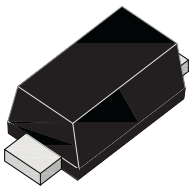
TENTATIVE DATA SHEET

FAGOR

FES1DWSR TG

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

SOD123W



Voltage	Current
200 V	1.0 A

FEATURES

- 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
- AEC-Q101 qualified
- 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.

AUTOMOTIVE GRADE Available

Pb

e3

RoHS COMPLIANT

MECHANICAL DATA

- **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, meets JESD 201 class 2 whisker test.

TYPICAL APPLICATIONS

Used in high frequency rectification and freewheeling application in switching mode converters and inverters for consumer, computer, automotive and telecommunication.

Maximum Ratings and Electrical Characteristics at 25 ºC

			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 °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	Tj = 25 ºC Tj = 100 ºC	0.90 V 0.75 V
I_R	Maximum DC Reverse Leakage Current. $V_R = V_{RRM}$	Tj = 25 ºC Tj = 100 ºC Tj = 175 ºC	5 µA 10 µA 100 µA
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

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Recovery Characteristics (T_j = 25 ºC)

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

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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

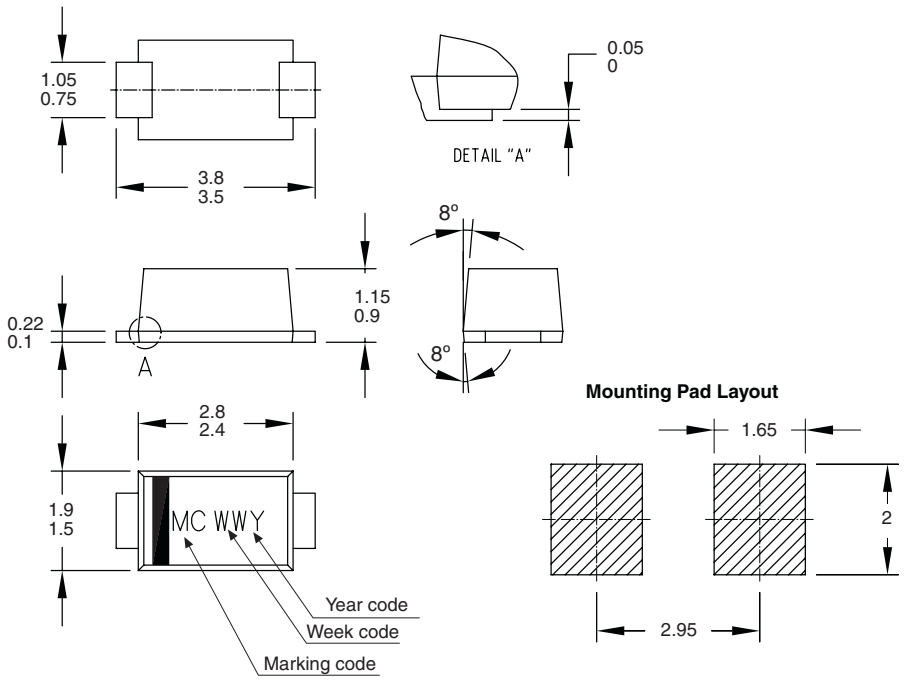

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Fig. 1 REVERSE CURRENT vs REVERSE VOLTAGE

