

SWITCHMODE™ Power Rectifiers

**ULTRAFAST
RECTIFIERS
8.0 AMPERES
200 VOLTS**

This state-of-the-art device is designed for use in switching power supplies, inverters and as free wheeling diodes.

Features

- 175°C Operating Junction Temperature
- Popular TO-220 Package
- Epoxy Meets UL 94 V-0 @ 0.125 in
- Low Forward Voltage
- Low Leakage Current
- High Temperature Glass Passivated Junction
- Pb-Free Package is Available*

Mechanical Characteristics

- Case: Epoxy, Molded, Epoxy Meets UL 94 V-0
- 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
- Device Meets MSL1 Requirements
- ESD Ratings: Machine Model, C (> 400 V)
Human Body Model, 3B (> 8000 V)

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	200	V
Average Rectified Forward Current Total Device, (Rated V_R), $T_C = 150^\circ\text{C}$	$I_{F(AV)}$	8.0	A
Peak Repetitive Forward Current (Rated V_R , Square Wave, 20 kHz), $T_C = 150^\circ\text{C}$	I_{FM}	16	A
Nonrepetitive Peak Surge Current (Surge Applied at Rated Load Conditions Half-wave, Single Phase, 60 Hz)	I_{FSM}	100	A
Operating Junction Temperature and Storage Temperature Range	T_J, T_{stg}	-65 to +175	°C

THERMAL CHARACTERISTICS

Maximum Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	3.0	°C/W
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Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

ELECTRICAL CHARACTERISTICS

Rating	Symbol	Value	Unit
Maximum Instantaneous Forward Voltage (Note 1) ($i_F = 5.0 \text{ A}$, $T_C = 100^\circ\text{C}$) ($i_F = 20 \text{ A}$, $T_C = 25^\circ\text{C}$)	v_F	0.85 1.3	V
Maximum Instantaneous Reverse Current (Note 1) (Rated Dc Voltage, $T_J = 100^\circ\text{C}$) (Rated Dc Voltage, $T_J = 25^\circ\text{C}$)	i_R	600 5.0	μA
Maximum Reverse Recovery Time ($I_F = 1.0 \text{ A}$, $di/dt = 50 \text{ A}/\mu\text{s}$) ($I_F = 0.5 \text{ A}$, $i_R = 1.0 \text{ A}$, $I_{REC} = 0.25 \text{ A}$)	t_{rr}	35 25	ns

1. Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2.0\%$.

