# **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<sub>J</sub> = 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**

		MURS		
Rating	Symbol	320T3	360T3	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	VRRM VRWM VR	200	600	Volts
Average Rectified Forward Current	lF(AV)	3.0 @ T <sub>L</sub> = 140°C 4.0 @ T <sub>L</sub> = 130°C	3.0 @ T <sub>L</sub> = 130°C 4.0 @ T <sub>L</sub> = 115°C	Amps
Non–Repetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	IFSM	75		Amps
Operating Junction Temperature	TJ	- 65 to +175		°C

#### THERMAL CHARACTERISTICS

Thermal Resistance, Junction to Lead	$R_{ heta JL}$	11	°C/W
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#### **ELECTRICAL CHARACTERISTICS**

Maximum Instantaneous Forward Voltage (1) (iF = $3.0 \text{ A}$ , TJ = $25^{\circ}\text{C}$ ) (iF = $4.0 \text{ A}$ , TJ = $25^{\circ}\text{C}$ ) (iF = $3.0 \text{ A}$ , TJ = $150^{\circ}\text{C}$ )	VF	0.875 0.89 0.71	1.25 1.28 1.05	Volts
Maximum Instantaneous Reverse Current (1) (Rated dc Voltage, T <sub>J</sub> = 25°C) (Rated dc Voltage, T <sub>J</sub> = 150°C)	İR	5.0 15	10 250	μА
Maximum Reverse Recovery Time (iF = 1.0 A, di/dt = 50 A/ $\mu$ s) (iF = 0.5 A, iR = 1.0 A, IREC to 0.25 A)	t <sub>rr</sub>	35 25	75 50	ns
Maximum Forward Recovery Time (i <sub>F</sub> = 1.0 A, di/dt = 100 A/μs, Recovery to 1.0 V)	<sup>t</sup> fr	25	50	ns

<sup>(1)</sup> Pulse Test: Pulse Width = 300  $\mu$ s, Duty Cycle  $\leq$  2.0%.

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

### Rev 2



#### **MURS320T3 MURS360T3**

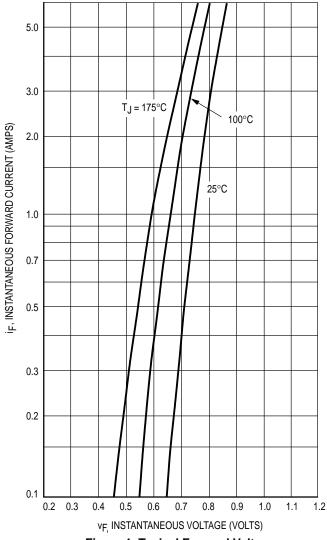


Figure 1. Typical Forward Voltage

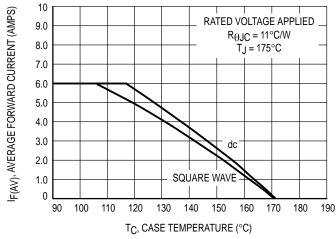


Figure 4. Current Derating, Case

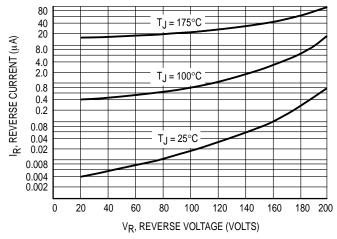


Figure 2. Typical Reverse Current\*

 $^{\star}$  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 VR is sufficiently below rated VR.

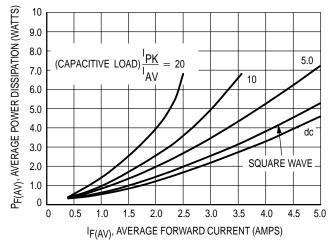


Figure 3. Power Dissipation

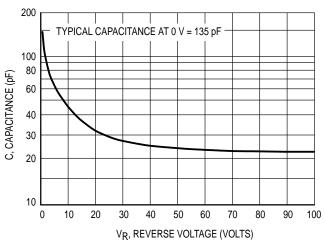


Figure 5. Typical Capacitance

2 Rectifier Device Data

#### **MURS320T3 MURS360T3**

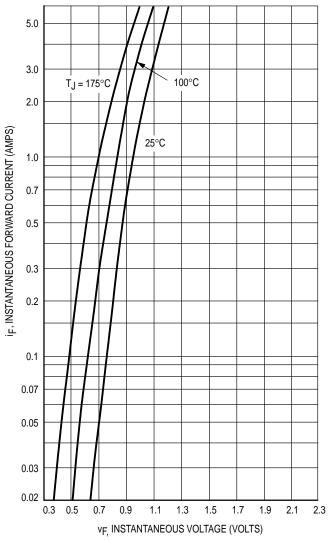


Figure 6. Typical Forward Voltage

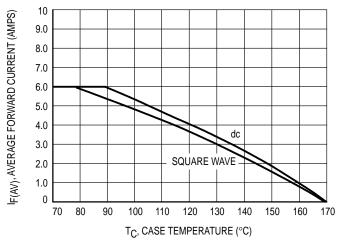


Figure 9. Current Derating, Case

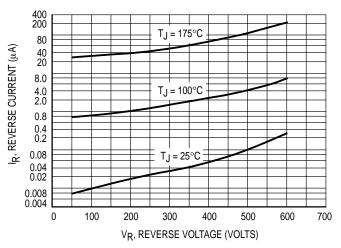


Figure 7. Typical Reverse Current\*

\* 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<sub>R</sub> is sufficiently below rated V<sub>R</sub>.

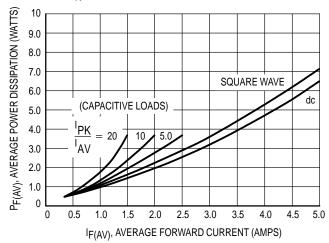


Figure 8. Power Dissipation

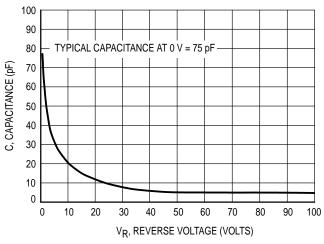
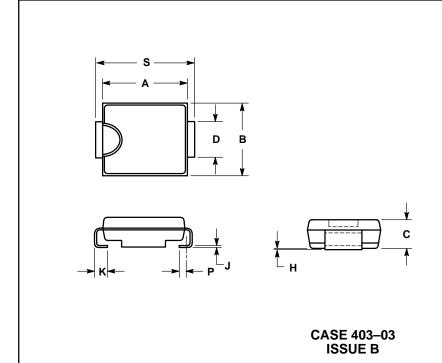


Figure 10. Typical Capacitance

#### PACKAGE DIMENSIONS



#### NOTES:

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

	INC	HES	MILLIMETERS		
DIM	MIN	MAX	MIN	MAX	
Α	0.260	0.280	6.60	7.11	
В	0.220	0.240	5.59	6.10	
С	0.075	0.095	1.90	2.41	
D	0.115	0.121	2.92	3.07	
Н	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	
Р	0.020 REF		0.51 REF		
S	0.305	0.320	7.75	8.13	

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