Pb Free Plating Product

# GF2045MC thru GF20200MC

20.0 Ampere Surface Mount PhotoVoltaic Bypass Schottky Barrier Rectifier

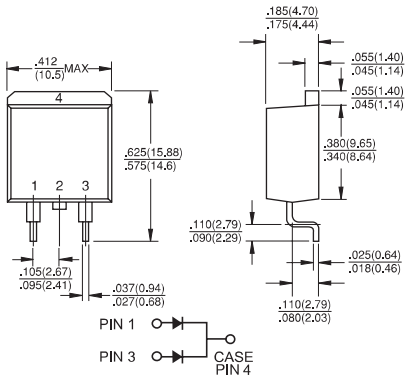
## Features

- For surface mounted application
- Plastic material used carries Underwriters Laboratory Classifications 94V-0
- Metal silicon junction, majority carrier conduction
- Low power loss, high efficiency
- High current capability, low forward voltage drop
- High surge capability
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- Guardring for overvoltage protection
- High temperature soldering guaranteed: 260°C/10 seconds at terminals

## Mechanical Data

- Cases: JEDEC D²PAK /TO-263-2L molded plastic
- Terminals: Pure tin plated, lead free. solderable per MIL-STD-750, Method 2026
- Polarity: As marked
- Mounting position: Any
- Mounting torque: 5 in. - lbs. max
- Weight: 0.06 ounce, 1.70 grams

## D²PAK




**Dimensions in inches and (millimeters)**

## Maximum Ratings and Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20%

| Type Number | Symbol | GF2045MC | GF2060MC | GF20100MC | GF20200MC | Units |
|---|---|---|---|---|---|---|
| Maximum Recurrent Peak Reverse Voltage | $V_{RRM}$ | 45 | 60 | 100 | 200 | V |
| Maximum RMS Voltage | $V_{RMS}$ | 31 | 42 | 70 | 140 | V |
| Maximum DC Blocking Voltage | $V_{DC}$ | 45 | 60 | 100 | 200 | V |
| Maximum Average Forward Rectified Current at $T_C$=135°C | $I_{(AV)}$ | 20 | | | | A |
| Peak Repetitive Forward Current (Rated $V_R$, Square Wave, 20KHz) at Tc=135°C | $I_{FRM}$ | 20 | | | | A |
| Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method ) | $I_{FSM}$ | 150 | | | | A |
| Peak Repetitive Reverse Surge Current (Note 1) | $I_{RRM}$ | 1.0 | 0.5 | | | A |
| Maximum Instantaneous Forward Voltage at (Note 2)<br>IF=10A, TC=25°C<br>IF=10A, TC=125°C<br>IF=20A, TC=25°C<br>IF=20A, TC=125°C | $V_F$ | –<br>0.57<br>0.84<br>0.72 | 0.80<br>0.70<br>0.95<br>0.85 | 0.85<br>0.75<br>0.95<br>0.85 | 0.99<br>0.87<br>1.23<br>1.10 | V |
| Maximum Instantaneous Reverse Current @ Tc=25℃ | $I_R$ | 0.1 | 0.1 | | | mA |
| at Rated DC Blocking Voltage @ Tc=125℃ | | 15 | 10 | 5.0 | | mA |
| Voltage Rate of Change, (Rated $V_R$) | dV/dt | 10,000 | | | | V/uS |
| Typical Junction Capacitance | Cj | 400 | 320 | | | pF |
| Typical Thermal Resistance Per Leg (Note 3) | $R_{\theta JC}$ | 1.0 | | 2.0 | | °C/W |
| Operating Junction Temperature Range | $T_J$ | -65 to +150 | | | | °C |
| Storage Temperature Range | TSTG | -65 to +175 | | | | °C |

Notes: 1. 2.0us Pulse Width, f=1.0 KHz
2. Pulse Test: 300us Pulse Width, 1% Duty Cycle
3. Thermal Resistance from Junction to Case Per Leg, with Heatsink Size (4"x6"x0.25") Al-Plate.



