# FR101G THRU FR107G

*Silicon Rectifier*

## 1.0A Leaded Type Glass Passivated Fast Recovery Rectifiers-50V-1000V

## Package outline

### DO-41



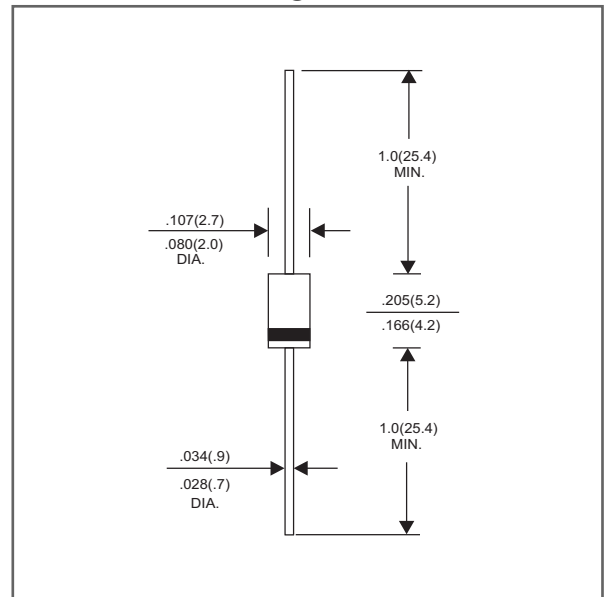**Dimensions in inches and (millimeters)**

## Features

- Axial lead type devices for through hole design.
- High current capability.
- Fast switching for high efficiency.
- High surge current capability.
- Glass passivated chip junction structure
- Lead-free parts meet RoHS requirments.
- Suffix "-H" indicates Halogen-free parts, ex. FR101G-H.

## Mechanical data

- Epoxy : UL94-V0 rated flame retardant
- Case : Molded plastic, DO-41
- Lead : Axial leads, solderable per MIL-STD-202, Method 208 guranteed
- Polarity: Color band denotes cathode end
- Mounting Position : Any
- Weight : Approximated 0.33 gram

## Maximum ratings (AT T =25°C unless otherwise noted)

| PARAMETER | CONDITIONS | Symbol | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| Forward rectified current | See Fig.2 | $I_O$ | | | 1.0 | A |
| Forward surge current | 8.3ms single half sine-wave superimposed on rate load (JEDEC methode) | $I_{FSM}$ | | | 30 | A |
| Reverse current | $V_R = V_{RRM} \ T_J = 25^oC$ | $I_R$ | | | 5.0 | µA |
| | $V_R = V_{RRM} \ T_J = 125^oC$ | | | | 100 | |
| Diode junction capacitance | f=1MHz and applied 4V DC reverse voltage | $C_J$ | | 15 | | pF |
| Storage temperature | | $T_{STG}$ | -65 | | +175 | $^oC$ |

| SYMBOLS | $V_{RRM}$ *1 (V) | $V_{RMS}$ *2 (V) | $V_R$ *3 (V) | $V_F$ *4 (V) | $T_{RR}$ *5 (nS) | Operating temperature $T_J$, ($^oC$) |
|---|---|---|---|---|---|---|
| FR101G | 50 | 35 | 50 | 1.30 | 150 | -55 to +150 |
| FR102G | 100 | 70 | 100 | | | |
| FR103G | 200 | 140 | 200 | | | |
| FR104G | 400 | 280 | 400 | | | |
| FR105G | 600 | 420 | 600 | | 250 | |
| FR106G | 800 | 560 | 800 | | 500 | |
| FR107G | 1000 | 700 | 1000 | | | |

*1 Repetitive peak reverse voltage

*2 RMS voltage

*3 Continuous reverse voltage

*4 Maximum forward voltage@$I_F$=1.0A

*5 Maximum Reverse recovery time, note 1

Note 1. Reverse recovery time test condition, $I_F$=0.5A, $I_R$=1.0A, $I_{RR}$=0.25A

## Rating and characteristic curves

Fig.1 - Forward Current Derating Curve

single phase half wave 60Hz
resistive or inductive load

Average Forward Current Amperes

Ambient Temperature, T_A (°C)

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

8.3mS single half sine-wave (JEDEC Method)

