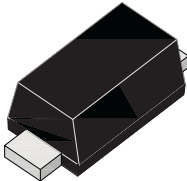





### 1.0 Amp. Surface Mount Top Glass Passivated Ultrafast Very Soft Recovery Rectifier

<p><b>SOD123W</b></p> 	<p><b>Voltage</b> 200 V</p>	<p><b>Current</b> 1.0 A</p>	
	<p><b>FEATURES</b></p> <ul style="list-style-type: none"> <li>• Top-Glass Technology</li> <li>• Low profile package</li> <li>• Ideal for automated placement</li> <li>• Low power losses, high efficiency</li> <li>• High surge current capability</li> <li>• Cavity-free glass-passivated junction</li> <li>• Low forward voltage drop</li> <li>• Solder dip 260°C, 10s</li> <li>• Component in accordance to RoHS 2011/65/EU and WEEE 2002/96/EC</li> <li>• Meets MSL level 1, per J-STD-020, LF maximum peak of 260° C</li> <li>• Very soft recovery characteristics</li> <li>• Significantly reduced EMI. Very low Noise.</li> </ul>		   <b>RoHS COMPLIANT</b>
	<p><b>MECHANICAL DATA</b></p> <ul style="list-style-type: none"> <li>• <b>Case:</b> SOD123W. Epoxy meets UL 94V-0 flammability rating.</li> <li>• <b>Polarity:</b> Color band denotes cathode end.</li> <li>• <b>Terminals:</b> Matte tin plated leads, solderable per MIL-STD-750 Method 2026, J-STD-002 and JESD22-B102. Consumer grade, meets JESD 201 class 1A whisker test. HE3 suffix for high reliability grade (AEC Q101 qualified), meets JESD 201 class 2 whisker test.</li> </ul>		
<p><b>TYPICAL APPLICATIONS</b></p> <p>Used in high frequency rectification and freewheeling application in switching mode converters and inverters for consumer, computer, automotive and telecommunication.</p>			

### Maximum Ratings and Electrical Characteristics at 25 °C

		FES1DWSR TG
Marking Code		WF
$V_{RRM}$	Maximum Recurrent Peak Reverse Voltage (V)	200
$V_{RMS}$	Maximum RMS Voltage (V)	140
$V_{DC}$	Maximum DC Blocking Voltage (V)	200
$I_{F(AV)}$	Maximum Average Forward Rectified Current @ $T_C = 110\text{ °C}$	1.0 A
$I_{FSM}$	Peak Forward Surge Current, 8.3 ms Single Half Sine-Wave Superimposed on Rated Load (JEDEC Method)	50 A
$V_F$	Maximum Instantaneous Forward Voltage @ 1.0A	$T_j = 25\text{ °C}$ 0.90 V $T_j = 100\text{ °C}$ 0.75 V
$I_R$	Maximum DC Reverse Leakage Current. $V_R = V_{RRM}$	$T_j = 25\text{ °C}$ 5 $\mu$ A $T_j = 100\text{ °C}$ 10 $\mu$ A $T_j = 175\text{ °C}$ 100 $\mu$ A
$C_j$	Typical Junction Capacitance (1MHz; -4V)	15 pF
$R_{th(j-c)}$ $R_{th(j-a)}$	Typical Thermal Resistance (5x5 mm <sup>2</sup> x 130 $\mu$ Copper Area)	27 °C/W 75 °C/W
$T_j - T_{stg}$	Operating Junction and Storage Temperature Range	-65 to + 175 °C

