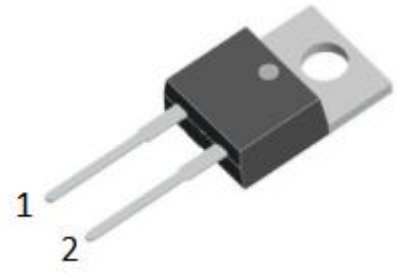
**Technical Data**
**Data Sheet N0451, Rev. B**

# FR801G THRU FR807G

## GLASS PASSIVATED FAST RECOVERY RECTIFIERS

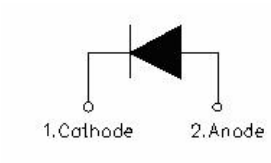



**TO-220AC**

## Features

- **Glass Passivated Die Construction**
- **High Current Capability**
- **Low Reverse Leakage Current**
- **Fast Switching**
- **High Surge Current Capability**
- **This is a Pb − Free Device**
- **All SMC parts are traceable to the wafer lot**
- **Additional testing can be offered upon request**

## Circuit Diagram




## Mechanical Data

- **Case: TO-220AC molded plastic**
- **Terminals: Plated axial leads, solderable per MIL-STD-202, Method 208**
- **Polarity: Color band denotes cathode end**
- **Mounting Position: Any**
- **Weight: 1.8 grams**

## Maximum Ratings and Electrical Characteristics @$T_A$=25°C unless otherwise specified

Single phase half-wave 60Hz, resistive or inductive load, for capacitive load current derate by 20%.

| Characteristic | Symbol | FR 801G | FR 802G | FR 803G | FR 804G | FR 805G | FR 806G | FR 807G | Units |
|---|---|---|---|---|---|---|---|---|---|
| Maximum repetitive peak reverse voltage<br>Maximum DC blocking voltage | $V_{RRM}$<br>$V_{DC}$ | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | V |
| Maximum RMS voltage | $V_{RMS}$ | 35 | 70 | 140 | 280 | 420 | 560 | 700 | V |
| Maximum average forward rectified current 0.375"(9.5mm) lead length at @$T_C$ =100°C | $I_{(AV)}$ | 8.0 | | | | | | | A |
| Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) | $I_{FSM}$ | 150 | | | | | | | A |
| Maximum instantaneous forward voltage at 8.0A | $V_F$ | 1.3 | | | | | | | V |
| Maximum DC reverse current @$T_A$ = 25°C<br>At Rated DC Blocking Voltage @$T_A$ = 125°C | $I_{RM}$ | 5.0<br>100 | | | | | | | μA |
| Maximum reverse recovery time (Note 1) | $t_{rr}$ | 150 | | | | 250 | 500 | | ns |
| Typical Junction Capacitance (Note 2) | $C_J$ | 100 | | | | | | | pF |
| Typical Thermal Resistance Junction to Case | $R_{\theta JC}$ | 3 | | | | | | | °C/W |
| Operating junction temperature range | $T_J$ | -65 to +150 | | | | | | | °C |
| Operating storage temperature range | $T_{STG}$ | -65 to +150 | | | | | | | °C |

Note: 1. Reverse recovery condition IF=0.5A, IR=1.0A, Irr=0.25A
2. Measured at 1MHz and applied reverse voltage of 4.0V D.C.

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## Ratings and Characteristics Curves

