# SCANSWITCH™ Power Rectifier

## For High and Very High Resolution Monitors

**MUR10120E**

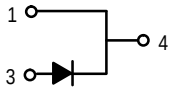
**Motorola Preferred Device**

This state–of–the–art power rectifier is specifically designed for use as a damper diode in horizontal deflection circuits for high and very high resolution monitors. In these applications, the outstanding performance of the MUR10120E is fully realized when paired with either the MJH16206 or MJF16206 monitor specific, 1200 volt bipolar power transistor.

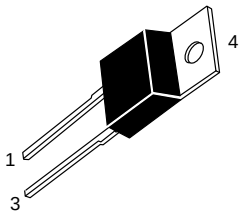
- 1200 Volt Blocking Voltage
- 20 mJ Avalanche Energy (Guaranteed)
- 12 Volt (Typical) Peak Transient Overshoot Voltage
- 135 ns (Typical) Forward Recovery Time

**Mechanical Characteristics:**

- Case: Epoxy, Molded
- Weight: 1.9 grams (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Shipped 50 units per plastic tube
- Marking: U10120E




**SCANSWITCH RECTIFIER 10 AMPERES 1200 VOLTS**




**CASE 221B–03 (TO–220AC) STYLE 1**

### MAXIMUM RATINGS

| Rating | Symbol | Value | Unit |
|---|---|---|---|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 1200 | Volts |
| Average Rectified Forward Current<br>(Rated $V_R$) $T_C$ = 125°C | $I_{F(AV)}$ | 10 | Amps |
| Peak Repetitive Forward Current, Per Leg<br>(Rated $V_R$, Square Wave, 20 kHz) $T_C$ = 125°C | $I_{FRM}$ | 20 | Amps |
| Nonrepetitive Peak Surge Current<br>(Surge applied at rated load conditions, halfwave, single phase, 60 Hz) | $I_{FSM}$ | 100 | Amps |
| Operating Junction Temperature | $T_J$ | – 65 to +125 | °C |
| Controlled Avalanche Energy | $W_{AVAL}$ | 20 | mJ |

### THERMAL CHARACTERISTICS

| | | | |
|---|---|---|---|
| Thermal Resistance — Junction to Case | $R_{\theta JC}$ | 2.0 | °C/W |

(1) Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2.0%.

SCANSWITCH is a trademark of Motorola, Inc.

**Preferred** devices are Motorola recommended choices for future use and best overall value.

## ELECTRICAL CHARACTERISTICS

| Characteristic | Symbol | Typ | Max | Unit |
|---|---|---|---|---|
| Maximum Instantaneous Forward Voltage (1)<br>($i_F$ = 6.5 Amps, $T_J$ = 125°C)<br>($i_F$ = 6.5 Amps, $T_J$ = 25°C) | $v_F$ | <br>1.7<br>1.9 | <br>2.0<br>2.2 | Volts |
| Maximum Instantaneous Reverse Current (1)<br>(Rated dc Voltage, $T_J$ = 25°C)<br>(Rated dc Voltage, $T_J$ = 125°C) | $i_R$ | <br>25<br>750 | <br>100<br>1000 | μA |
| Maximum Reverse Recovery Time<br>($I_F$ = 1.0 A, di/dt = 50 Amps/μs) | $t_{rr}$ | 150 | 175 | ns |
| Maximum Forward Recovery Time<br>$I_F$ = 6.5 Amps, di/dt = 12 Amps/μs (As Measured on a Deflection Circuit) | $t_{fr}$ | 135 | 175 | ns |
| Peak Transient Overshoot Voltage | $V_{RFM}$ | 12 | 14 | Volts |

(1) Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2.0%.