### 1.0 Amp. Surface Mount Top Glass Passivated Ultrafast Very Soft Recovery Rectifier

#### Recovery Characteristics ( $T_j = 25\text{ }^\circ\text{C}$ )

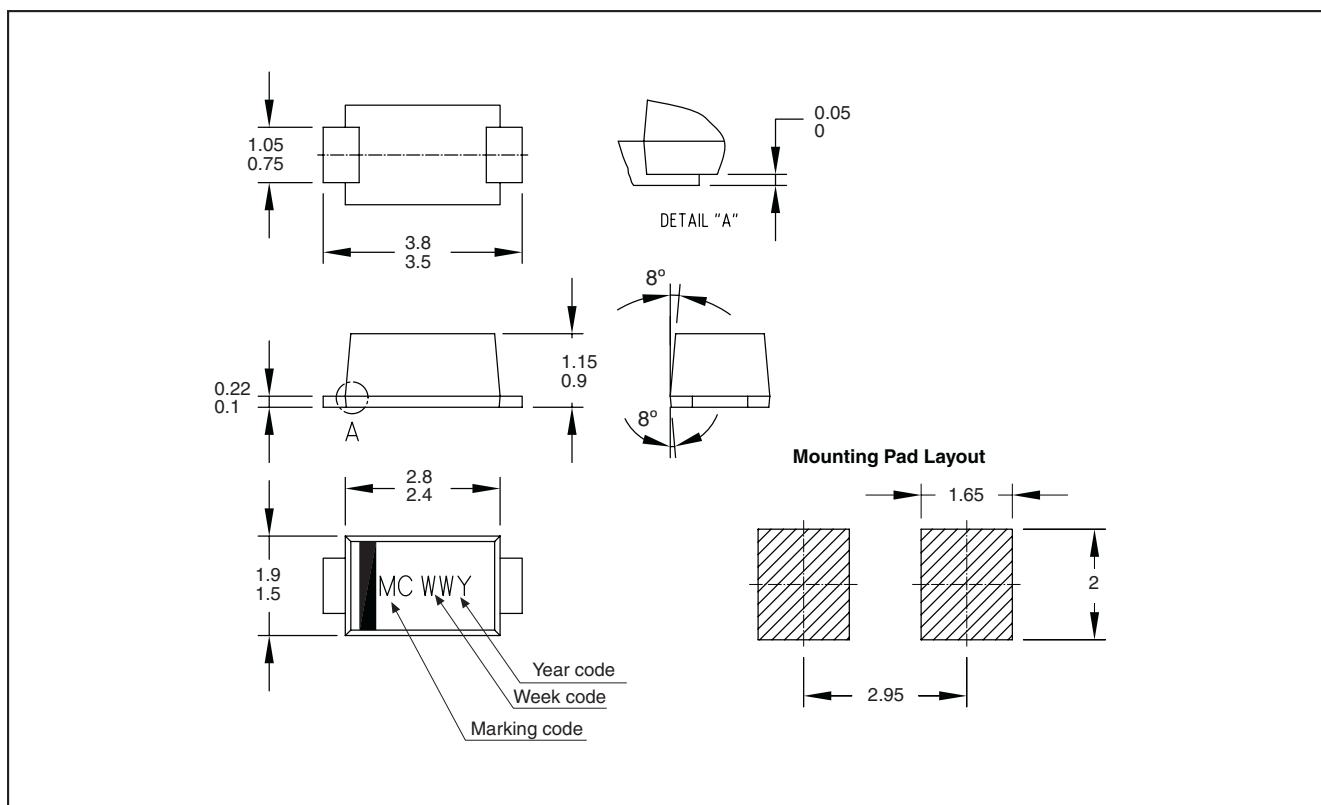
Symbol	Test Conditions	Min.	Max.	Typ.	Unit
trr	$I_F = 0.5\text{ A}$ , $di_F/dt = 100\text{ A}/\mu\text{s}$ , $I_{RR} = 1000\text{ mA}$		25		ns
ta				15	
tb				6	
tb/ta	Softness	0.45			
Qrr	$VR = 30\text{V}$ , $di_F/dt = 50\text{A}/\mu\text{s}$ , $I_F = 1\text{A}$			7	nC
	$VR = 30\text{V}$ , $di_F/dt = 50\text{A}/\mu\text{s}$ , $I_F = 2\text{A}$			8.5	
	$VR = 30\text{V}$ , $di_F/dt = 50\text{A}/\mu\text{s}$ , $I_F = 5\text{A}$			9.5	
	$VR = 30\text{V}$ , $di_F/dt = 50\text{A}/\mu\text{s}$ , $I_F = 15\text{A}$			10	
Qrr	$VR = 30\text{V}$ , $di_F/dt = 150\text{A}/\mu\text{s}$ , $I_F = 1\text{A}$			9	nC
	$VR = 30\text{V}$ , $di_F/dt = 150\text{A}/\mu\text{s}$ , $I_F = 2\text{A}$			15	
	$VR = 30\text{V}$ , $di_F/dt = 150\text{A}/\mu\text{s}$ , $I_F = 5\text{A}$			25	
	$VR = 30\text{V}$ , $di_F/dt = 150\text{A}/\mu\text{s}$ , $I_F = 15\text{A}$			30	