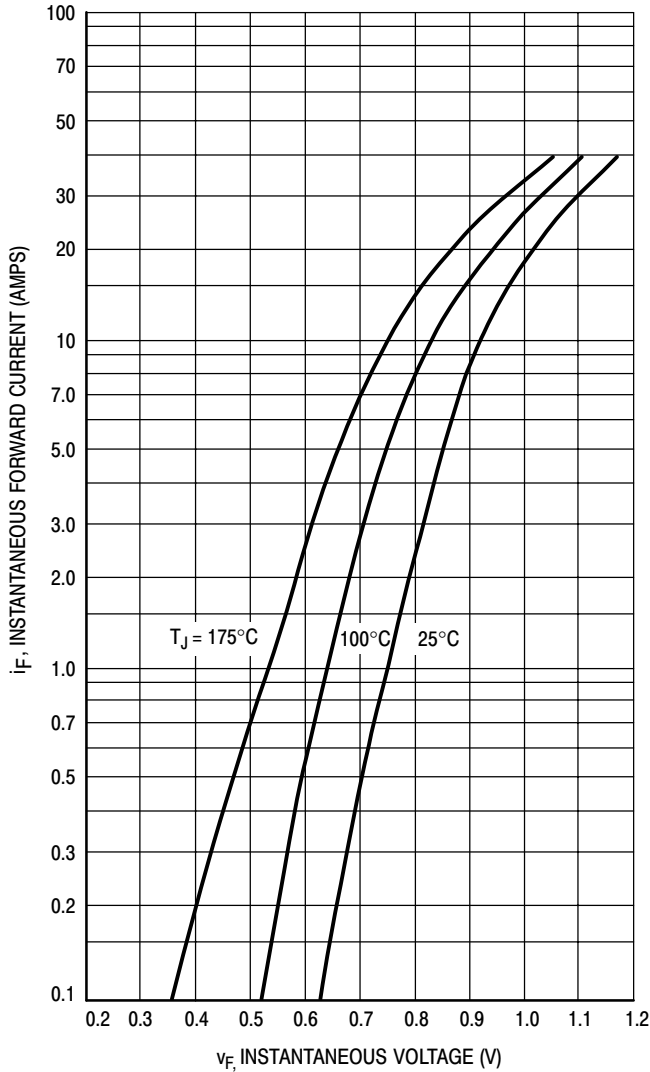


Figure 1. Typical Forward Voltage

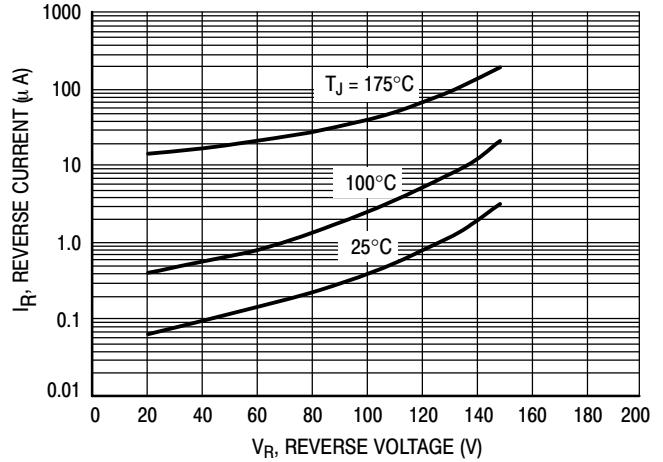


Figure 2. Typical Reverse Current*

* The curves shown are typical for the highest voltage device in the grouping. Typical reverse current for lower voltage selections can be estimated from these same curves if V_R is sufficiently below rated V_R .

