Surface Mount Ultrafast Power Rectifiers

. . . employing state–of–the–art epitaxial construction with oxide passivation and metal overlay contact. Ideally suited for high voltage, high frequency rectification, or as free wheeling and protection diodes, in surface mount applications where compact size and weight are critical to the system.

- Small Compact Surface Mountable Package with J–Bend Leads
- Rectangular Package for Automated Handling
- Highly Stable Oxide Passivated Junction
- Low Forward Voltage Drop (0.71 to 1.05 Volts Max @ 3.0 A, T_J = 150°C)

Mechanical Characteristics:

- Case: Epoxy, Molded
- Weight: 217 mg (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Shipped in 16 mm Tape and Reel, 2500 units per reel
- Polarity: Notch in Plastic Body Indicates Cathode Lead
- Marking: U3D, U3J

MURS320T3
MURS360T3

Motorola Preferred Devices

ULTRAFAST RECTIFIERS
3.0 AMPERES
200–600 VOLTS

CASE 403–03

MAXIMUM RATINGS

Rating	Symbol	MURS 320T3	MURS 360T3	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	200	600	Volts
Average Rectified Forward Current	$I_{F(AV)}$	3.0 @ T_L = 140°C 4.0 @ T_L = 130°C	3.0 @ T_L = 130°C 4.0 @ T_L = 115°C	Amps
Non–Repetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	I_{FSM}	75		Amps
Operating Junction Temperature	T_J	– 65 to +175		°C

THERMAL CHARACTERISTICS

Thermal Resistance, Junction to Lead	$R_{\theta JL}$	11		°C/W

ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage (1) (i_F = 3.0 A, T_J = 25°C) (i_F = 4.0 A, T_J = 25°C) (i_F = 3.0 A, T_J = 150°C)	v_F	 0.875 0.89 0.71	 1.25 1.28 1.05	Volts
Maximum Instantaneous Reverse Current (1) (Rated dc Voltage, T_J = 25°C) (Rated dc Voltage, T_J = 150°C)	i_R	 5.0 15	 10 250	μA
Maximum Reverse Recovery Time (i_F = 1.0 A, di/dt = 50 A/μs) (i_F = 0.5 A, i_R = 1.0 A, I_{REC} to 0.25 A)	t_{rr}	 35 25	 75 50	ns
Maximum Forward Recovery Time (i_F = 1.0 A, di/dt = 100 A/μs, Recovery to 1.0 V)	t_{fr}	25	50	ns

