMBOL | A | B | D | G | J | K | M | N | Q | T | V | W | Y | UNIT | |
| Typical thermal resistance | R _{θJA} ⁽¹⁾ | 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 |
| GP10J-E3/54 | 0.335 | 54 | 5500 | 13" diameter paper tape and reel |
| GP10J-E3/73 | 0.335 | 73 | 3000 | Ammo pack packaging |
| GP10JHE3/54 ⁽¹⁾ | 0.335 | 54 | 5500 | 13" diameter paper tape and reel |
| GP10JHE3/73 ⁽¹⁾ | 0.335 | 73 | 3000 | Ammo pack packaging |

Note

(1) AEC-Q101 qualified

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

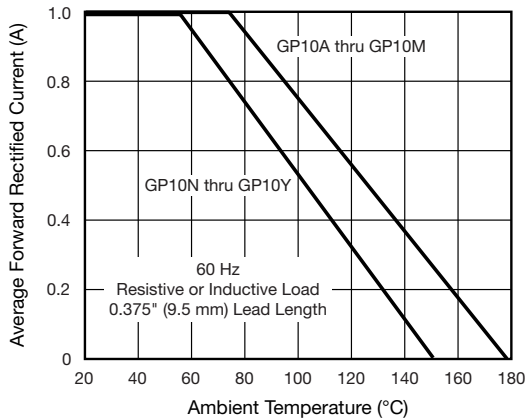


Fig. 1 - Forward Current Derating Curve

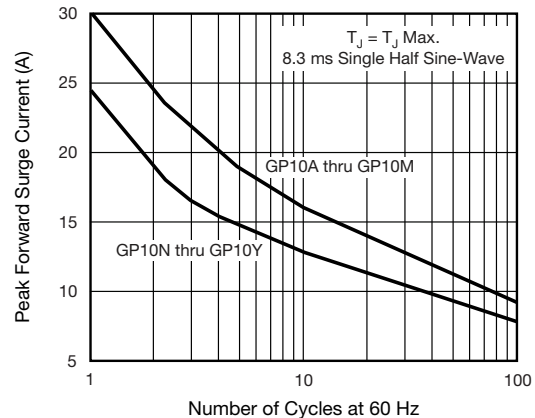


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

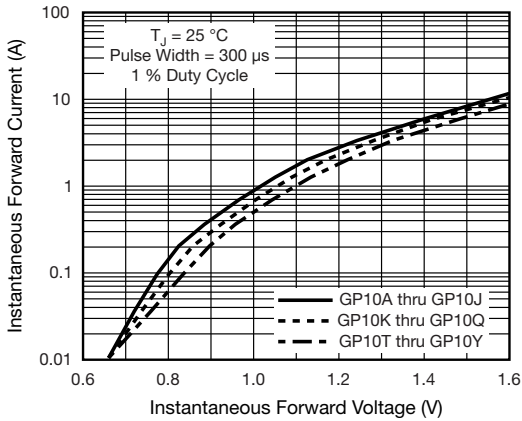


Fig. 3 - Typical Instantaneous Forward Characteristics

| | |
|------------|--------|
| GP10A..... | 50 V |
| GP10B..... | 100 V |
| GP10D..... | 200 V |
| GP10G..... | 400 V |
| GP10J..... | 600 V |
| GP10K..... | 800 V |
| GP10M..... | 1000 V |
| GP10N..... | 1100 V |
| GP10Q..... | 1200 V |
| GP10T..... | 1300 V |
| GP10V..... | 1400 V |
| GP10W..... | 1500 V |
| GP10Y..... | 1600 V |

Fig. 5 - Maximum Repetitive Peak Reverse Voltage, V_{RRM}

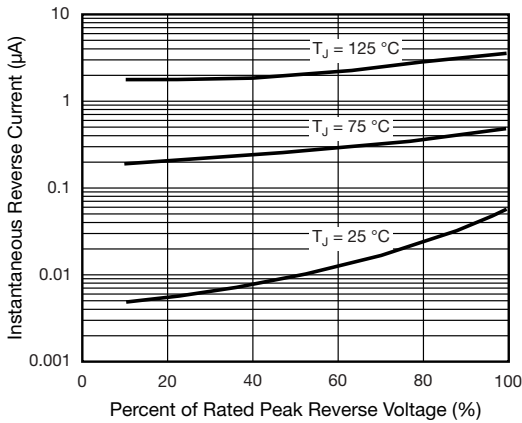


Fig. 4 - Typical Reverse Characteristics

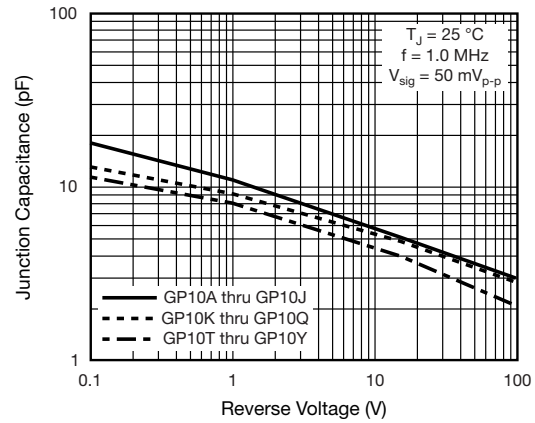
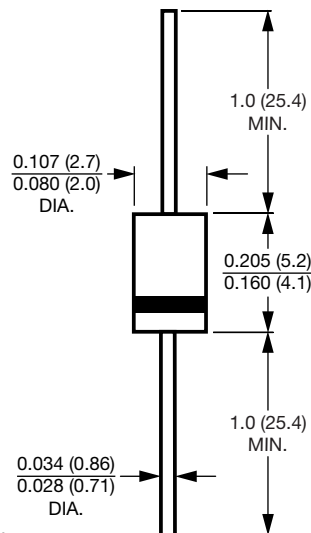


Fig. 6 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AL (DO-41)



Note

- Lead diameter is $\frac{0.026 (0.66)}{0.023 (0.58)}$ for suffix "E" part numbers



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