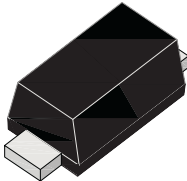





1.0 Amp. Surface Mount Top Glass Passivated Ultrafast Very Soft Recovery Rectifier

<p>SOD123W</p> 	<p>Voltage 200 V</p>	<p>Current 1.0 A</p>	
	<p>FEATURES</p> <ul style="list-style-type: none"> • Top-Glass Technology • Low profile package • Ideal for automated placement • Low power losses, high efficiency • High surge current capability • Cavity-free glass-passivated junction • Low forward voltage drop • Solder dip 260°C, 10s • Component in accordance to RoHS 2011/65/EU and WEEE 2002/96/EC • Meets MSL level 1, per J-STD-020, LF maximum peak of 260° C • Very soft recovery characteristics • Significantly reduced EMI. Very low Noise. 		   RoHS COMPLIANT
	<p>MECHANICAL DATA</p> <ul style="list-style-type: none"> • Case: SOD123W. Epoxy meets UL 94V-0 flammability rating. • Polarity: Color band denotes cathode end. • Terminals: 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. 		
<p>TYPICAL APPLICATIONS</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 μ A $T_j = 100\text{ °C}$ 10 μ A $T_j = 175\text{ °C}$ 100 μ A
C_j	Typical Junction Capacitance (1MHz; -4V)	15 pF
$R_{th(j-c)}$ $R_{th(j-a)}$	Typical Thermal Resistance (5x5 mm ² x 130 μ 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 ($T_j = 25\text{ }^\circ\text{C}$)

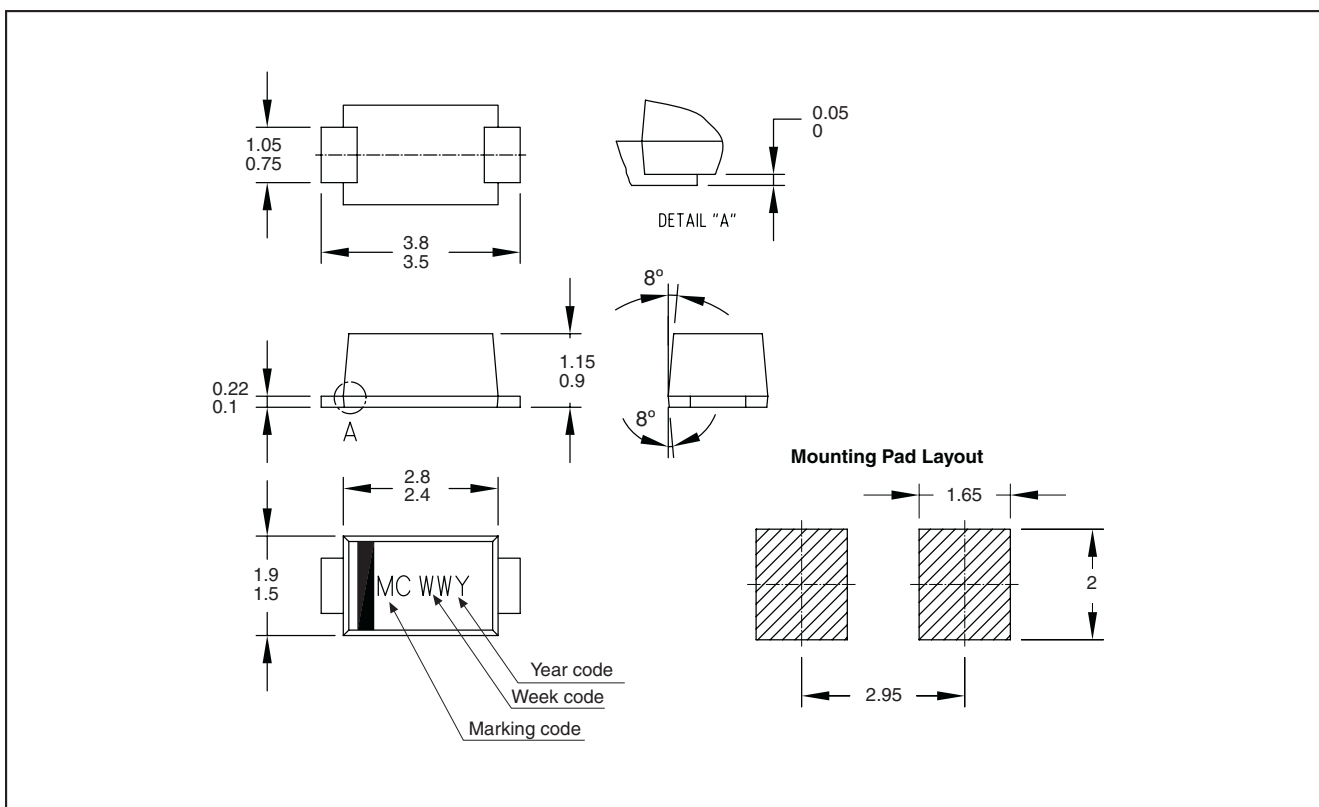
Symbol	Test Conditions	Min.	Max.	Typ.	Unit
trr	$I_F = 0.5\text{ A}$, $dI_F/dt = 100\text{ A}/\mu\text{s}$, $I_{RR} = 1000\text{ mA}$		25		ns
ta				15	
tb				6	
tb/ta	Softness	0.45			
Qrr	$VR = 30\text{V}$, $dI_F/dt = 50\text{A}/\mu\text{s}$, $I_F = 1\text{A}$			7	nC
	$VR = 30\text{V}$, $dI_F/dt = 50\text{A}/\mu\text{s}$,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

