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FAIRCHILD SEMICONDUCTOR®

June 2013

# EGP20A - EGP20K

## 2.0 A Glass-Passivated High-Efficiency Rectifiers

### Features

- Glass-Passivated Cavity-Free Junction
- High Surge Current Capability
- Low Leakage Current
- Super-Fast Recovery Time for High Efficiency
- Low Forward Voltage, High Current Capability

**DO-15 Glass case**

COLOR BAND DENOTES CATHODE

### Absolute Maximum Ratings(1)

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at $T_A$ = 25°C unless otherwise noted.

| Symbol | Parameter | Value | Units |
|---|---|---|---|
| $I_{F(AV)}$ | Average Rectified Current<br>.375 inch lead length at $T_A$ = 55°C | 2.0 | A |
| $I_{FSM}$ | Peak Forward Surge Current<br>8.3 ms single half-sine-wave<br>Superimposed on rated load (JEDEC method) | 75 | A |
| $T_J$, $T_{STG}$ | Junction and Storage Temperature Range | -65 to 150 | °C |

**Note:**

1. These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

### Thermal Characteristics

| | | | |
|---|---|---|---|
| $P_D$ | Total Device Dissipation | 3.13 | W |
| | Derate above 25°C | 25 | mW°C |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient | 40 | °C/W |
| $R_{\theta JL}$ | Thermal Resistance, Junction to Lead | 15 | °C/W |

## Electrical Characteristics[2]

$T_A$ = 25°C unless otherwise noted.

| Parameter | | Device | | | | | | | | Units |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 20A | 20B | 20C | 20D | 20F | 20G | 20J | 20K | |
| Peak Repetitive Reverse Voltage | | 50 | 100 | 150 | 200 | 300 | 400 | 600 | 800 | V |
| Maximum RMS Voltage | | 35 | 70 | 105 | 140 | 210 | 280 | 420 | 560 | V |
| DC Reverse Voltage (Rated $V_R$) | | 50 | 100 | 150 | 200 | 300 | 400 | 600 | 800 | V |
| Maximum Reverse Current at Rated $V_R$ | $T_A$ = 25°C | 5.0 | | | | | | | | µA |
| | $T_A$ = 125°C | 100 | | | | | | | | µA |
| Maximum Reverse-Recovery Time $I_F$ = 0.5 A, $I_R$ = 1.0 A, $I_{rr}$ = 0.25 A | | 50 | | | | | | 75 | | ns |
| Maximum Forward Voltage at 2.0 A | | 0.95 | | | | 1.25 | | 1.70 | | V |
| Typical Junction Capacitance $V_R$ = 4.0 V, f = 1.0 MHz | | 70 | | | | 45 | | | | pF |

