FAGOR

FES2DSR

2.0 Amp. Surface Mounted Passivated Ultrafast Very Soft Recovery Rectifier

DO-214AA (SMB)

Voltage	Current
200 V	2.0 A

FEATURES

- Glass Passivated Junction Technology
- Low profile package
- Ideal for automated placement
- Low power losses, high efficiency
- High surge current capability
- Cavity-free glass passivated junction
- Low forward voltaje drop
- Solder dip 260 ºC, 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 ºC
- Very soft recovery characteristics
- Significantly reduced EMI. Very low Noise.

AUTOMOTIVE GRADE Available

Pb

e3

RoHS COMPLIANT

MECHANICAL DATA

- **Case:** do-214AA (SMB). 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 frecuency rectification and freewheeling application in switching mode converters and inverters for consumer, computer, automotive and telecommunication.

Maximum Ratings and Electrical Characteristics at 25 °C

		FES2DSR
Marking Code		**VO**
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 at T_C = 110 ºC	2.0 A
I_{FSM}	Peak Forward Surge Current, 8.3 ms Single Half Sine-Wave Superimposed on Rated Load (JEDEC Method)	100 A
C_j	Typical Junction Capacitance (1MHz; -4V)	40 pF
$R_{th\ (j-c)}$ $R_{th\ (j-a)}$	Typical Thermal Resistance (5x5 mm² x 130 µ Cooper Area)	20 ºC/W 60 ºC/W
T_j - T_{stg}	Operating Juction and Storage Temperature Range	- 65 to + 175 ºC

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Static Electrical Characteristics

Symbol	Parameter	Test Conditions	Max.	Unit
V_F	Max. Instantaneous Forward Voltage	T_j = 25 ºC I_F = 2.0 A	0.90	V
		T_j = 100 ºC I_F = 2.0 A	0.75	
		T_j = 25 ºC I_F = 0.7 A	0.80	
I_R	Max. DC Reverse Leakage Current	T_j = 25 ºC V_R = V_{RR}	5	µA
		T_j = 100 ºC V_R = V_{RR}	10	
		T_j = 175 ºC V_R = V_{RR}	100	

Recovery Characteristics (Tj = 25 °C)

Symbol	Test Conditions	Min.	Max.	Typ.	Unit
trr	I_F = 0.5 A , dI_F/dt = 100 A/µs, Irr = 1000 mA		25		ns
ta				15	
tb				6	
tb/ta	Softness	0.45			

Qrr	VR = 30V, dIF/dt = 50 A/µs, I_F = 1A			15	nC
	VR = 30V, dIF/dt = 50 A/µs, I_F = 2A			20	
	VR = 30V, dIF/dt = 50 A/µs, I_F = 5A			25	
	VR = 30V, dIF/dt = 50 A/µs, I_F = 20A			60	

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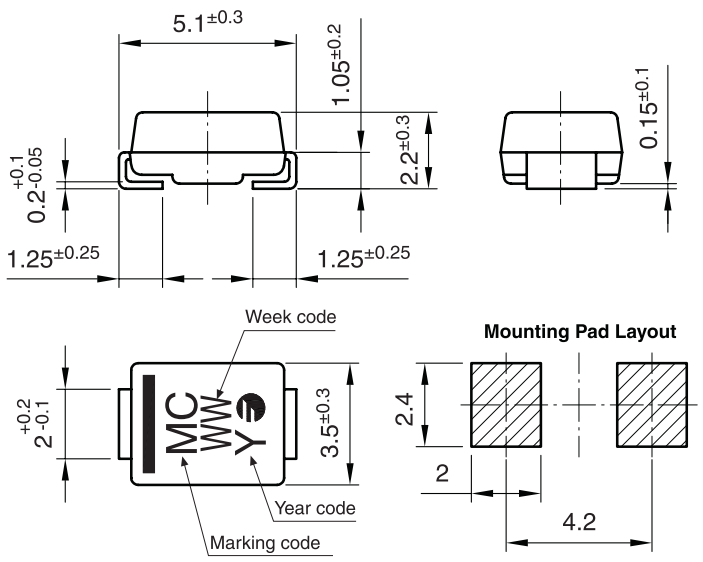
Ordering information