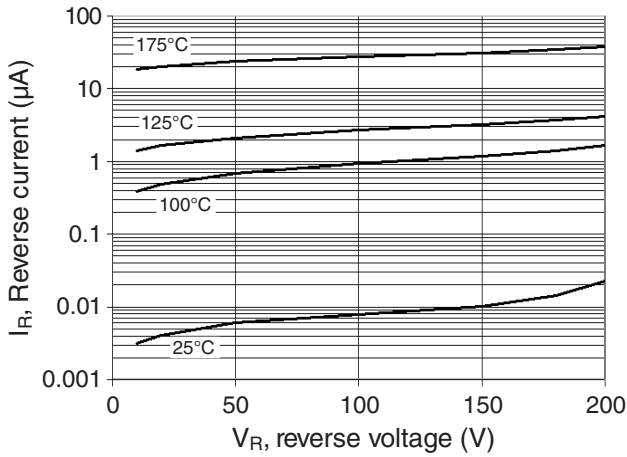


Fig. 2 FORWARD VOLTAGE vs FORWARD CURRENT

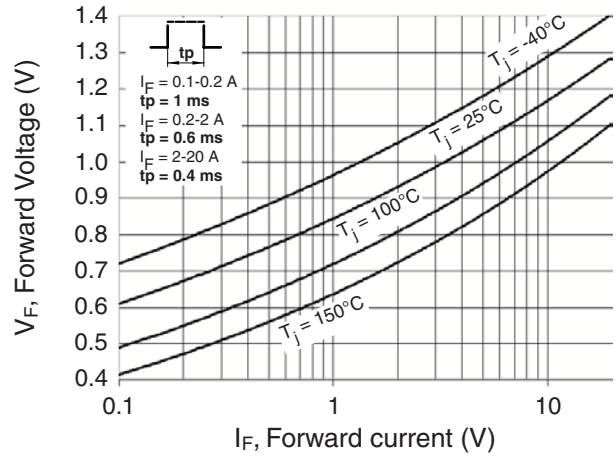


Fig. 3 LOW FREQUENCY POWER LOSSES vs. AVERAGE CURRENT

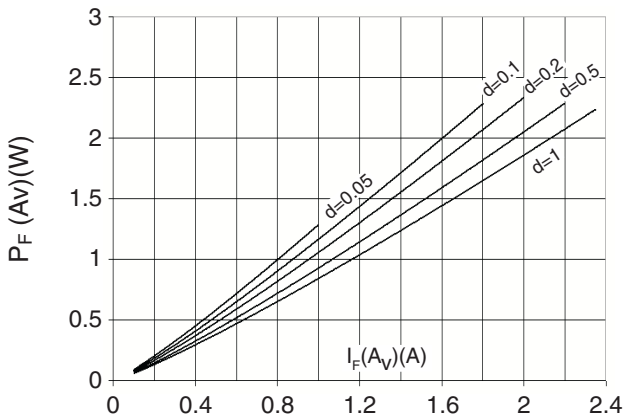


Fig. 4 PEAK CURRENT vs. FORM FACTOR

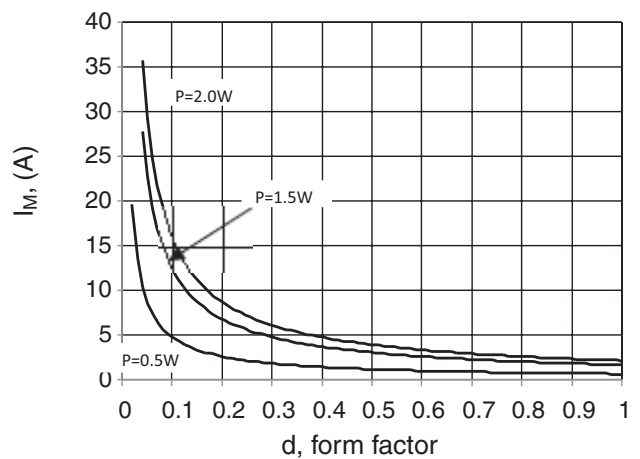


Fig. 5 FORWARD CURRENT DERATING CURVE

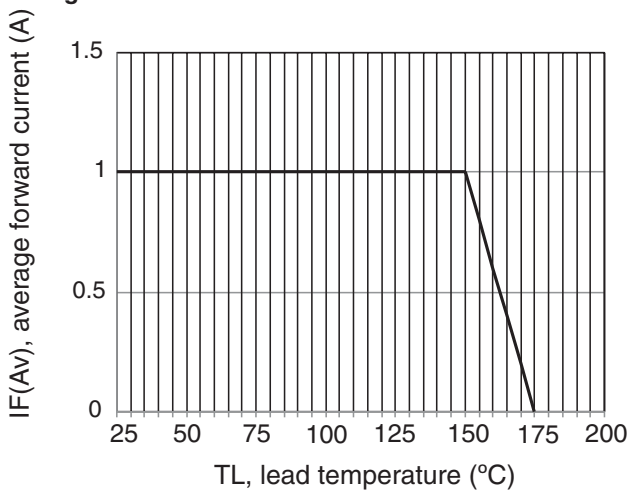
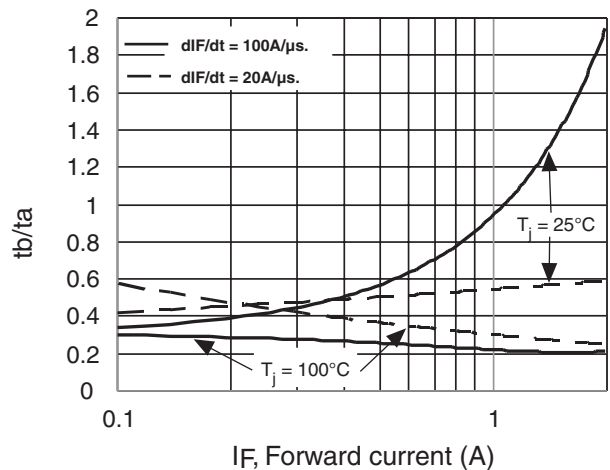