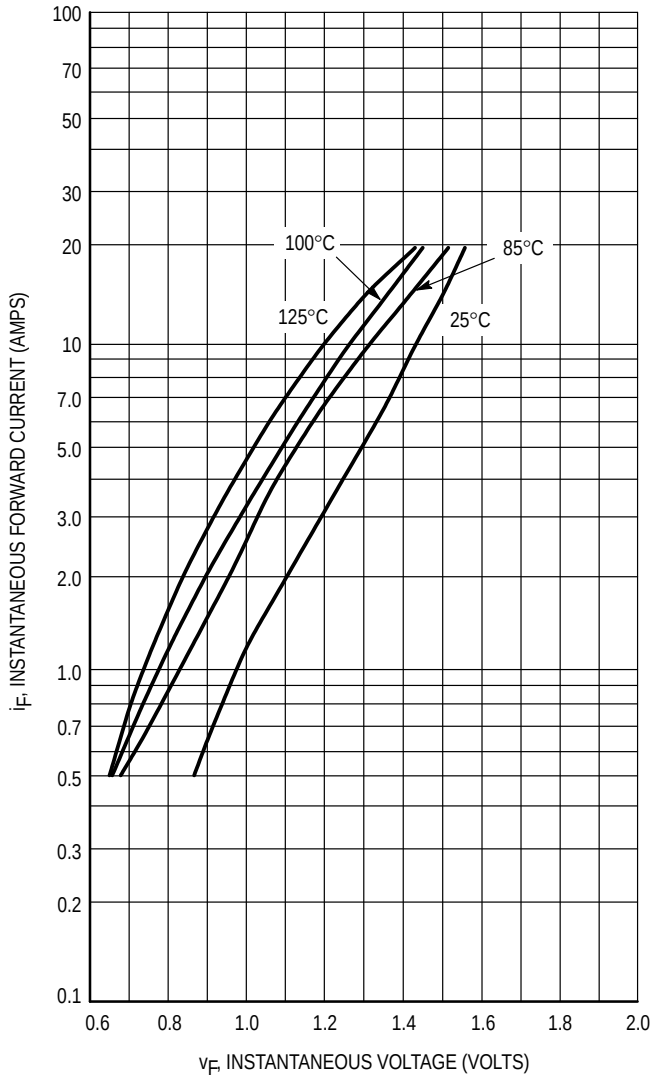



**Figure 1. Typical Forward Voltage**

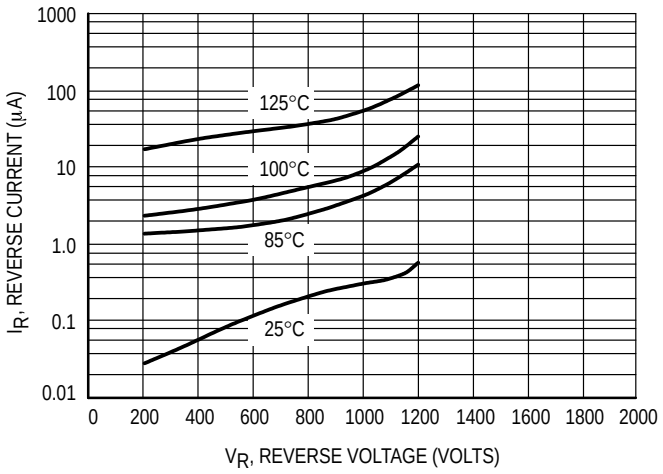



**Figure 2. Typical Reverse Current**

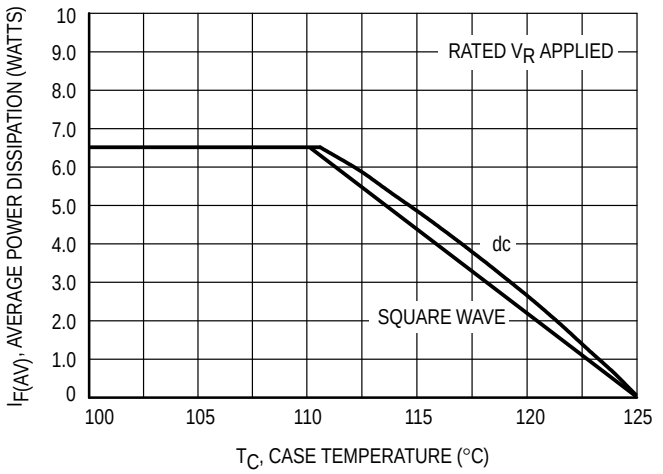



**Figure 3. Current Derating, Case**

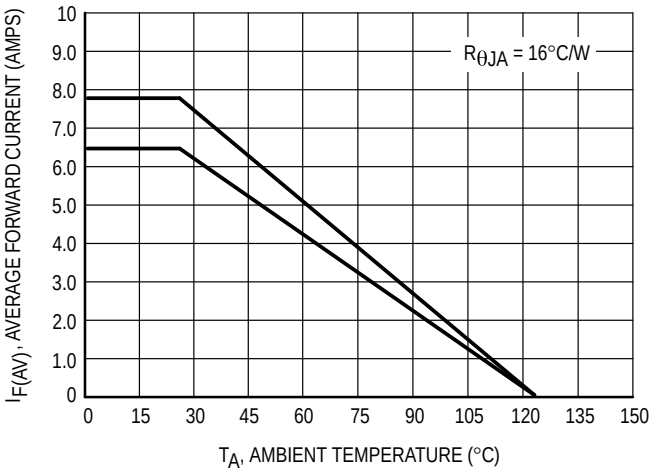



**Figure 4. Current Derating, Ambient**

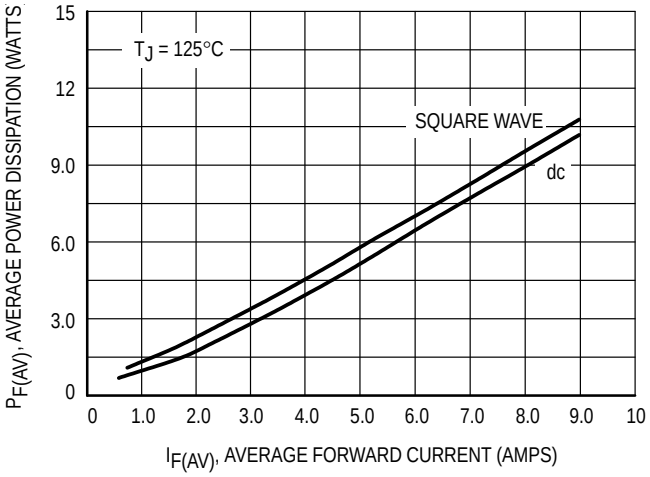



**Figure 5. Power Dissipation**

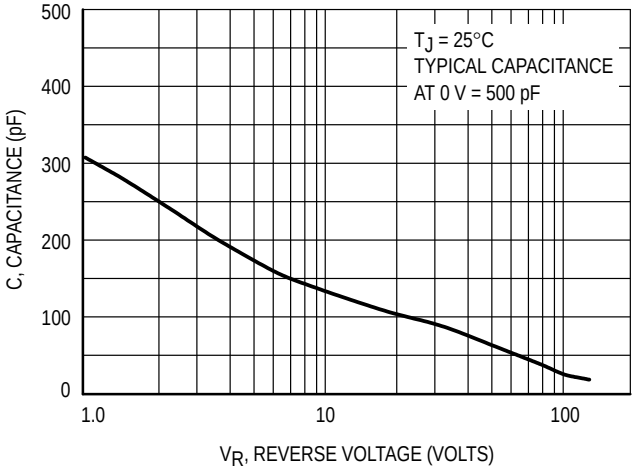
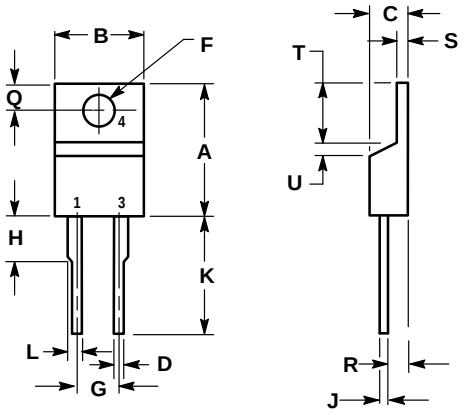



**Figure 6. Typical Capacitance**

## PACKAGE DIMENSIONS




NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

| | INCHES | | MILLIMETERS | |
|---|---|---|---|---|
| DIM | MIN | MAX | MIN | MAX |
| A | 0.595 | 0.620 | 15.11 | 15.75 |
| B | 0.380 | 0.405 | 9.65 | 10.29 |
| C | 0.160 | 0.190 | 4.06 | 4.82 |
| D | 0.025 | 0.035 | 0.64 | 0.89 |
| F | 0.142 | 0.147 | 3.61 | 3.73 |
| G | 0.190 | 0.210 | 4.83 | 5.33 |
| H | 0.110 | 0.130 | 2.79 | 3.30 |