PREFERRED P/N	PACKAGE CODE	DELIVERY MODE	BASE QUANTITY	UNIT WEIGHT (g)
FES2DSR TRTB	TRTB	13” diameter tape and reel	3,200	0.0823
FES2DSR HE3 TRTB	TRTB	13” diameter tape and reel	3,200	0.0823

Package Outline Dimensions: (mm) DO- 214AA (SMB)



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Ratings and Characteristics (Ta 25ºC unless otherwise noted)

Fig. 1 REVERSE CURRENT vs REVERSE VOLTAGE

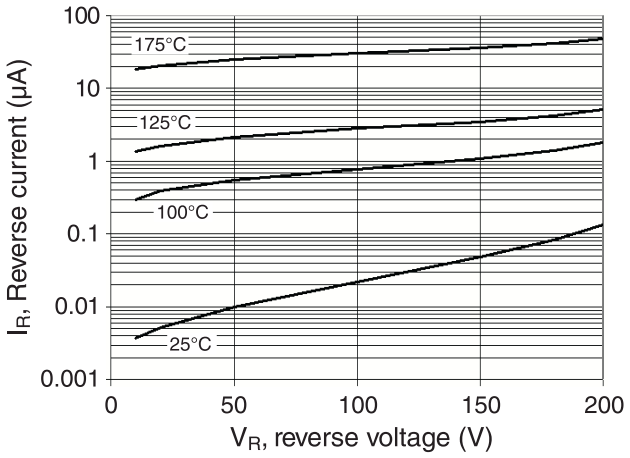