Fig. 6 tb/ta CURVES vs. FORWARD CURRENT



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.
 $T_c = 25^\circ C$

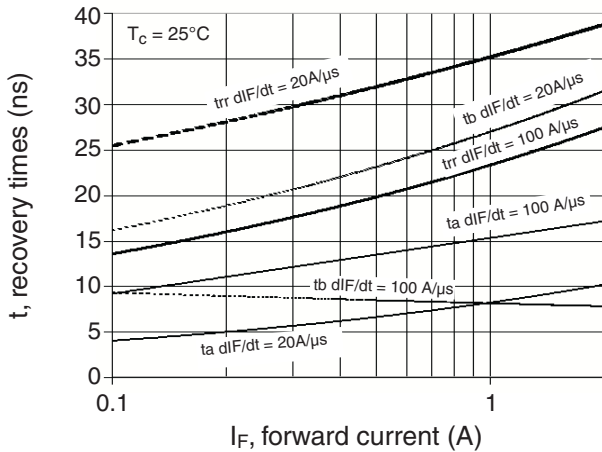


Fig. 8 t_{rr} , t_a AND t_b CURVES vs FORWARD CURRENT.
 $T_c = 100^\circ C$

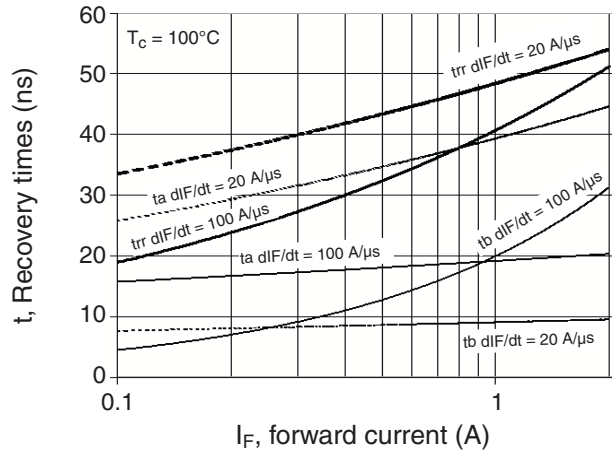