**1.0 Amp. Surface Mount Top Glass Passivated Ultrafast Very Soft Recovery Rectifier**

**Ordering information**

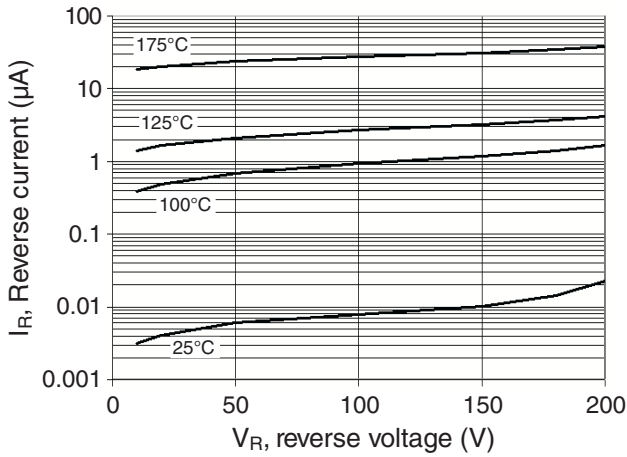
PREFERRED P/N	PACKAGE CODE	DELIVERY MODE	BASE QUANTITY	UNIT WEIGHT (g)
FES1DWSR TG TRTB	TRTB	13" diameter tape and reel	10,000	0.0196
FES1DWSR TG HE3 TRTB	TRTB	13" diameter tape and reel	10,000	0.0196

**Package Outline Dimensions: (mm) SOD123W**

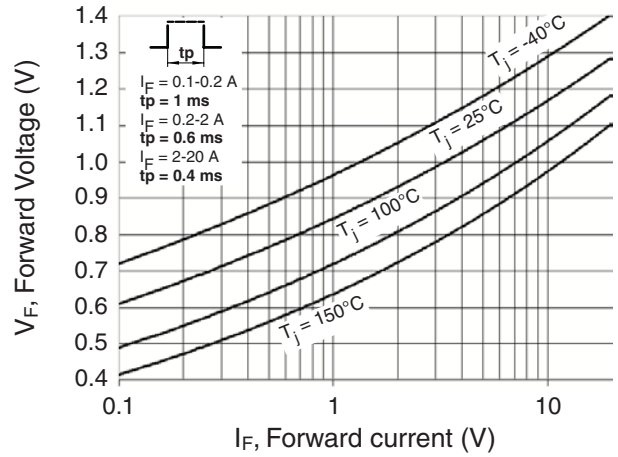


### 1.0 Amp. Surface Mount Top Glass Passivated Ultrafast Very Soft Recovery Rectifier

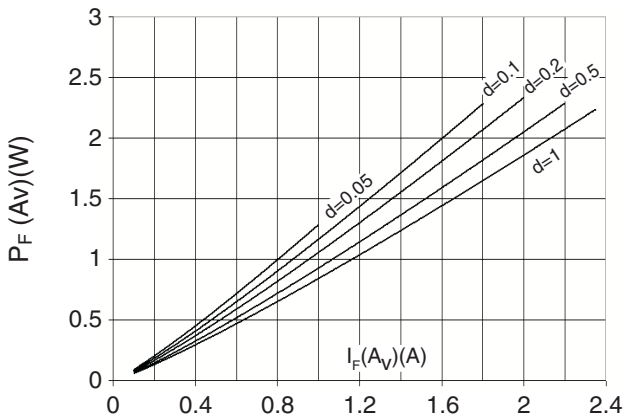
**Fig. 1 REVERSE CURRENT vs REVERSE VOLTAGE**