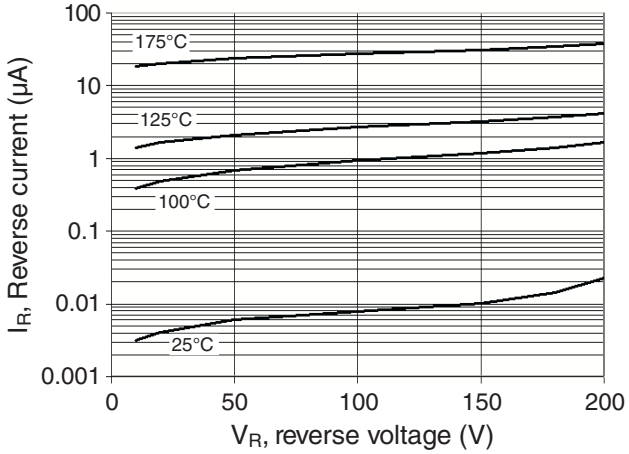

Fig. 2 FORWARD VOLTAGE vs FORWARD CURRENT

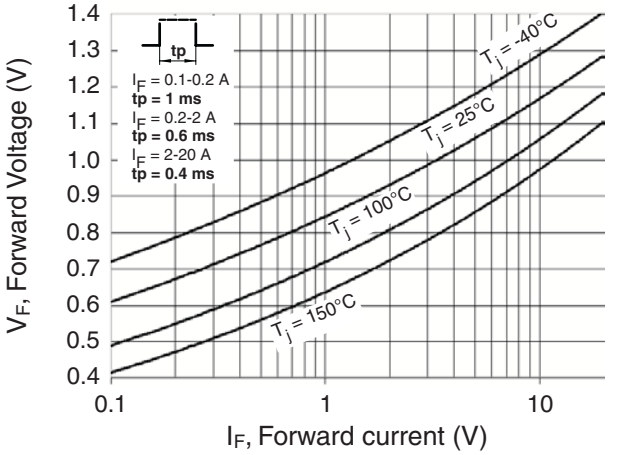

Fig. 3 LOW FREQUENCY POWER LOSSES vs. AVERAGE CURRENT

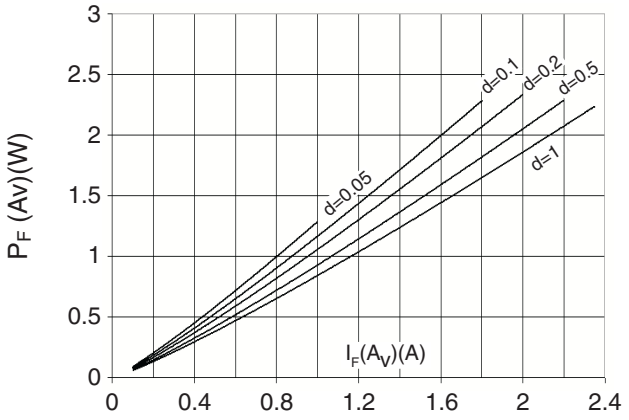

Fig. 4 PEAK CURRENT vs. FORM FACTOR

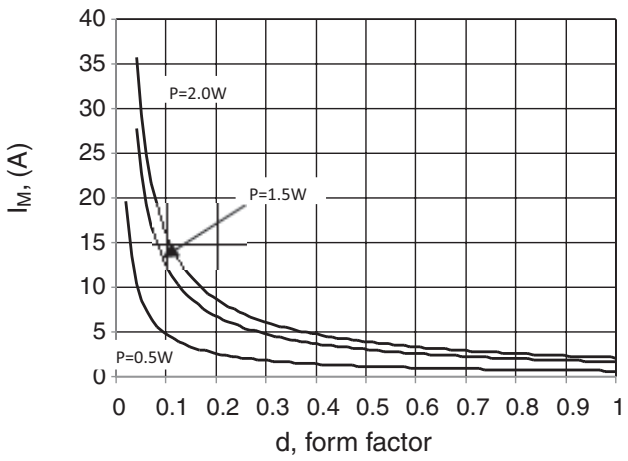