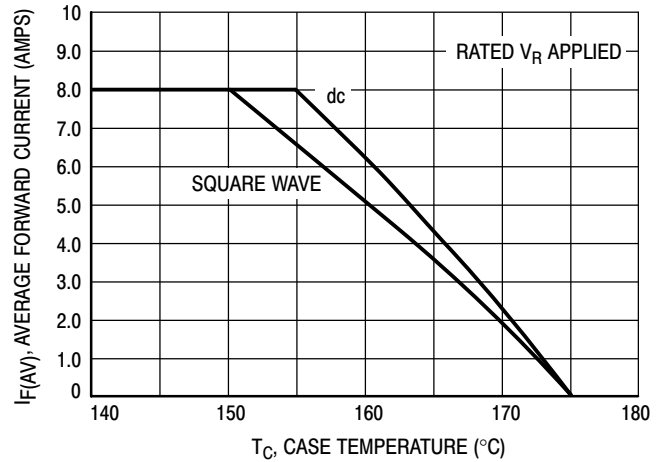


Figure 3. Current Derating, Case

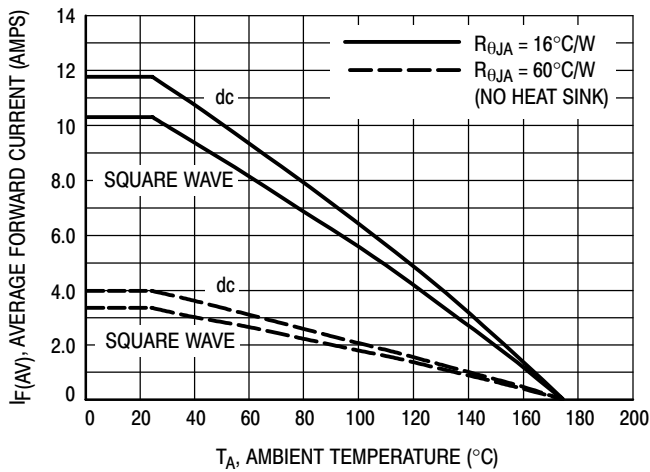


Figure 4. Current Derating, Ambient

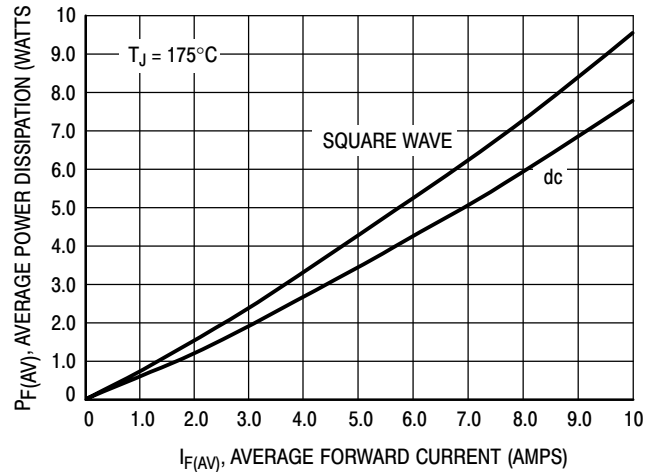


Figure 5. Power Dissipation

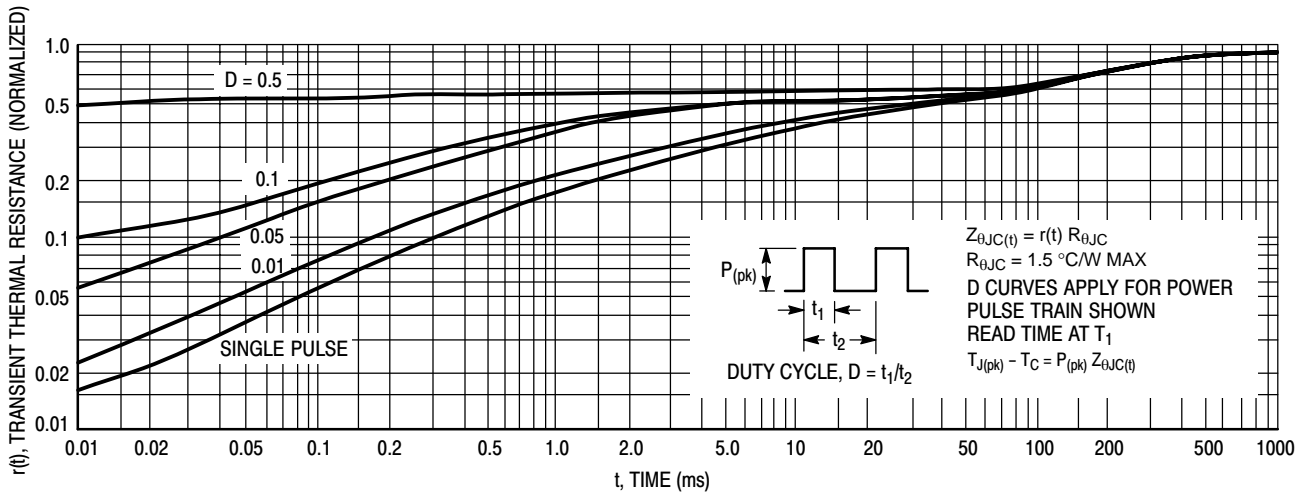


Figure 6. Thermal Response

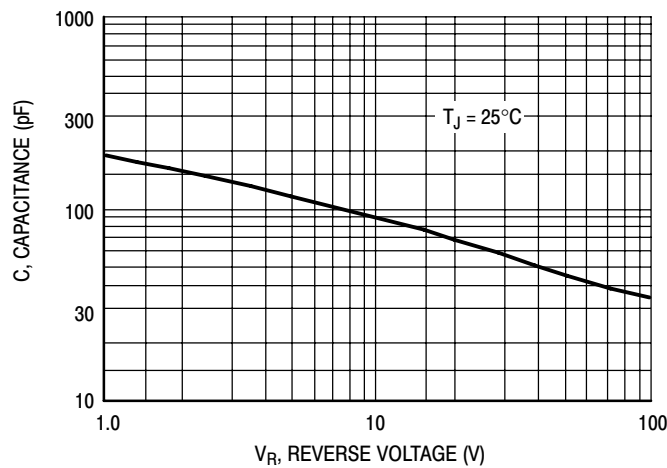


Figure 7. Typical Capacitance