Fig. 2 FORWARD VOLTAGE vs FORWARD CURRENT

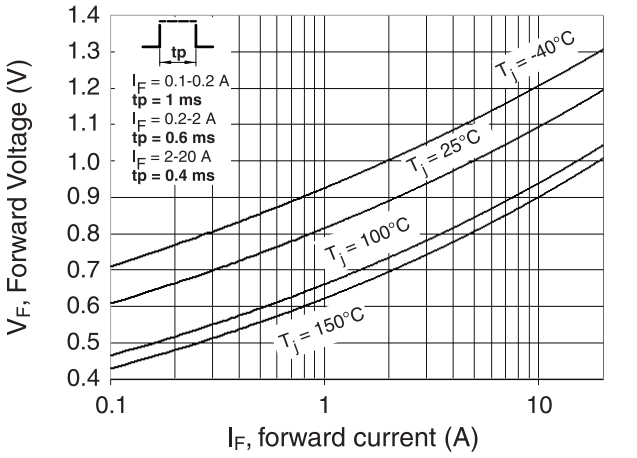

Fig. 3 LOW FREQUENCY POWER LOSSES vs. AVERAGE CURRENT

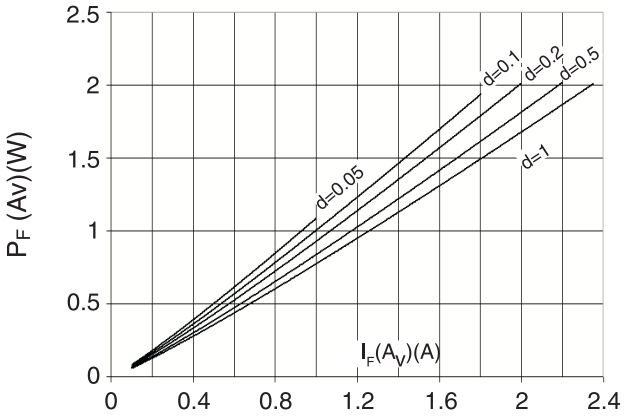

Fig. 4 PEAK CURRENT vs. FORM FACTOR

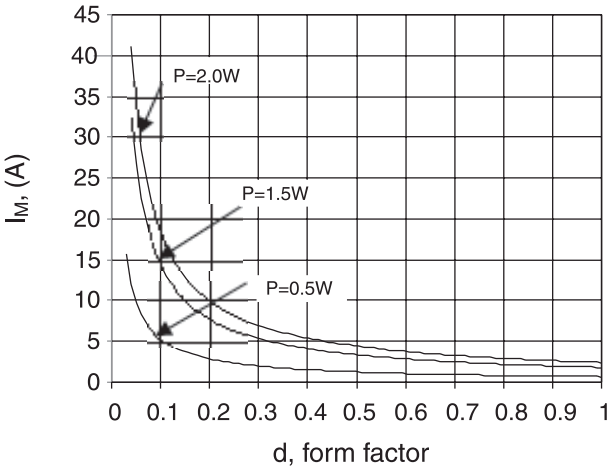

Fig. 5 RELATIVE VARIATION OF THERMAL IMPEDANCE TO AMBIENT vs. PULSE

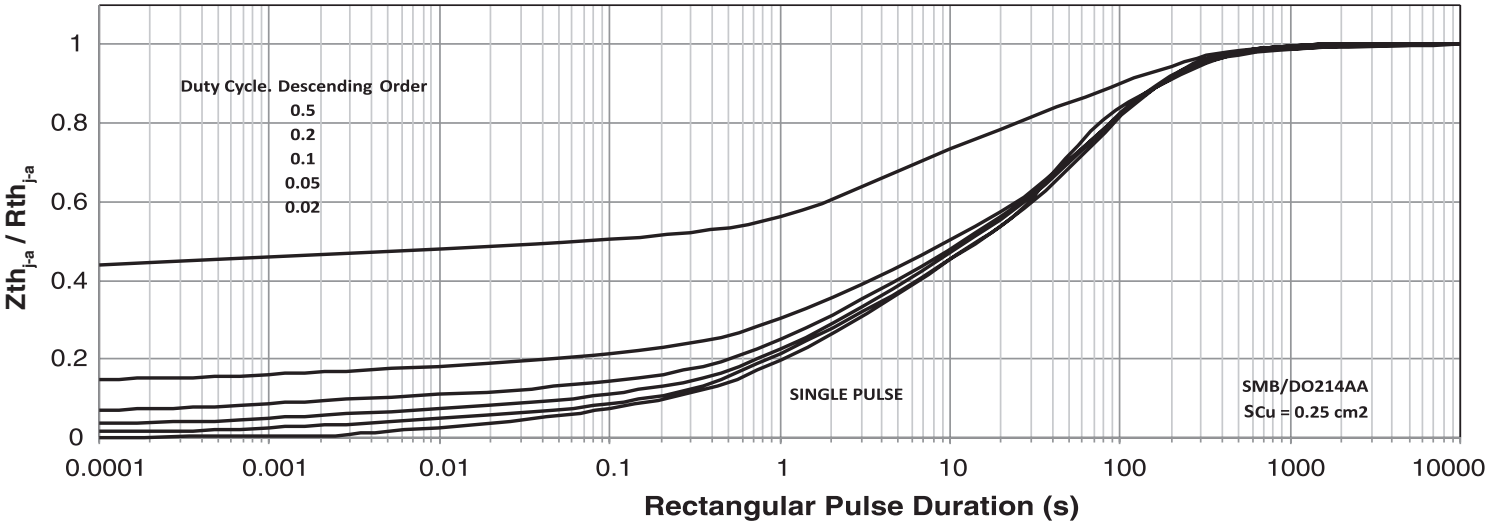

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Fig. 6 FORWARD CURRENT DERATING CURVE