Fig. 9 RECOVERY TIME vs dI_F/dt

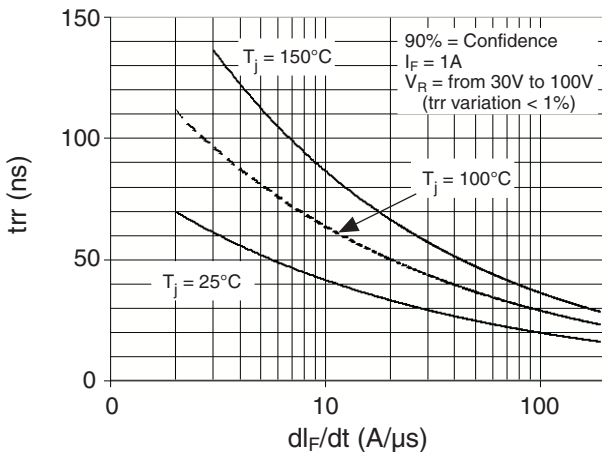


Fig. 10 PEAK REVERSE CURRENT vs dI_F/dt

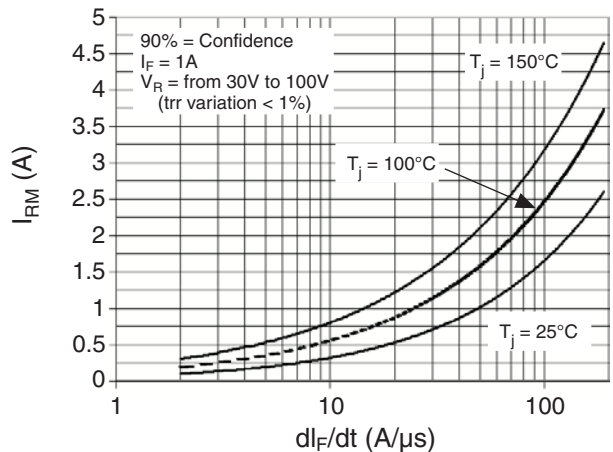


Fig. 11 t_{rr} vs dI_F/dt . $I_F = 2 A$

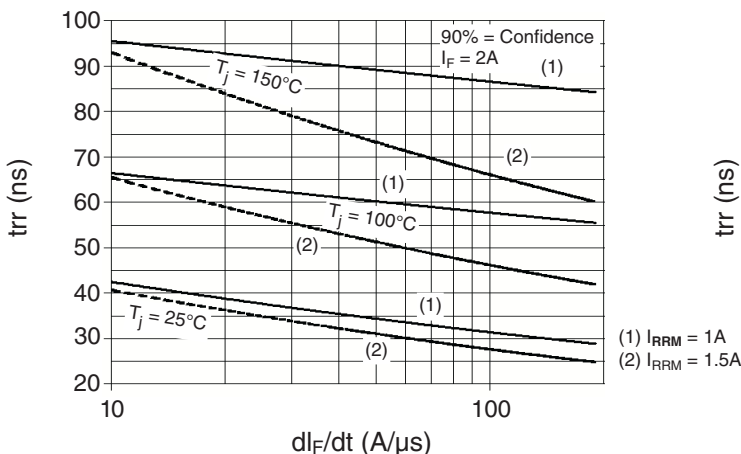
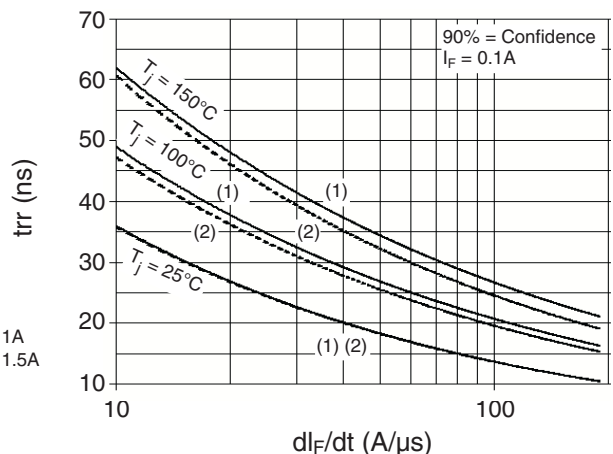