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FIG.1- FORWARD CURRENT DERATIN CURVE

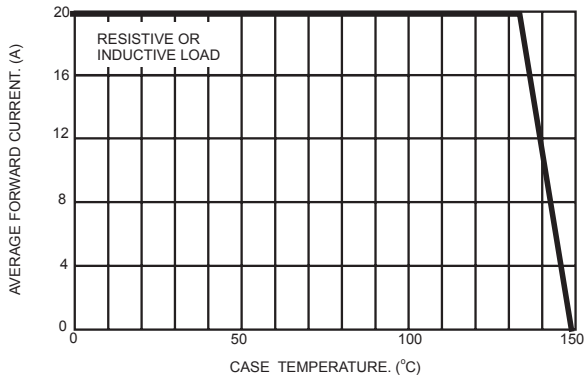



FIG.2- MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT PER LEG

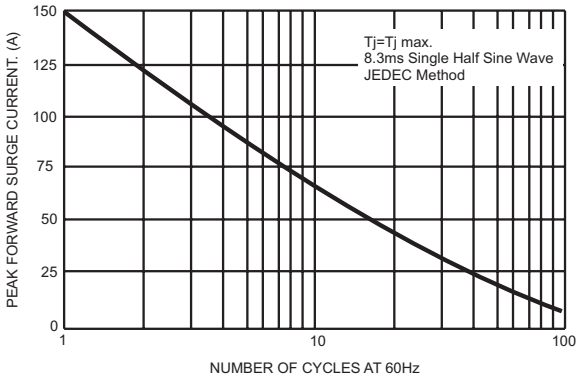



FIG.3- TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS PER LEG

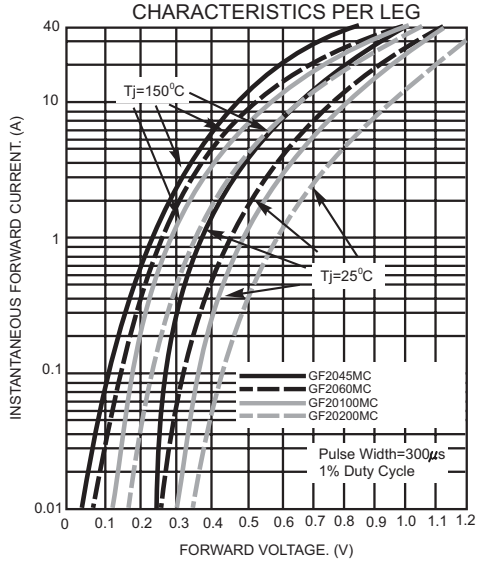



FIG.4- TYPICAL REVERSE CHARACTERISTICS PER LEG

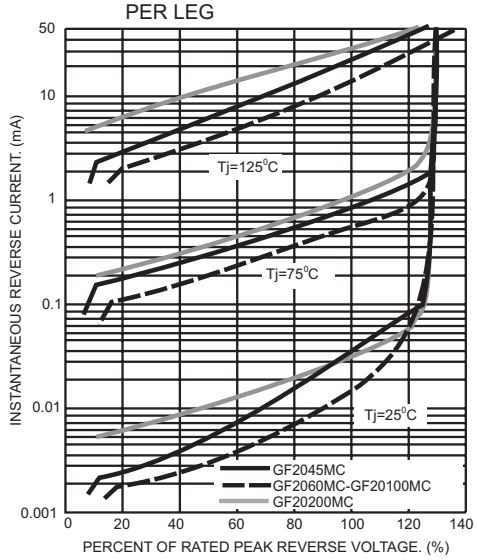



FIG.5- TYPICAL JUNCTION CAPACITANCE PER LEG

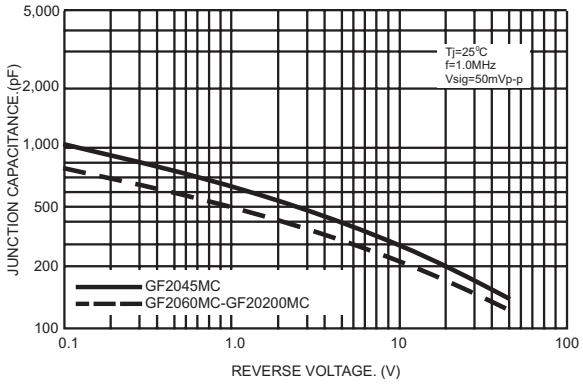
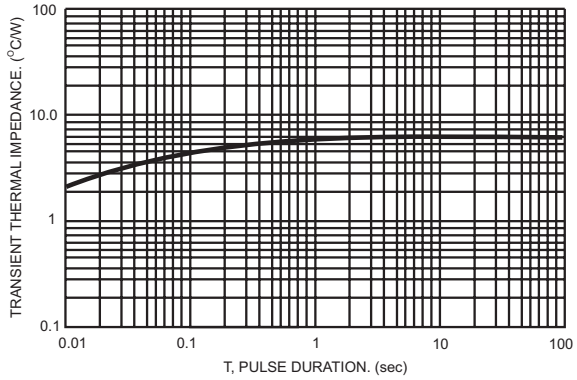



FIG.6- TYPICAL TRANSIENT THERMAL IMPEDANCE PER LEG



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