Fig. 5 FORWARD CURRENT DERATING CURVE

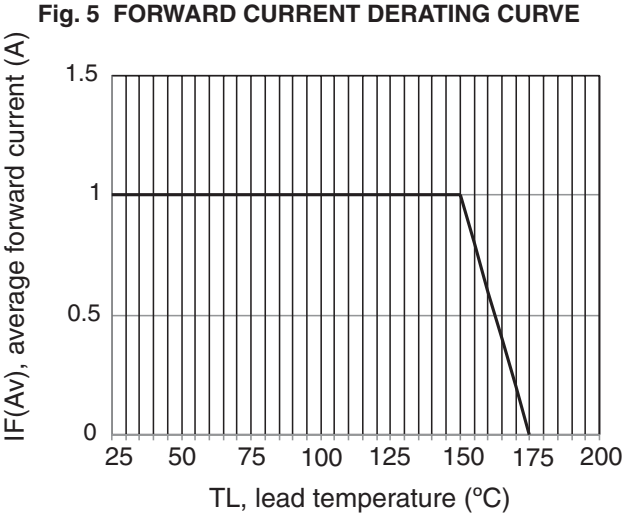

Fig. 6 tb/ta CURVES vs. FORWARD CURRENT

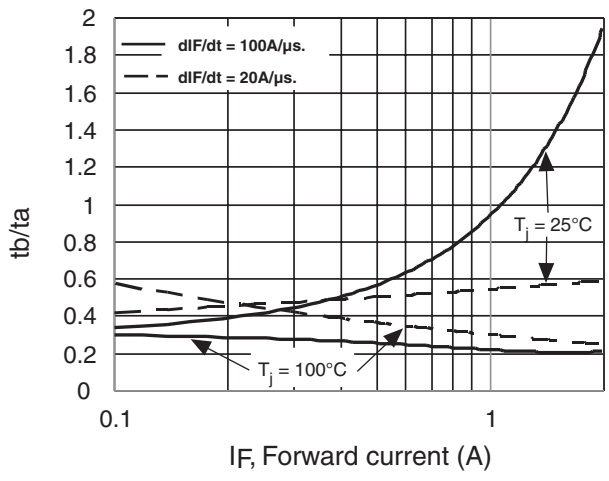

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Fig. 7 t_{rr}, t_a AND t_b CURVES vs FORWARD CURRENT. Tc = 25 °C