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

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

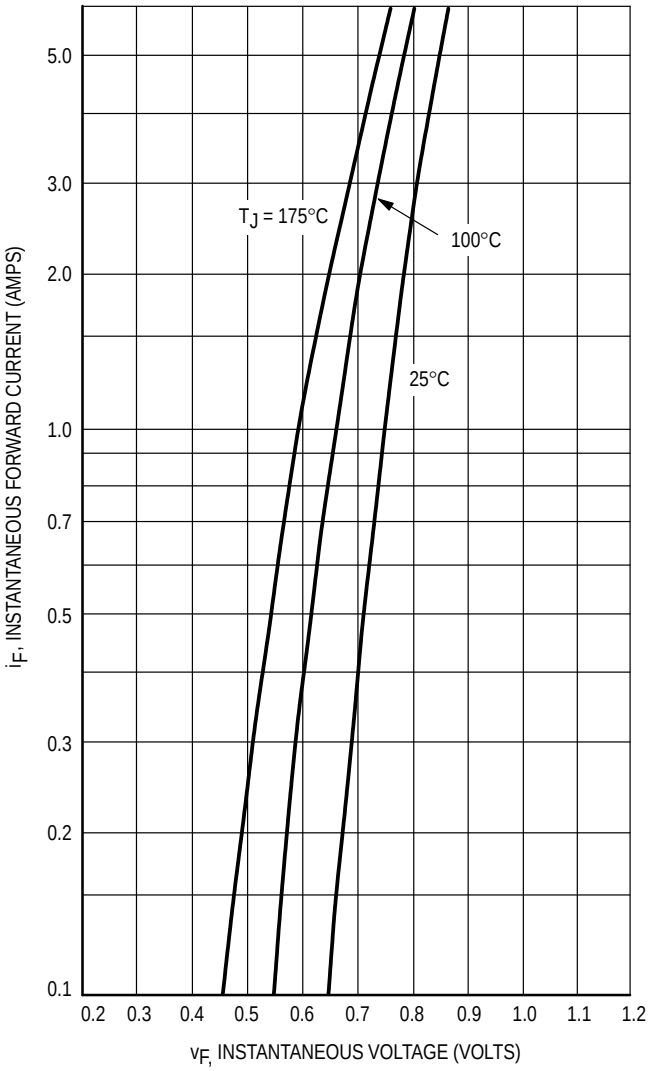


Figure 1. Typical Forward Voltage

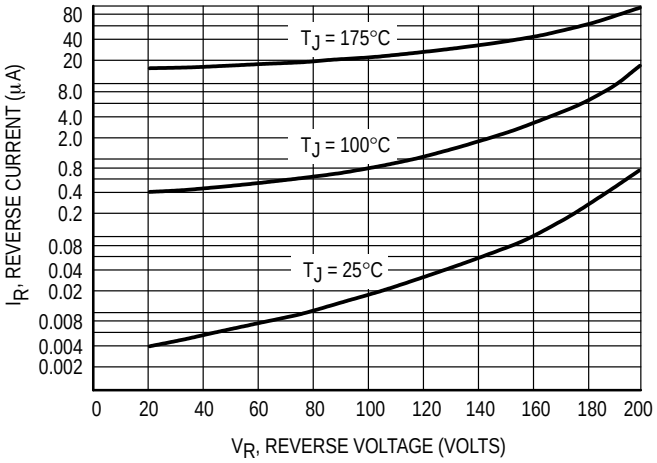


Figure 2. Typical Reverse Current*

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

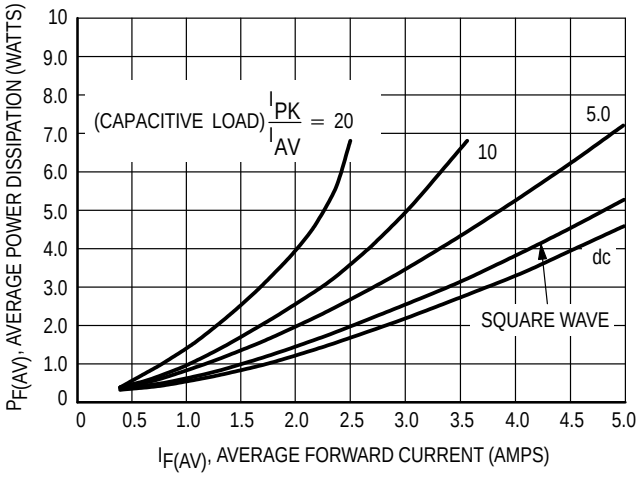


Figure 3. Power Dissipation

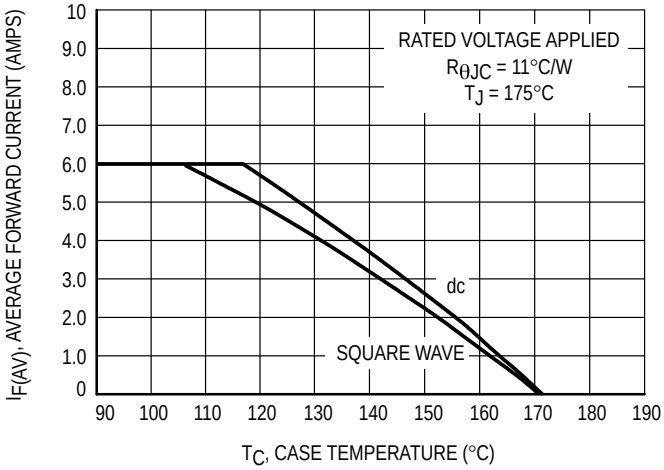


Figure 4. Current Derating, Case