Peak Forward Surge Current Amperes

Number of Cycles at 60 Hz

Fig. 3 - Typical Instantaneous Forward Characteristics

T_J=25°C

pulse width=300µS
1% duty cycle

Instantaneous Forward Current, Amperes
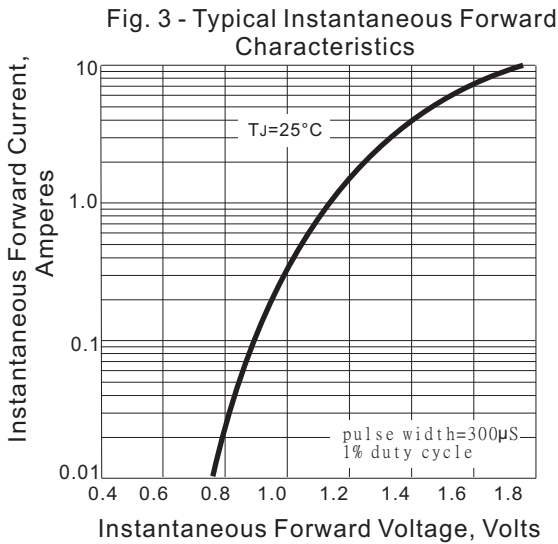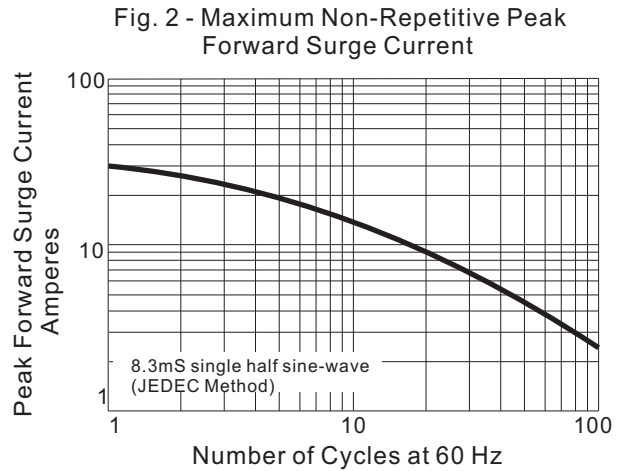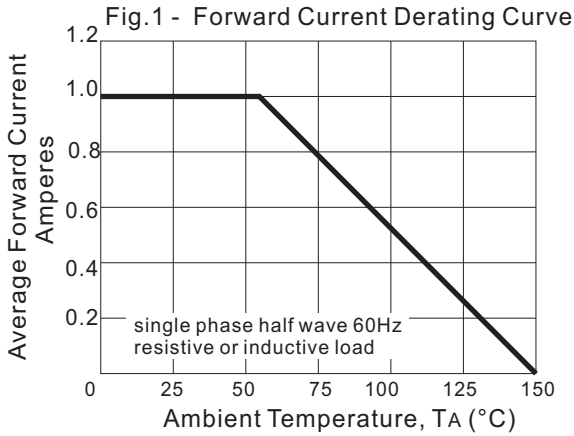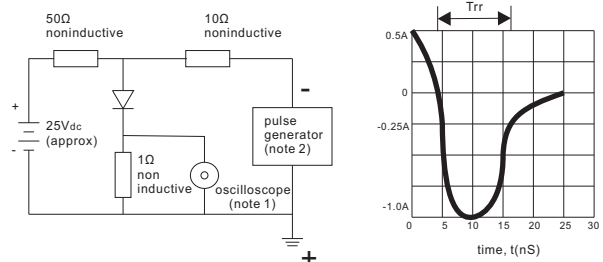
Instantaneous Forward Voltage, Volts

Fig. 4 - Test Circuit Diagram and Reverse Recovery Time Characteristic

50Ω noninductive
10Ω noninductive
25V_dc (approx)
1Ω non inductive
oscilloscope (note 1)
pulse generator (note 2)

T_rr

time, t(nS)

Note: 1. rise time=7nS Max. input impedance=1MΩ, 22pF
2. rise time=10nS Max. source impedance=80Ω

Fig. 5 - Typical Junction Capacitance

T_J=25°C
f=1.0MHz
Vsig=50mVp-p

Junction Capacitance, pF

Reverse Voltage, Volts