| J | 0.018 | 0.025 | 0.46 | 0.64 |
| K | 0.500 | 0.562 | 12.70 | 14.27 |
| L | 0.045 | 0.060 | 1.14 | 1.52 |
| Q | 0.100 | 0.120 | 2.54 | 3.04 |
| R | 0.080 | 0.110 | 2.04 | 2.79 |
| S | 0.045 | 0.055 | 1.14 | 1.39 |
| T | 0.235 | 0.255 | 5.97 | 6.48 |
| U | 0.000 | 0.050 | 0.000 | 1.27 |

STYLE 1:
PIN 1. CATHODE
2. N/A
3. ANODE
4. CATHODE

**CASE 221B–03**
**ISSUE B**



**How to reach us:**
**USA / EUROPE / Locations Not Listed**: Motorola Literature Distribution;
P.O. Box 5405, Denver, Colorado 80217. 303–675–2140 or 1–800–441–2447

**Mfax**™: RMFAX0@email.sps.mot.com – TOUCHTONE 602–244–6609
– US & Canada ONLY 1–800–774–1848

**INTERNET**: http://motorola.com/sps

**JAPAN**: Nippon Motorola Ltd.; Tatsumi–SPD–JLDC, 6F Seibu–Butsuryu–Center, 3–14–2 Tatsumi Koto–Ku, Tokyo 135, Japan. 81–3–3521–8315

**ASIA / PACIFIC**: Motorola Semiconductors H.K. Ltd.; 8B Tai Ping Industrial Park, 51 Ting Kok Road, Tai Po, N.T., Hong Kong. 852–26629298