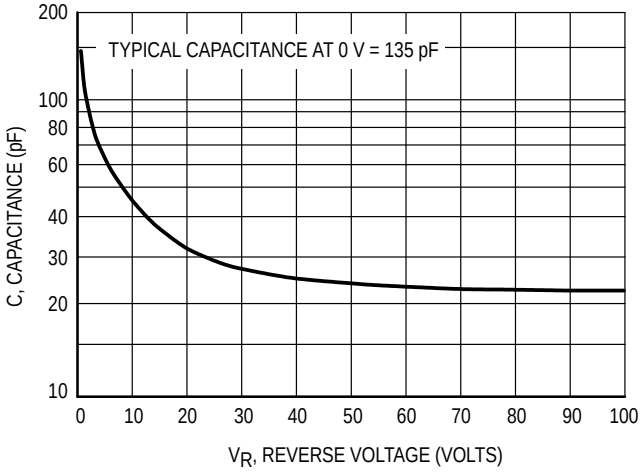


Figure 5. Typical Capacitance

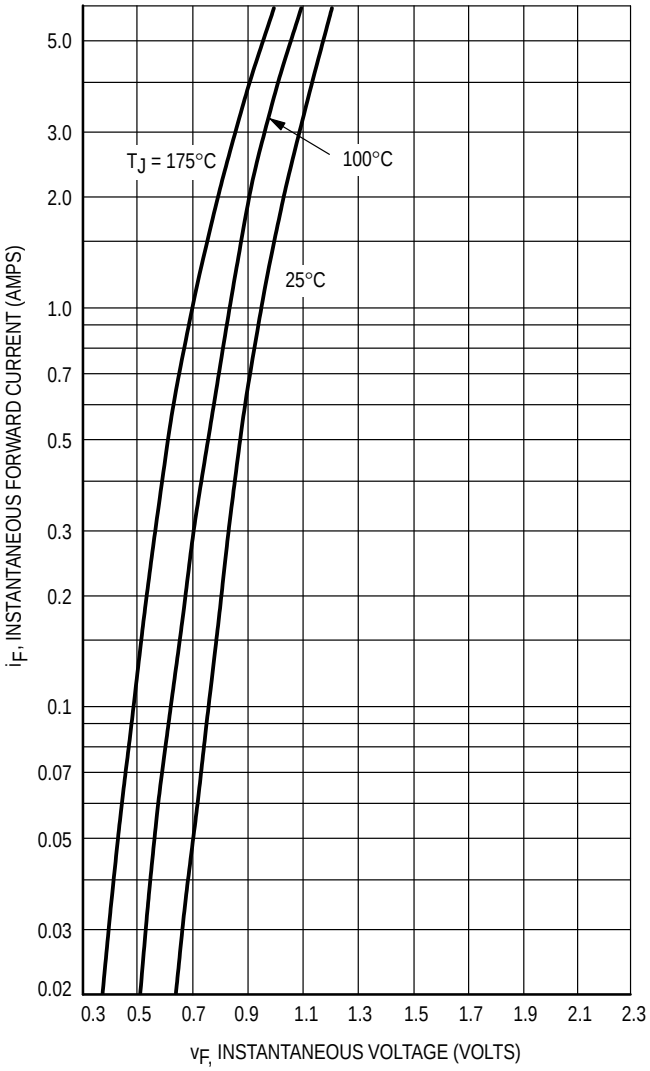


Figure 6. Typical Forward Voltage

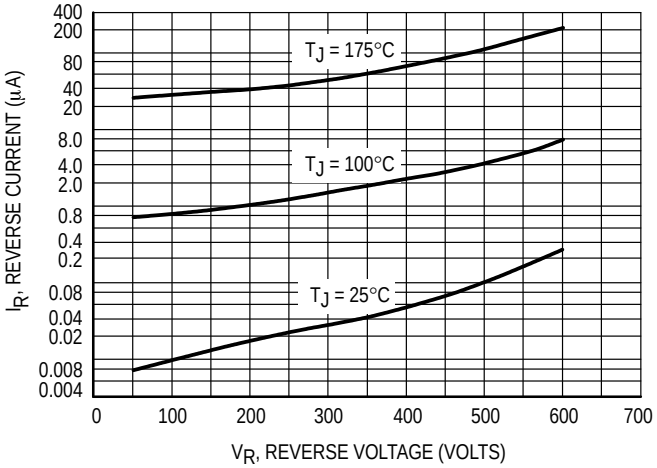


Figure 7. Typical Reverse Current*

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

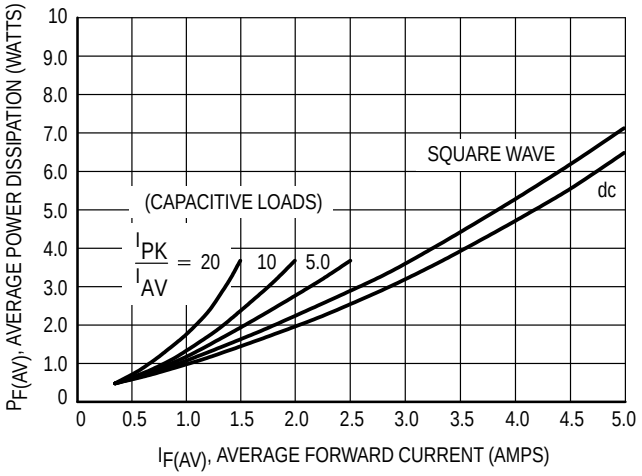


Figure 8. Power Dissipation

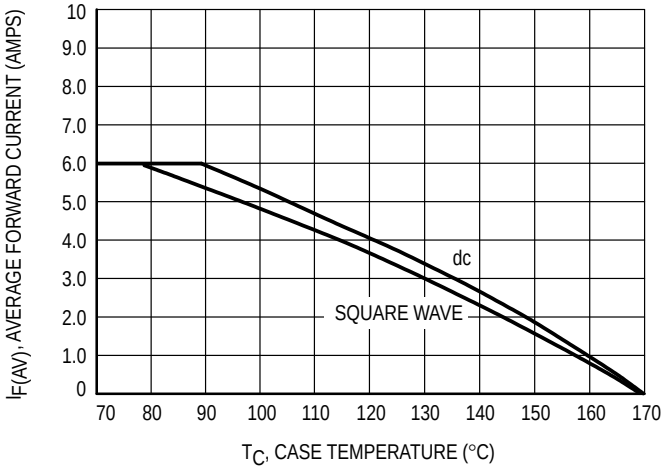


Figure 9. Current Derating, Case

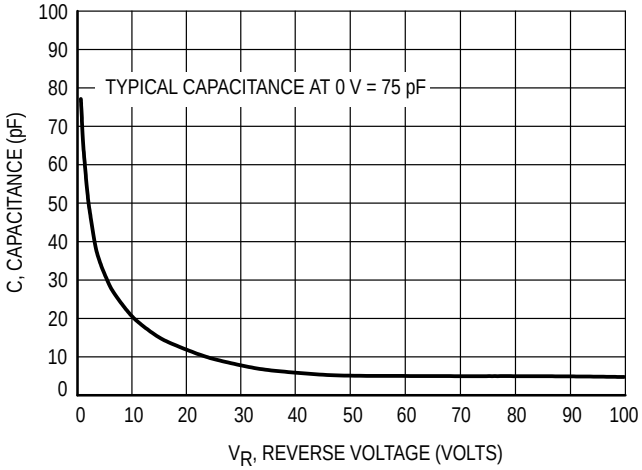