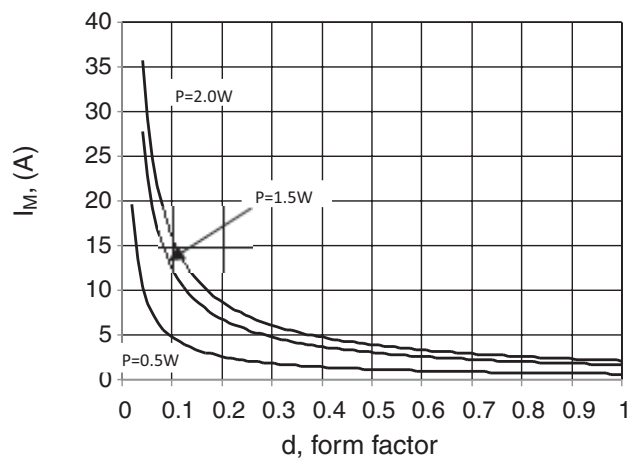
**Fig. 2 FORWARD VOLTAGE vs FORWARD CURRENT**



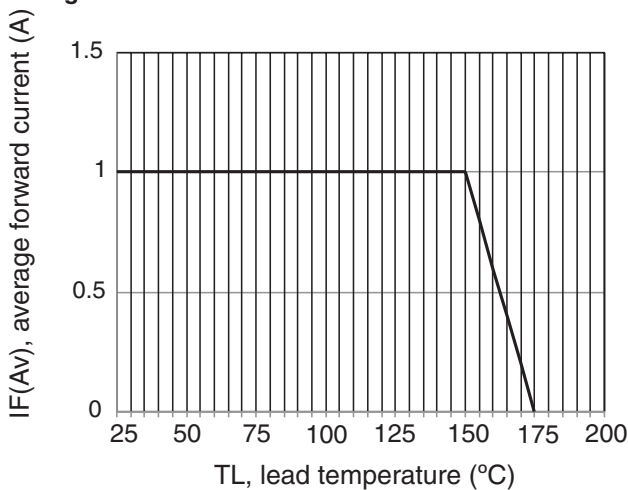
**Fig. 3 LOW FREQUENCY POWER LOSSES vs. AVERAGE CURRENT**