Fig. 12 t_{rr} vs dI_F/dt . $I_F = 0.1 A$



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

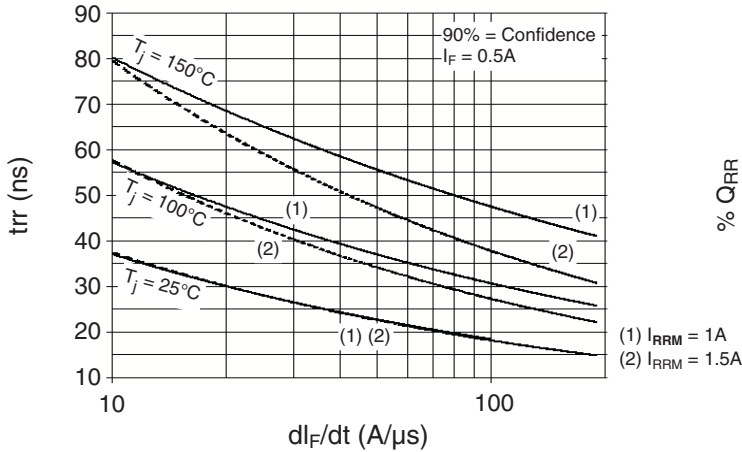


Fig. 14 QRR vs JUNCTION TEMPERATURE

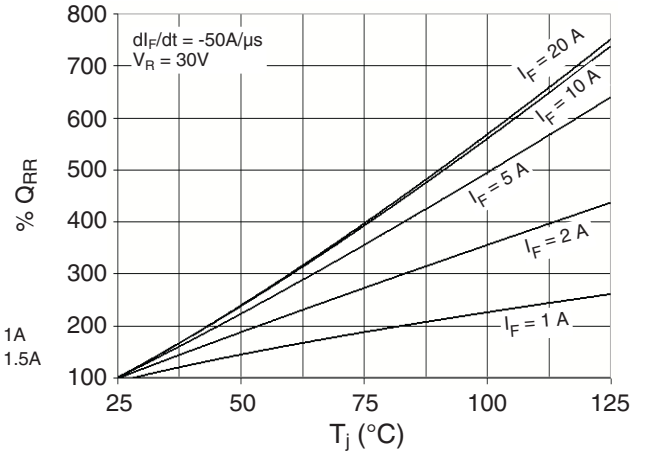


Fig. 15 IRM vs JUNCTION TEMPERATURE

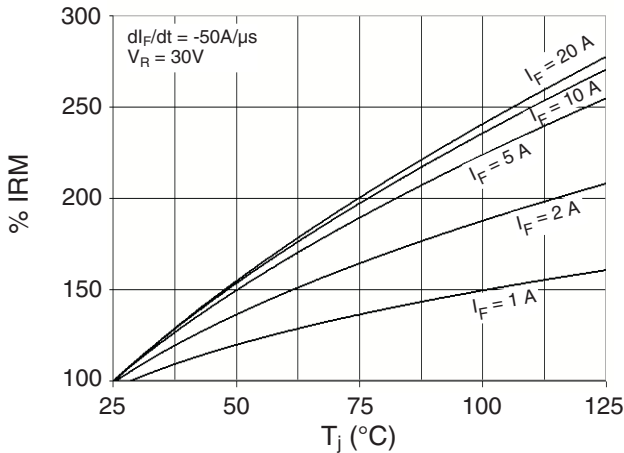


Fig. 16 trr vs JUNCTION TEMPERATURE

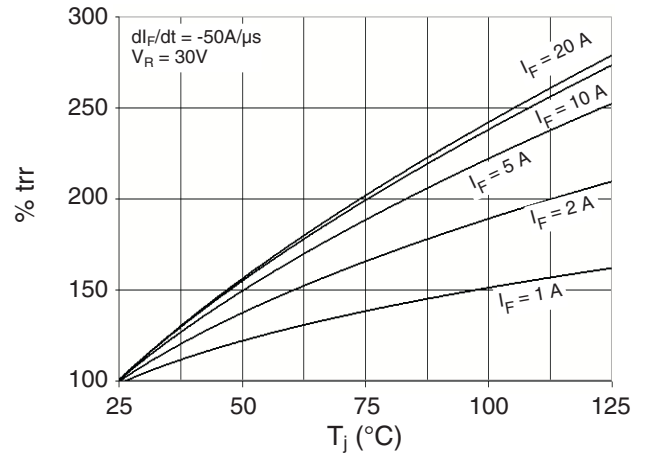


Fig. 17 TRANSIENT PEAK FORWARD VOLTAGE vs di_F/dt