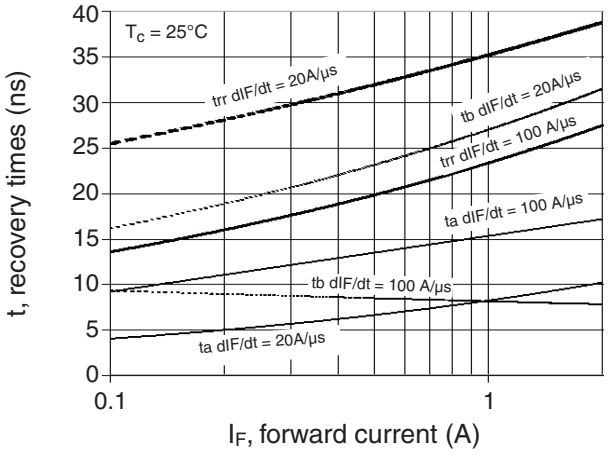

Fig. 8 t_{rr}, t_a AND t_b CURVES vs FORWARD CURRENT. T_C = 100 °C

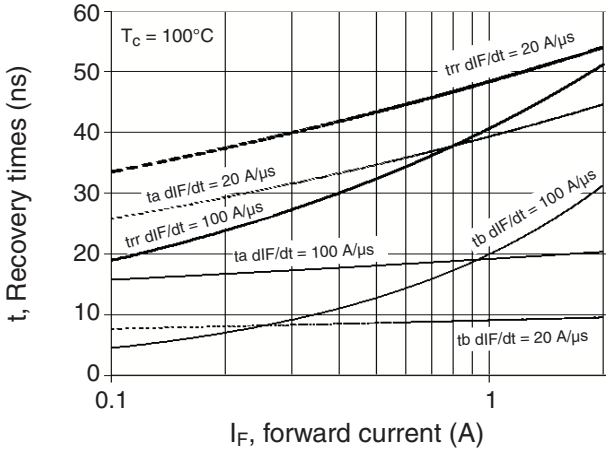

Fig. 9 RECOVERY TIME vs dI_F/dt

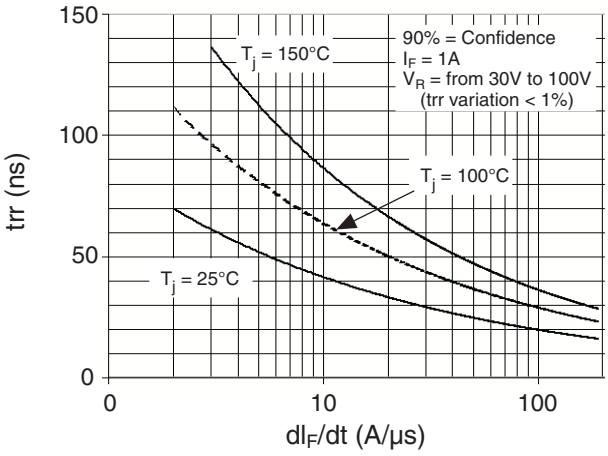

Fig. 10 PEAK REVERSE CURRENT vs dI_F/dt

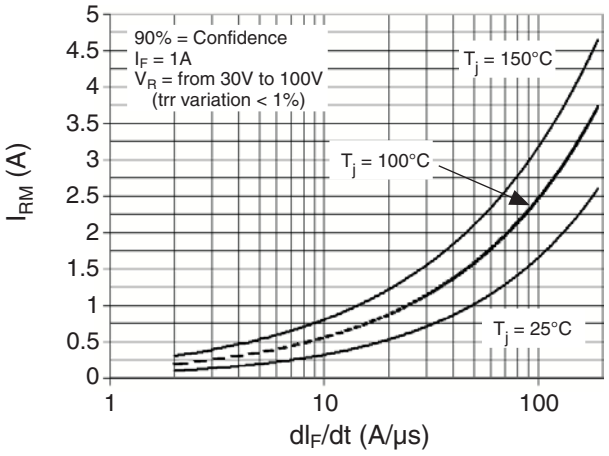

Fig. 11 trr vs dI_F/dt. I_F = 2 A

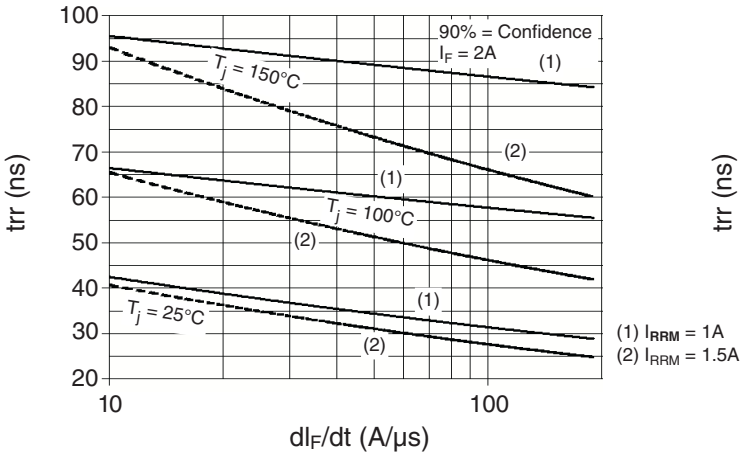

Fig. 12 trr vs dI_F/dt. I_F = 0.1 A

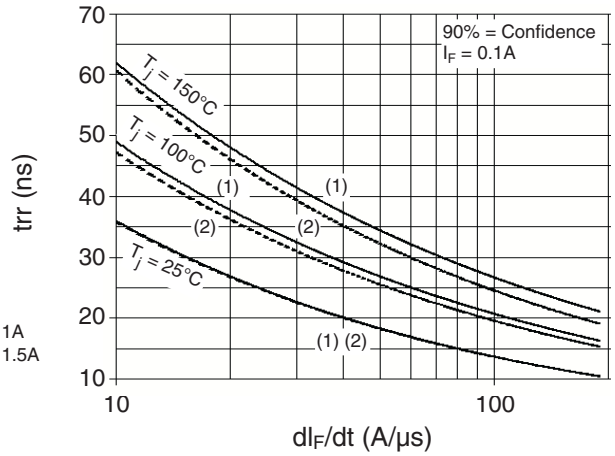

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Fig. 13 trr vs dI_F/dt. I_F = 0.5 A