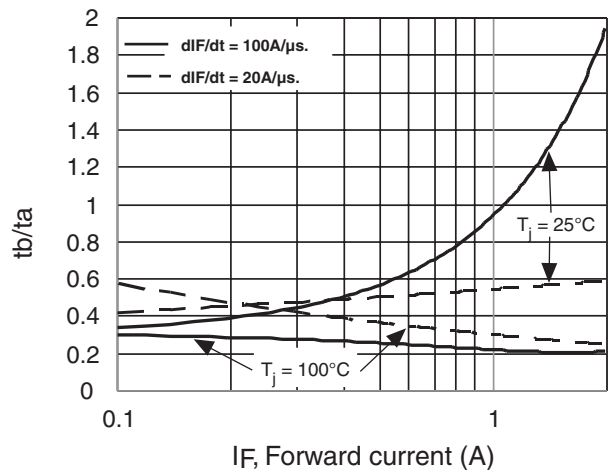
**Fig. 4 PEAK CURRENT vs. FORM FACTOR**



**Fig. 5 FORWARD CURRENT DERATING CURVE**

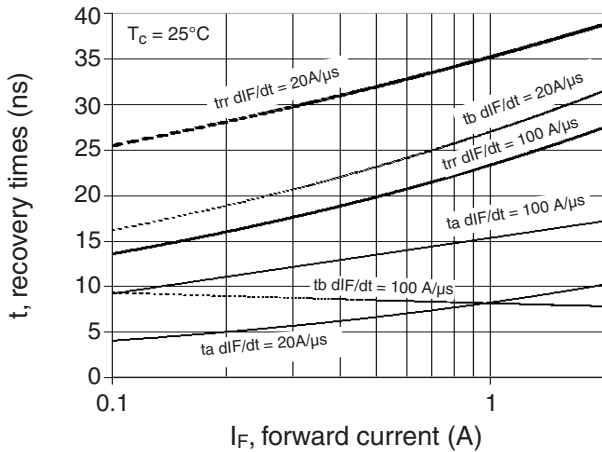


**Fig. 6  $t_b/t_a$  CURVES vs. FORWARD CURRENT**

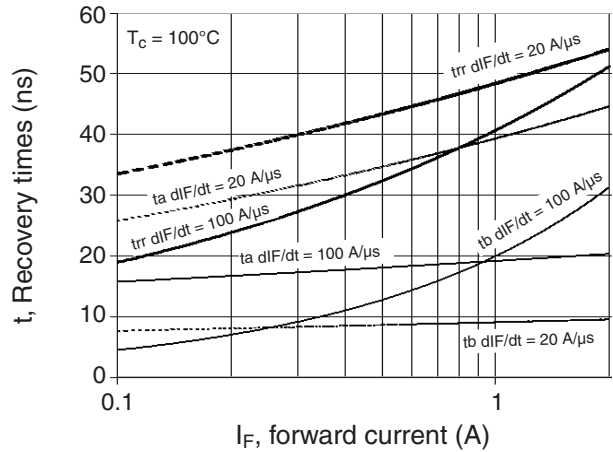


**1.0 Amp. Surface Mount Top Glass Passivated Ultrafast Very Soft Recovery Rectifier**

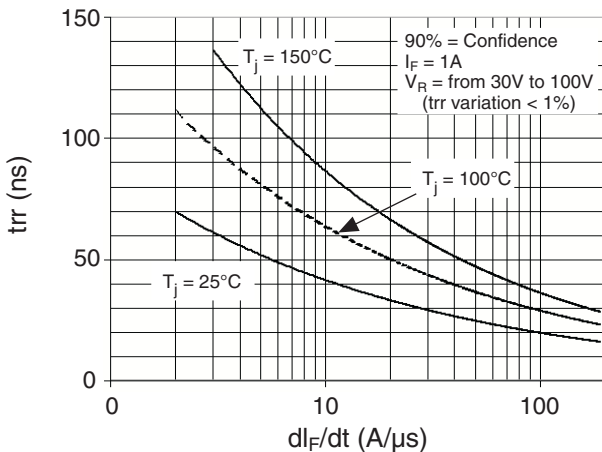
**Fig. 7  $t_{rr}$ ,  $t_a$  AND  $t_b$  CURVES vs FORWARD CURRENT.**  
 $T_c = 25^\circ C$



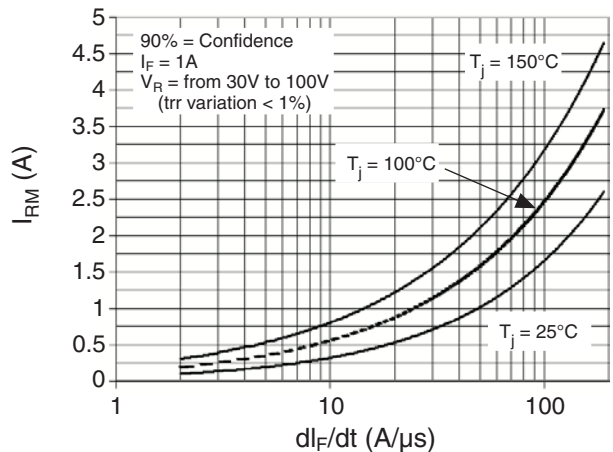
**Fig. 8  $t_{rr}$ ,  $t_a$  AND  $t_b$  CURVES vs FORWARD CURRENT.**  
 $T_c = 100^\circ C$