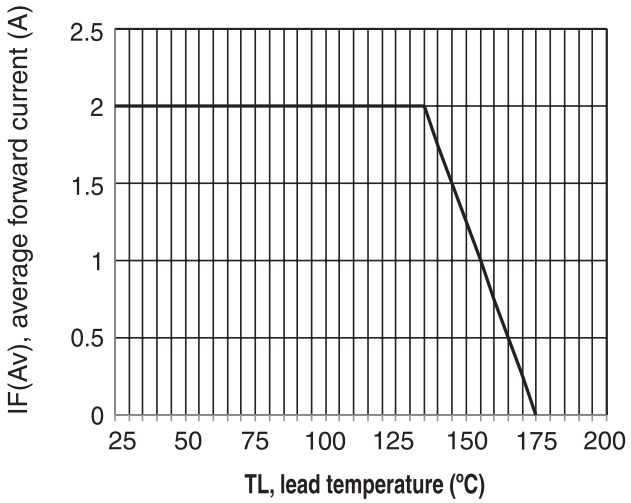

Fig. 7 tb/ta CURVES vs. FORWARD CURRENT

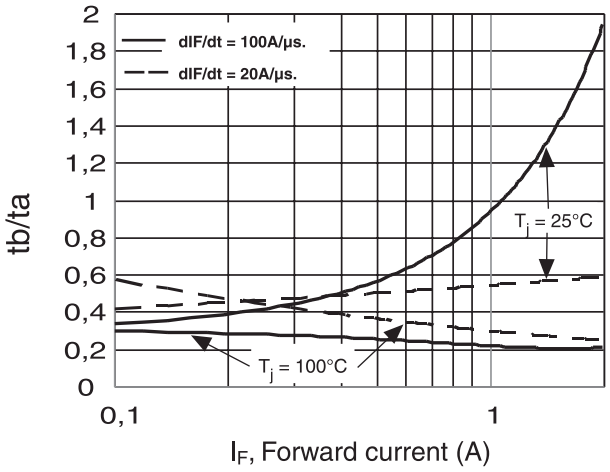

Fig. 8 t_{rr}, t_a AND t_b CURVES vs FORWARD CURRENT. Tc = 25 °C

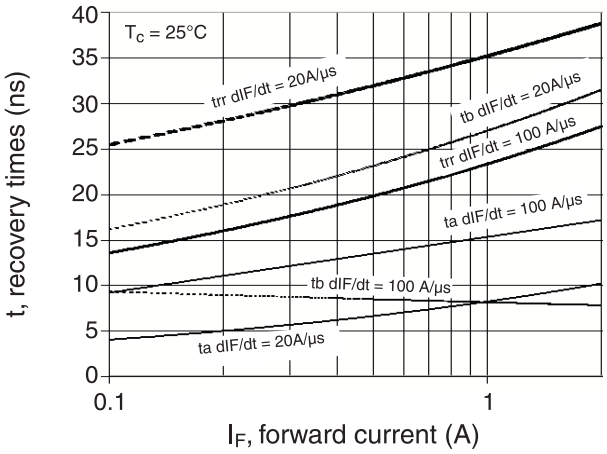

Fig. 9 t_{rr}, t_a AND t_b CURVES vs FORWARD CURRENT. Tc = 100 °C

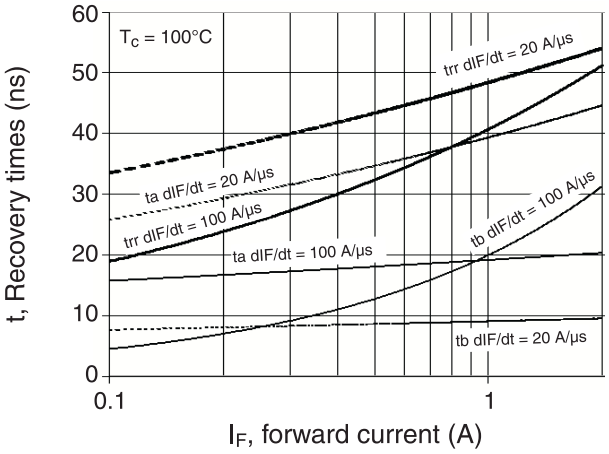

Fig. 10 RECOVERY TIME vs dI_F/dt

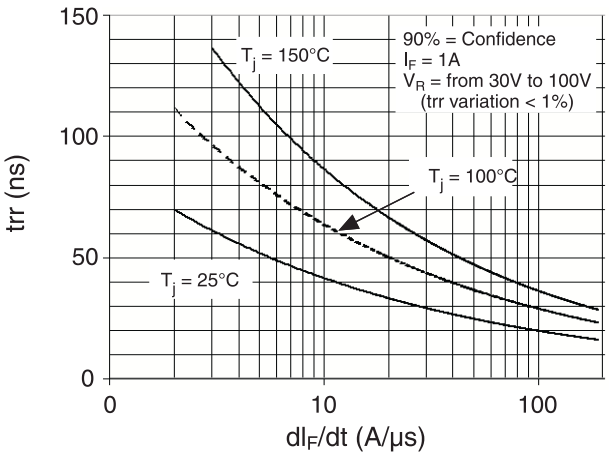

Fig. 11 PEAK REVERSE CURRENT vs dI_F/dt

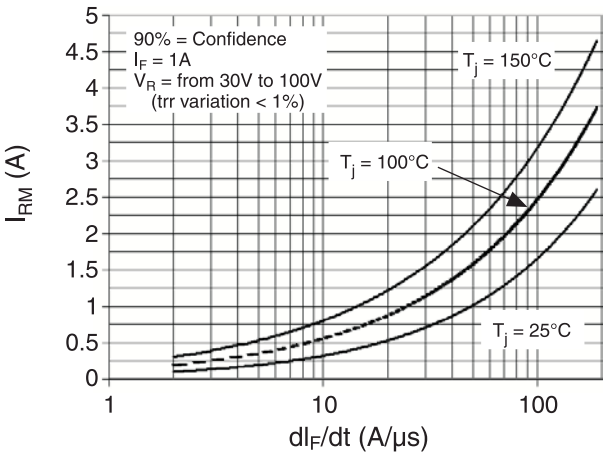

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Fig. 12 trr vs dI_F/dt. I_F = 2 A