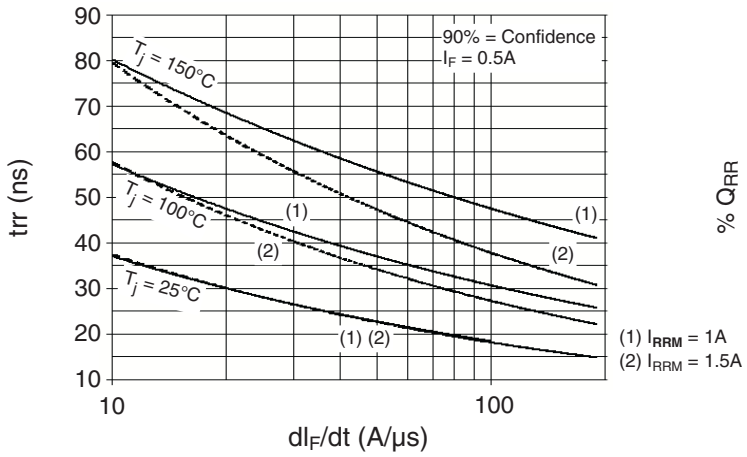

Fig. 14 QRR vs JUNCTION TEMPERATURE

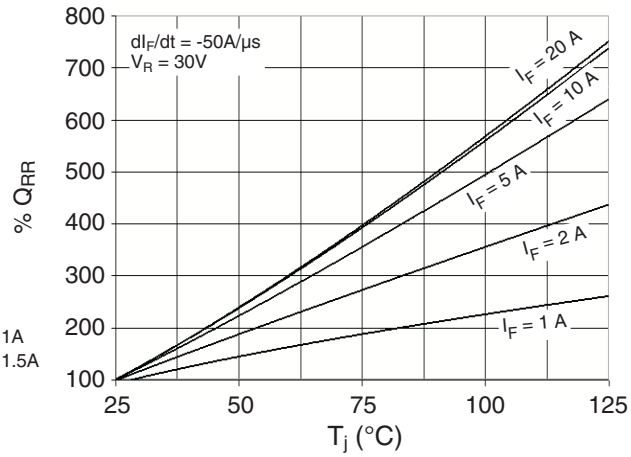

Fig. 15 IRM vs JUNCTION TEMPERATURE

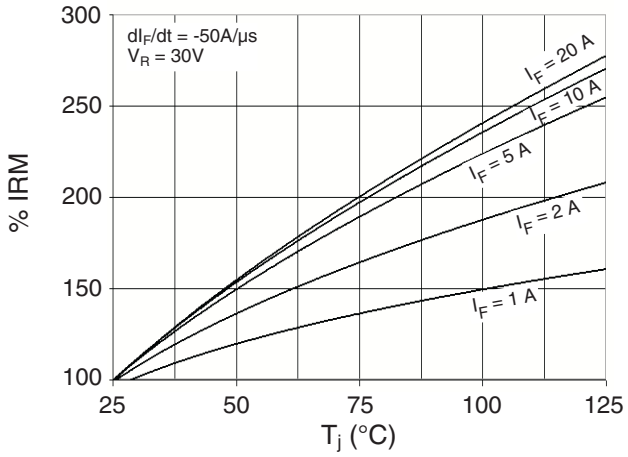

Fig. 16 trr vs JUNCTION TEMPERATURE

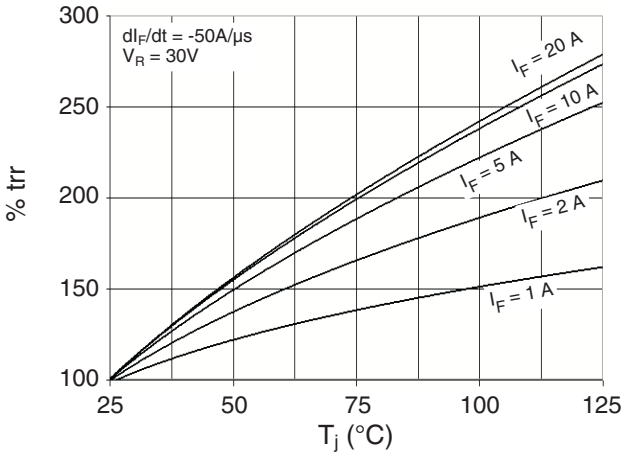

Fig. 17 TRANSIENT PEAK FORWARD VOLTAGE vs dI_F/dt

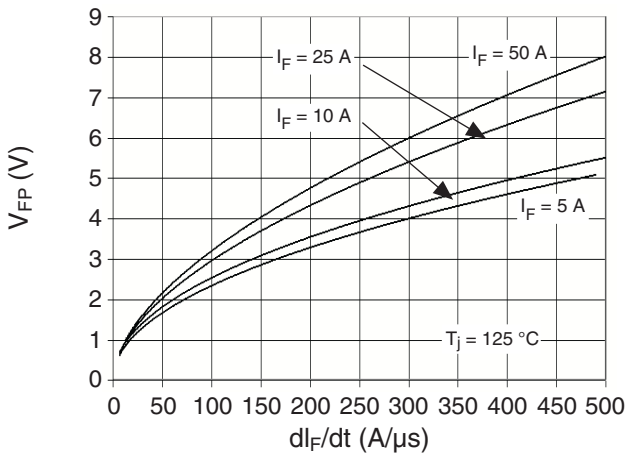