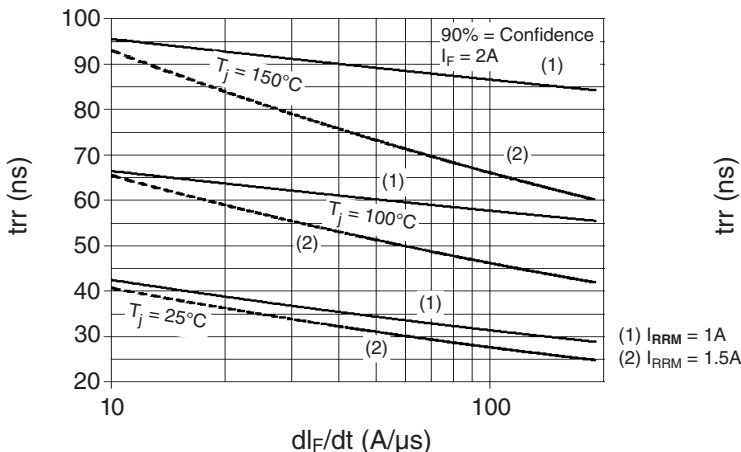
**Fig. 9 RECOVERY TIME vs  $dI_F/dt$**



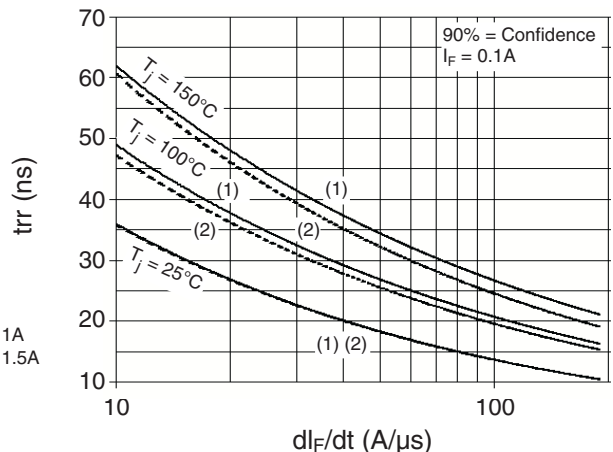
**Fig. 10 PEAK REVERSE CURRENT vs  $dI_F/dt$**