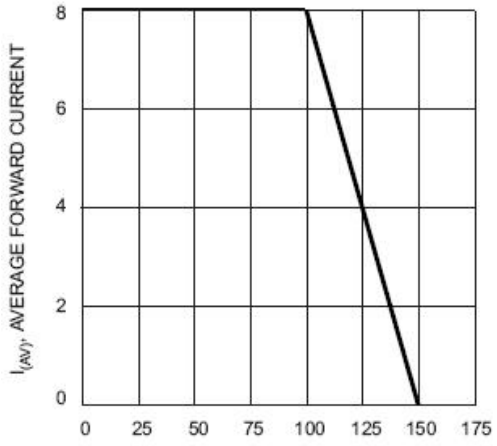



Fig. 1, Typical Forward Current Derating Curve

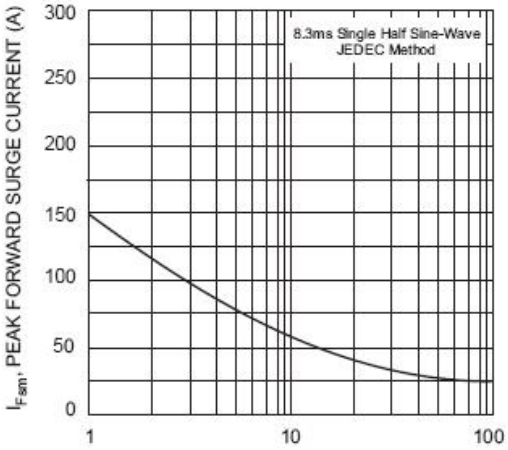



Fig. 2 Max Non-Repetitive Peak Surge Current

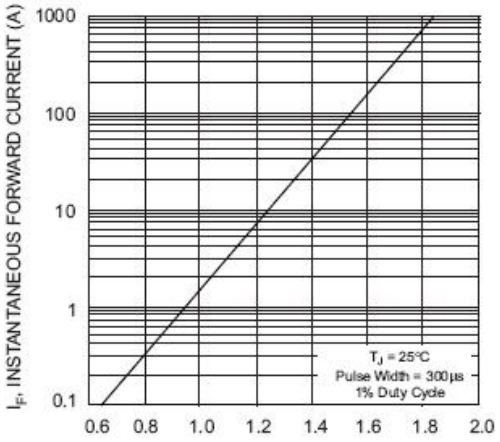



Fig. 3, Typical Instantaneous Forward Characteristics

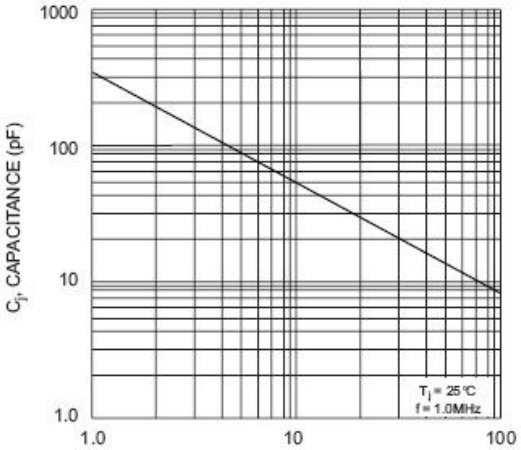
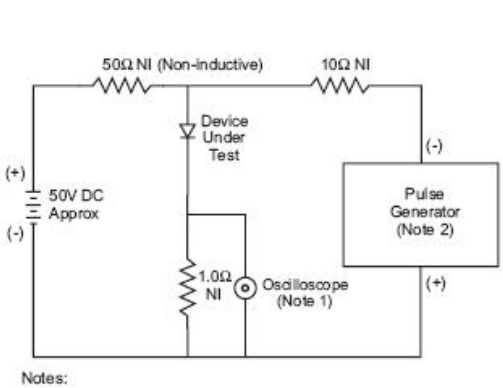



Fig. 4 Typical Junction Capacitance




Notes:
1. Rise Time = 7.0ns max. Input Impedance = 1.0MΩ, 22pF.
2. Rise Time = 10ns max. Input Impedance = 50Ω.