**Note:**

**2.** Pulse test: pulse width ≤ 300 µs, duty cycle ≤ 2%.

## Typical Performance Characteristics

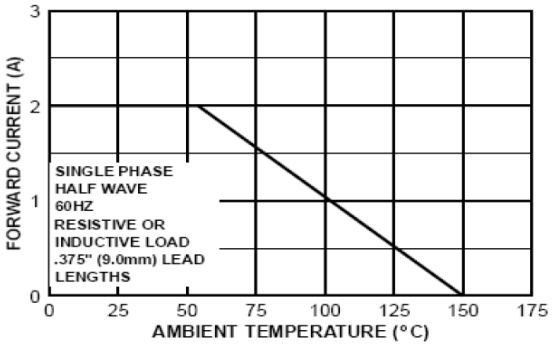



**Figure 1. Forward Current Derating Curve**

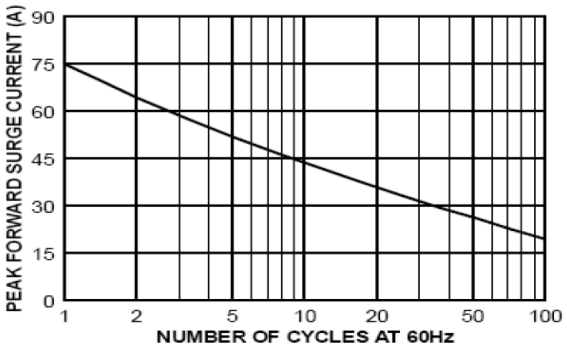



**Figure 2. Non-Repetitive Surge Current**

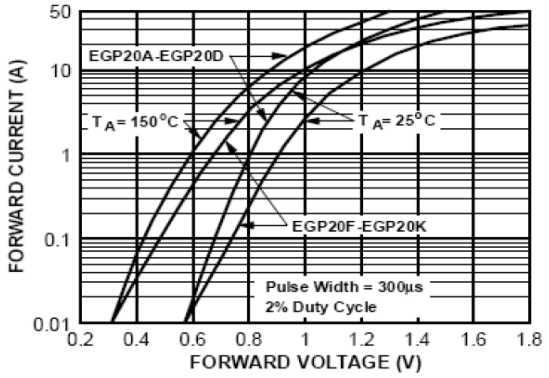



**Figure 3. Forward Characteristics**

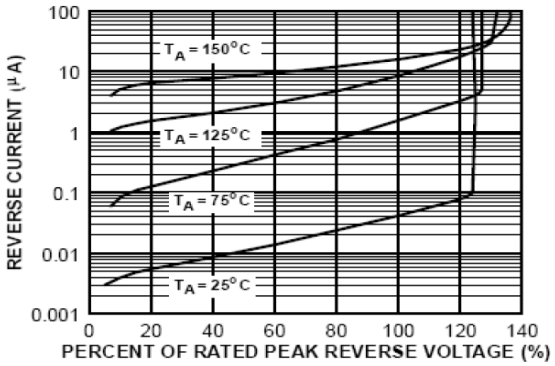



**Figure 4. Reserve Characteristics**

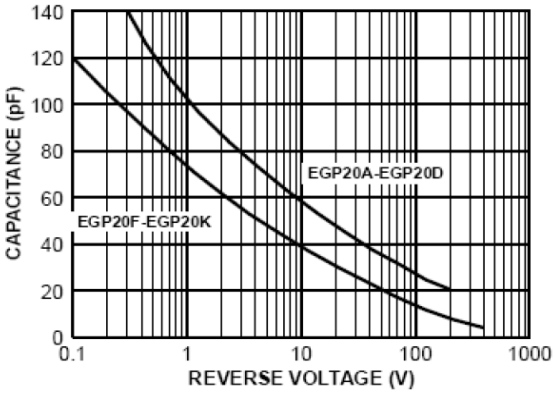
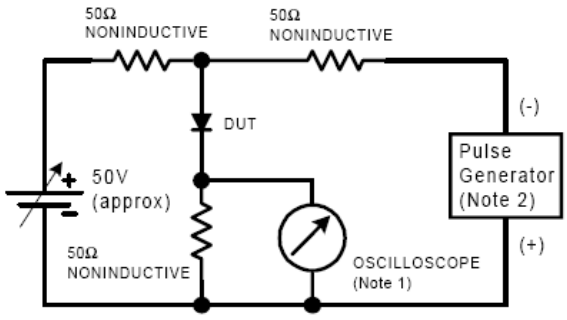


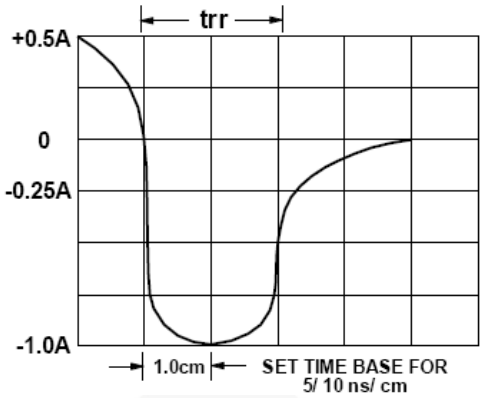

**Figure 5. Junction Capacitance**

## Reverse Recovery Time Characteristic and Test Circuit Diagram



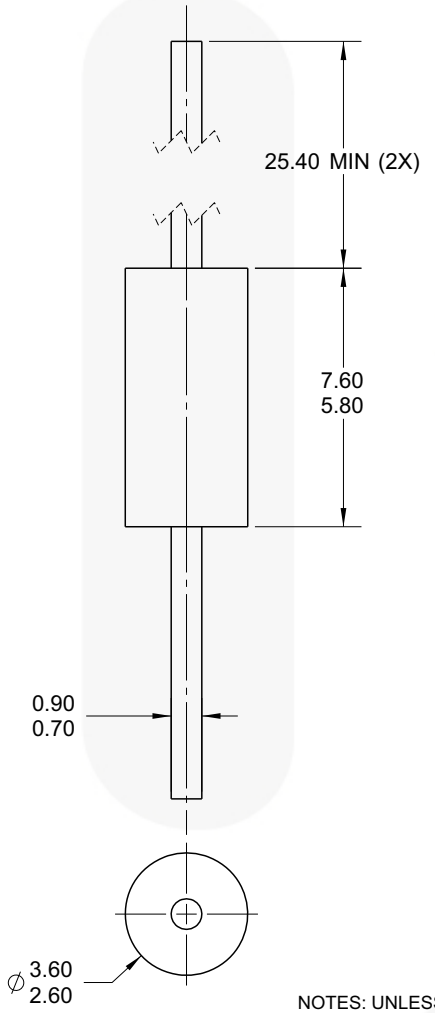

NOTES:

3. Rise time = 7.0 ns max; Input impedance = 1.0 megaohm 22 pf.
4. Rise time = 10 ns max; Source impedance = 50 ohms.



## Physical Dimensions

DO-15




NOTES: UNLESS OTHERWISE SPECIFIED

A) PACKAGE STANDARD REFERENCE:
JEDEC DO-204 VARIATION AC.
B) PLASTIC PACKAGE BODY.
D) ALL DIMENSIONS ARE IN MILLIMETERS.
E) DRAWING FILE NAME: DO15AREV1

**Figure 6. AXIAL LEADED, JEDEC DO204, VARIATION (ACTIVE)**

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