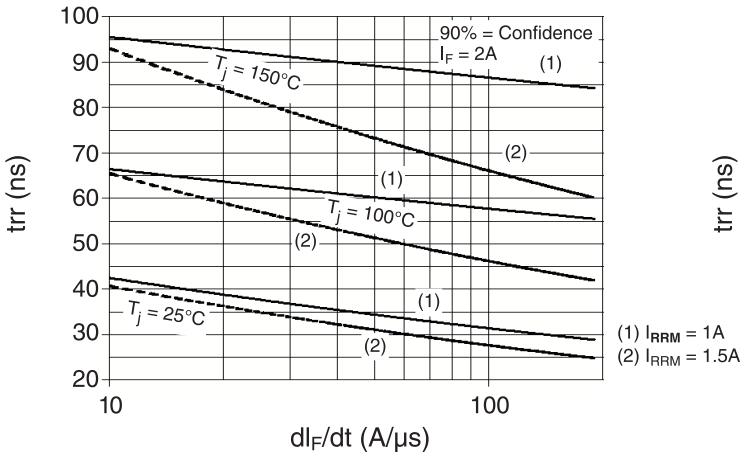

Fig. 13 trr vs dI_F/dt. I_F = 0.1 A

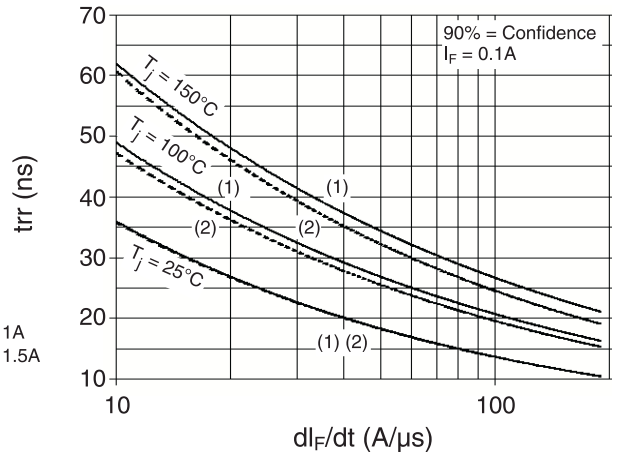

Fig. 14 trr vs dI_F/dt. I_F = 0.5 A

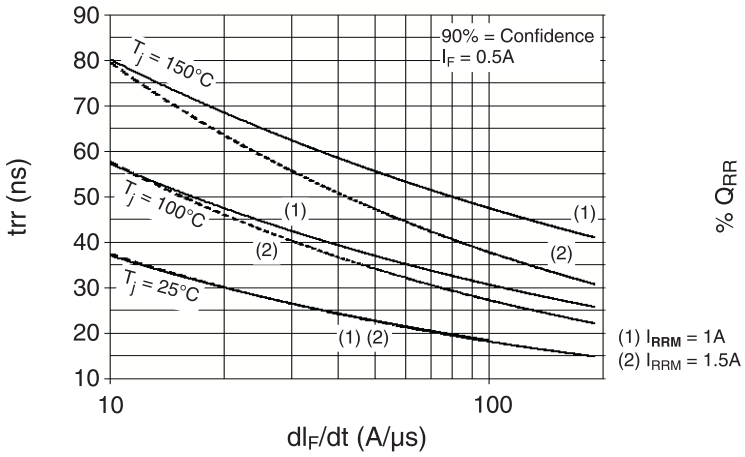

Fig. 15 QRR vs JUNCTION TEMPERATURE

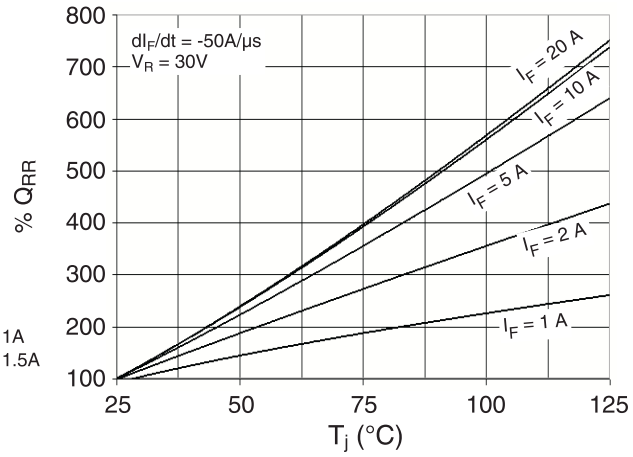