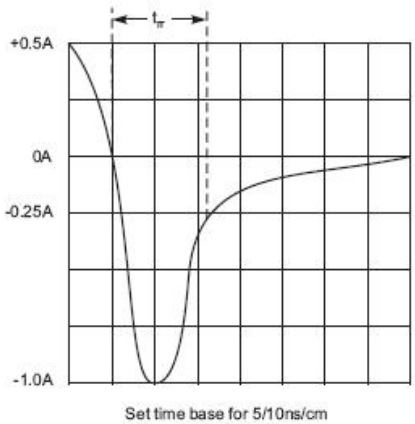



Fig. 5 Reverse Recovery Time Characteristic and Test Circuit

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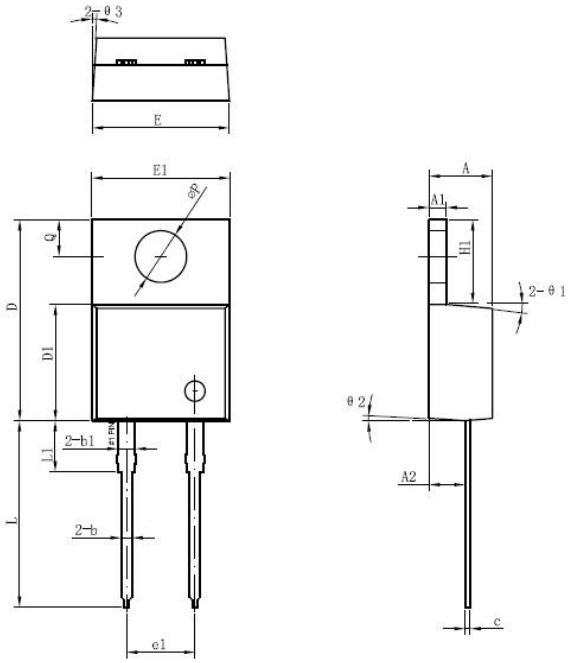
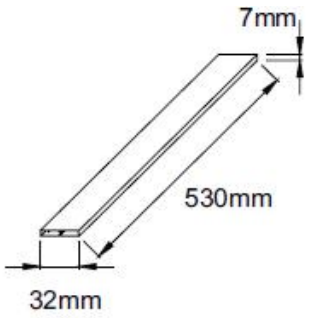
## Mechanical Dimensions TO-220AC

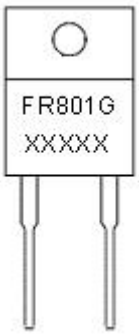



| Symbol | Dimensions in millimeters | | |
|---|---|---|---|
| | Min. | Typical | Max. |
| A | 4.47 | 4.70 | 4.85 |
| A1 | 1.17 | 1.27 | 1.37 |
| A2 | 2.52 | 2.69 | 2.89 |
| b | 0.71 | 0.81 | 0.96 |
| b1 | 1.17 | 1.27 | 1.37 |
| c | 0.31 | 0.38 | 0.61 |
| D | 14.64 | 14.94 | 15.24 |
| D1 | 8.50 | 8.07 | 8.90 |
| E | 10.01 | 10.16 | 10.31 |
| E1 | 9.98 | 10.18 | 10.38 |
| e1 | 4.98 | 5.08 | 5.18 |
| H1 | 6.04 | 6.24 | 6.44 |
| L | 13.00 | 13.86 | 14.08 |
| L1 | 3.56 | 3.80 | 3.96 |
| ΦP | 3.74 | 3.84 | 4.04 |
| Q | 2.54 | 2.74 | 2.94 |
| Θ1 | | 5° | |
| Θ2 | | 4° | |
| Θ3 | | 4° | |

## Tube Specification




## Marking Diagram




Where XXXXX is YYWWL

FR801G = Part Name
SSG = SSG
YY = Year
WW = Week
L = Lot Number

**Cautions:** Molding resin
Epoxy resin UL:94V-0

## Ordering Information

| Device | Package | Shipping |
|---|---|---|
| FR801G-FR807G | TO-220AC<br>(Pb-Free) | 50 pcs/ tube |

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our tape and reel packaging Specification.

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