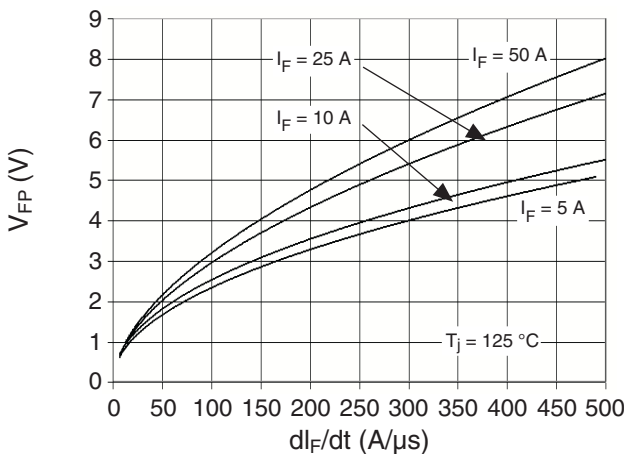
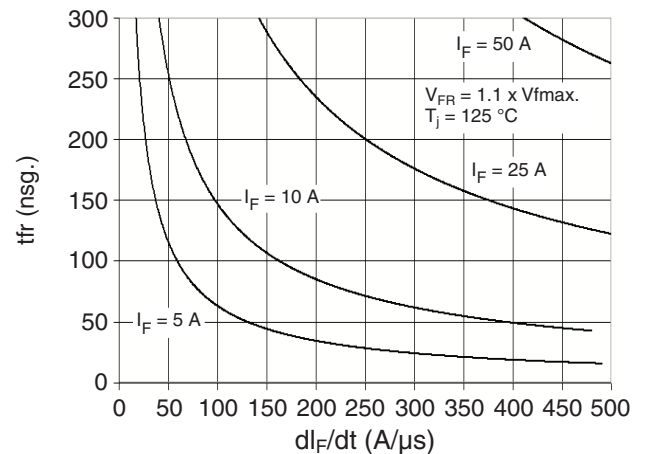


Fig. 18 FORWARD RECOVERY TIME vs di_F/dt



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

Fig. 19 RECOVERY TIME vs JUNCTION TEMPERATURE

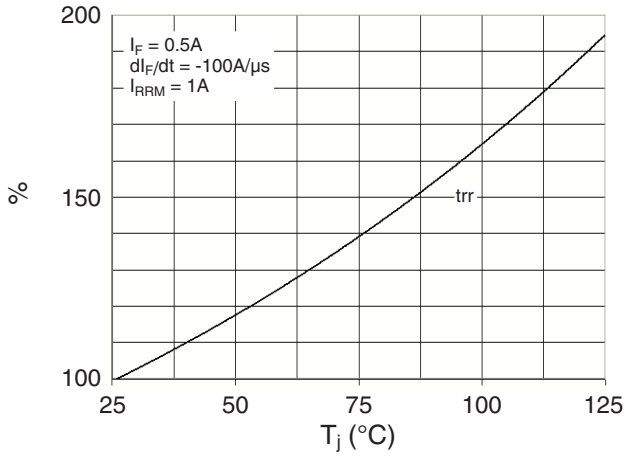
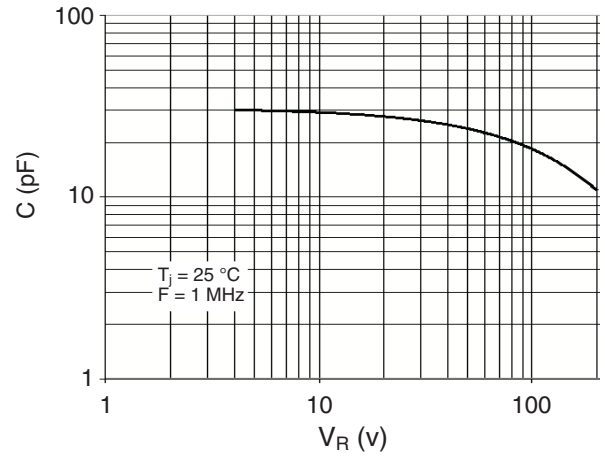


Fig. 20 JUNCTION CAPACITANCE vs. REVERSE BIAS



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

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