Fig. 16 IRM vs JUNCTION TEMPERATURE

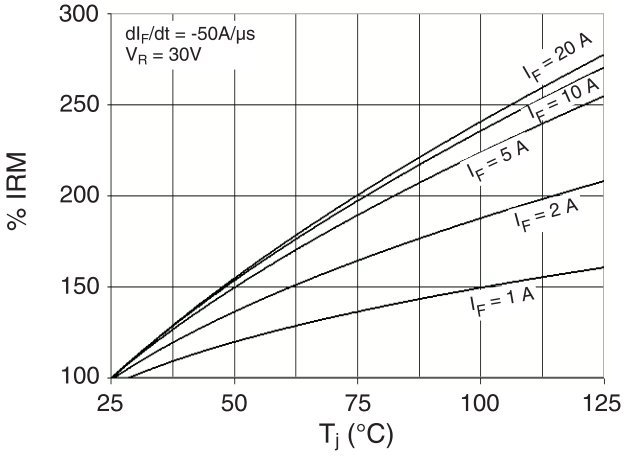

Fig. 17 trr vs JUNCTION TEMPERATURE

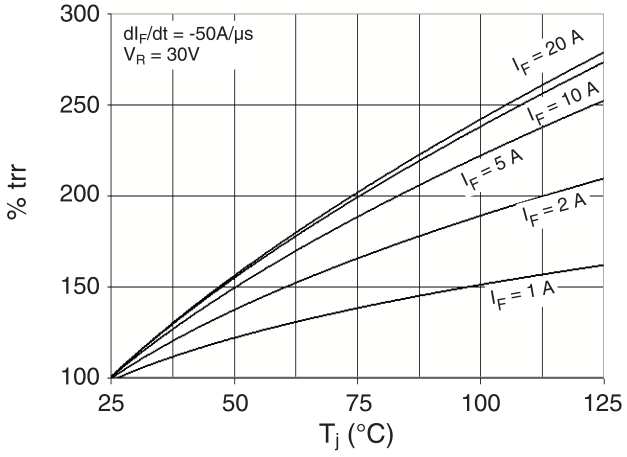

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Fig. 18 TRANSIENT PEAK FORWARD VOLTAGE vs dI_F/dt