**Fig. 11  $t_{rr}$  vs  $dI_F/dt$ .  $I_F = 2 A$**

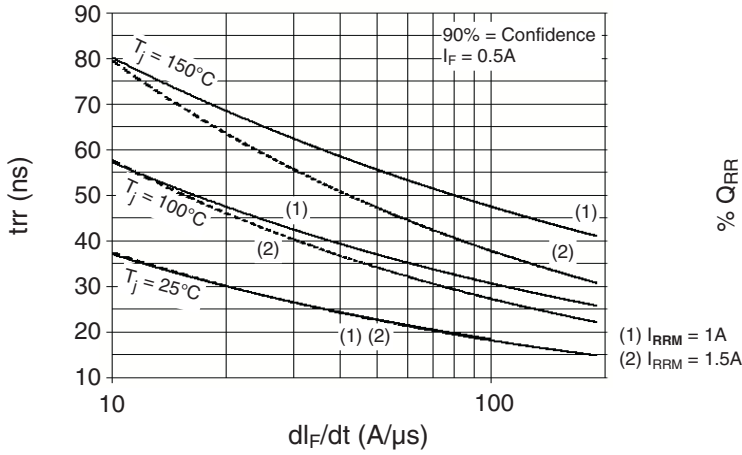


**Fig. 12  $t_{rr}$  vs  $dI_F/dt$ .  $I_F = 0.1 A$**

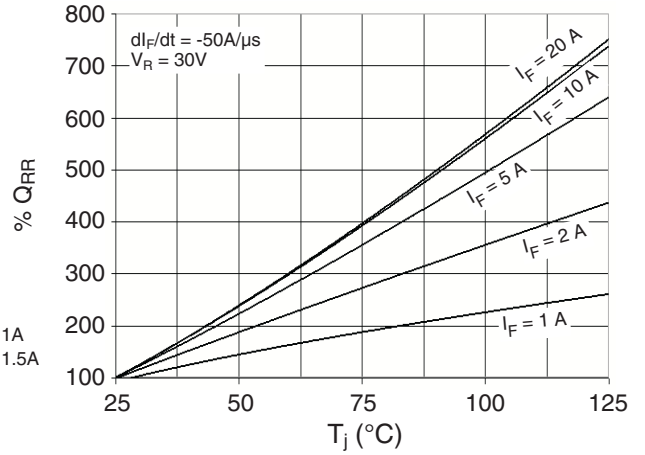


### 1.0 Amp. Surface Mount Top Glass Passivated Ultrafast Very Soft Recovery Rectifier

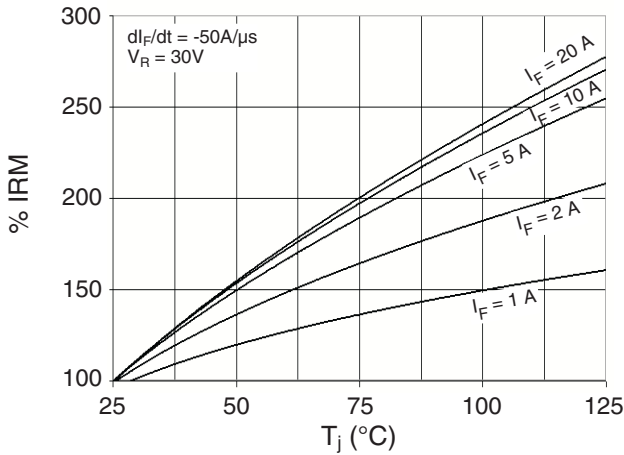
**Fig. 13 trr vs  $di_F/dt$ .  $I_F = 0.5$  A**