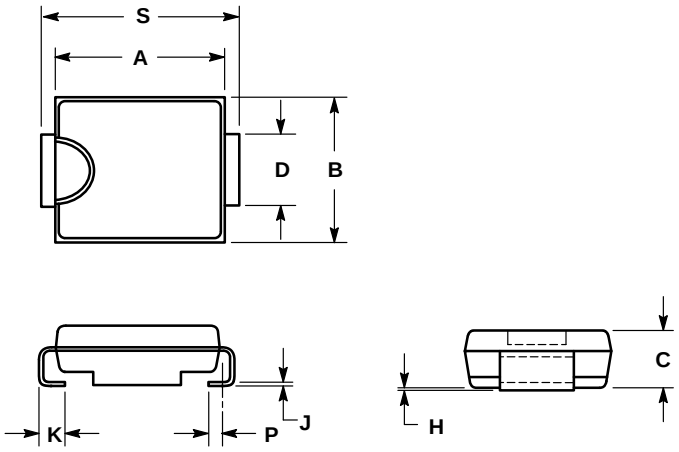


Figure 10. Typical Capacitance

PACKAGE DIMENSIONS



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. D DIMENSION SHALL BE MEASURED WITHIN DIMENSION P.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.260	0.280	6.60	7.11
B	0.220	0.240	5.59	6.10
C	0.075	0.095	1.90	2.41
D	0.115	0.121	2.92	3.07
H	0.0020	0.0060	0.051	0.152
J	0.006	0.012	0.15	0.30
K	0.030	0.050	0.76	1.27
P	0.020 REF		0.51 REF	
S	0.305	0.320	7.75	8.13

CASE 403–03
ISSUE B