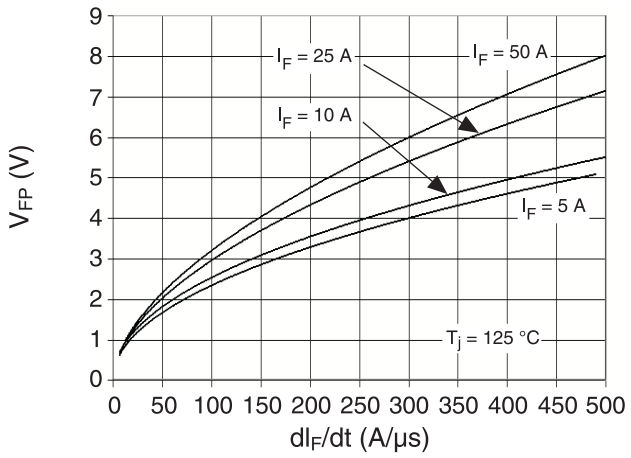


Fig. 19 FORWARD RECOVERY TIME vs dI_F/dt

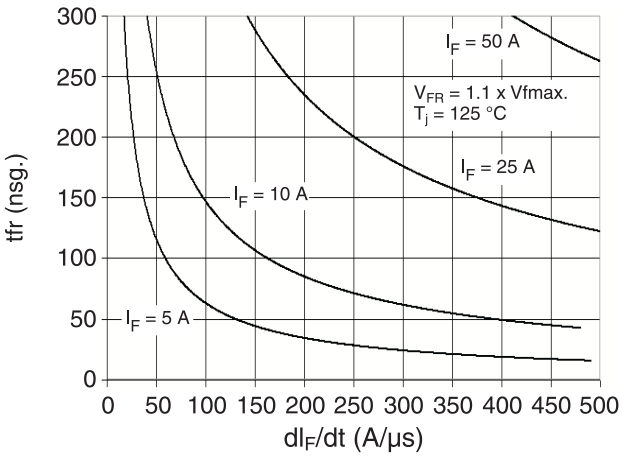


Fig. 20 RECOVERY TIME vs JUNCTION TEMPERATURE

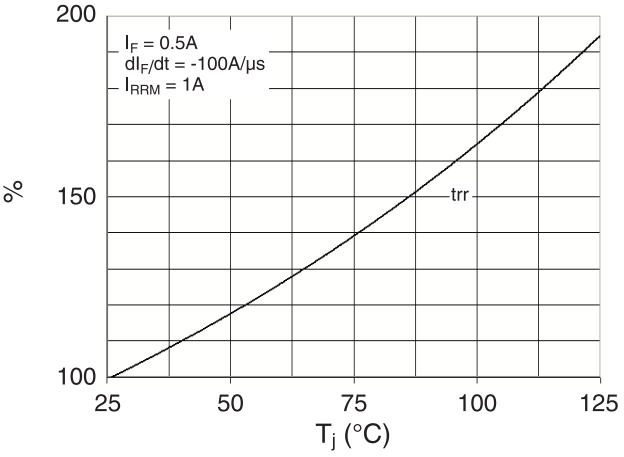
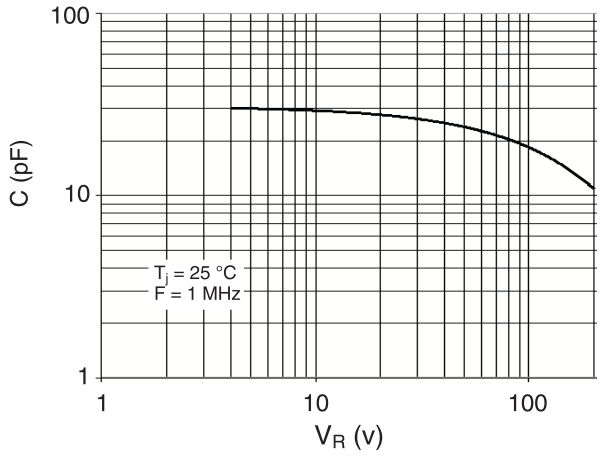


Fig. 21 JUNCTION CAPACITANCE vs. REVERSE BIAS



Revision History

DATE	REVISION	DESCRIPTION OF CHANGES
28-Aug-2019	0	Original Data Sheet
02-Dec-2019	1	Correct the Axis Label in Figure 5

Disclaimer

All product, product specifications and data are subject to change without notice to improve reliability, function or design or otherwise.

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