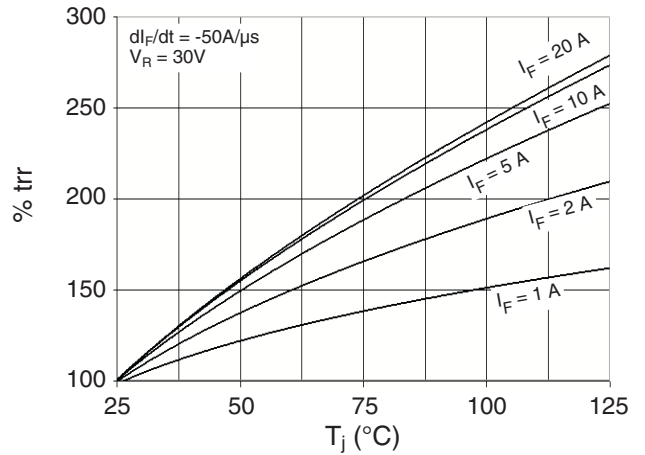
**Fig. 14 QRR vs JUNCTION TEMPERATURE**



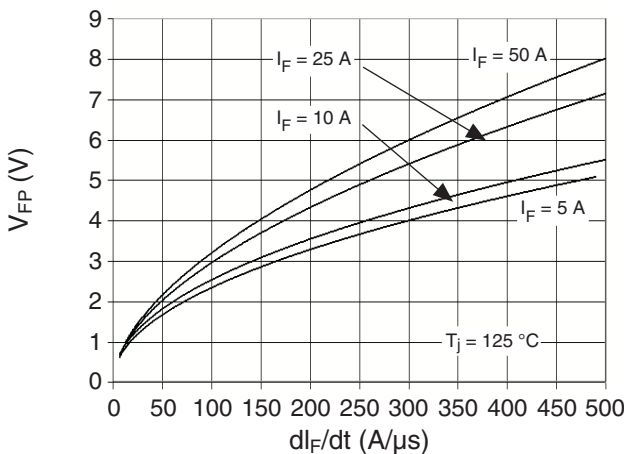
**Fig. 15 IRM vs JUNCTION TEMPERATURE**



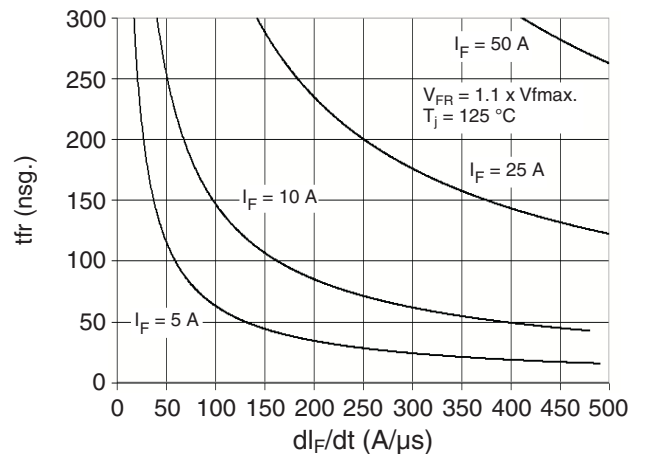
**Fig. 16 trr vs JUNCTION TEMPERATURE**



**Fig. 17 TRANSIENT PEAK FORWARD VOLTAGE vs  $di_F/dt$**

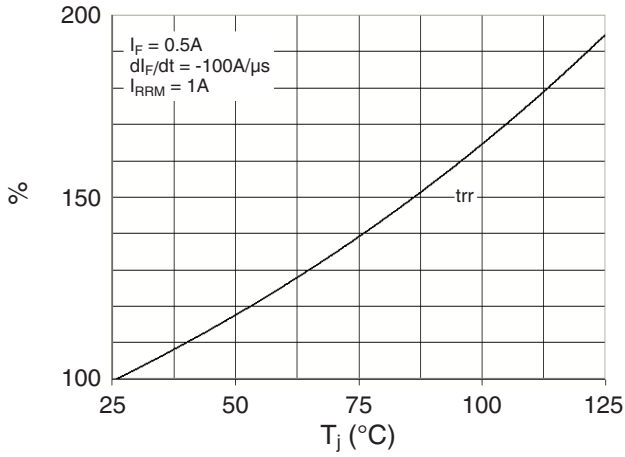


**Fig. 18 FORWARD RECOVERY TIME vs  $di_F/dt$**

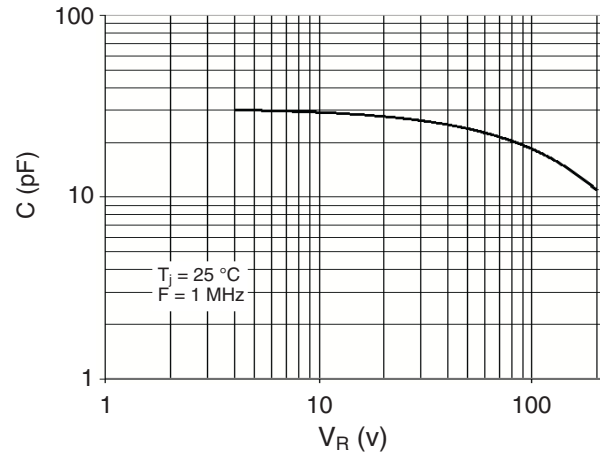


**1.0 Amp. Surface Mount Top Glass Passivated Ultrafast Very Soft Recovery Rectifier**

**Fig. 19 RECOVERY TIME vs JUNCTION TEMPERATURE**



**Fig. 20 JUNCTION CAPACITANCE vs. REVERSE BIAS**



**1.0 Amp. Surface Mount Top Glass Passivated Ultrafast Very Soft Recovery Rectifier**

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