Fig. 18 FORWARD RECOVERY TIME vs dI_F/dt

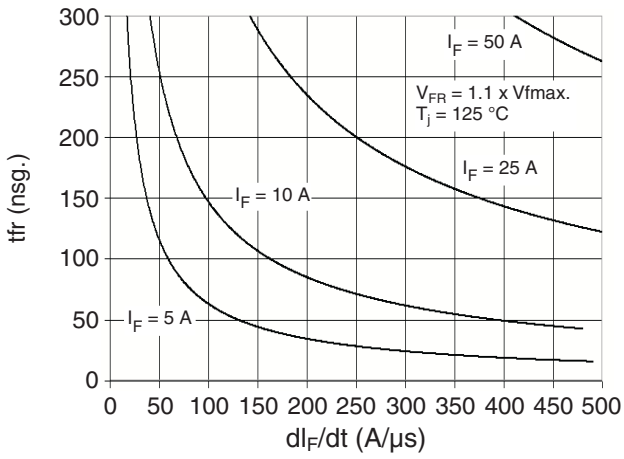

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Fig. 19 RECOVERY TIME vs JUNCTION TEMPERATURE

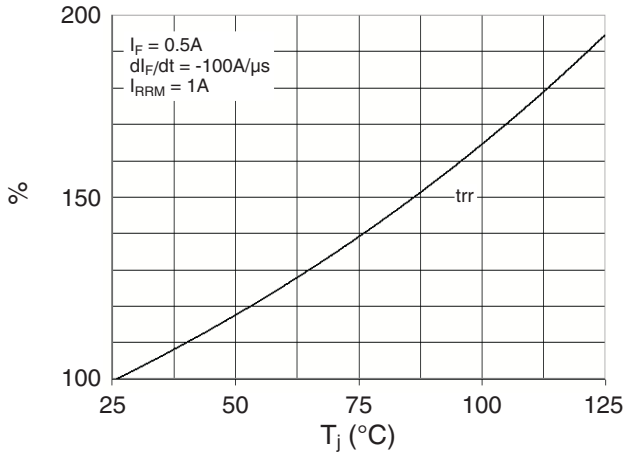
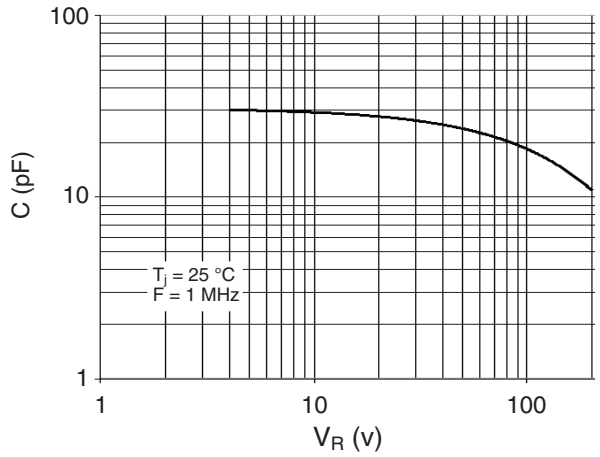


Fig. 20 JUNCTION CAPACITANCE vs. REVERSE BIAS



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