

MER3DAFC

Surface Mount Super Fast Recovery Rectifier

Voltage

200 V

Current

3 A

Features

- Superfast recovery times-epitaxial construction
- Low forward voltage, high current capability
- Low leakage
- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

Mechanical Data

- Case : SMAF-C Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.034 grams

SMAF-C



Maximum Ratings and Thermal Characteristics (T_A = 25 °C unless otherwise noted)

PARAMETER	SYMBOL	LIMIT	UNITS
Maximum Repetitive Peak Reverse Voltage	V _{RRM}	200	V
Maximum RMS Voltage	V _{RMS}	140	V
Maximum DC Blocking Voltage	V _{DC}	200	V
Maximum Average Forward Current	I _{F(AV)}	3	A
Peak Forward Surge Current : 8.3 ms Single Half Sine-Wave Superimposed On Rated Load	I _{FSM}	75	A
Typical Junction Capacitance Measured at 1 MHz And Applied V _R = 4 V	C _J	31	pF
Typical Thermal Resistance	(Note 1) R _{θJA}	150	°C/W
	(Note 2) R _{θJC}	23	
	(Note 2) R _{θJL}	20	
Operating Junction Temperature Range	T _J	-55~175	°C
Storage Temperature Range	T _{STG}	-55~175	°C

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Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Forward Voltage	V_F	$I_F = 1\text{ A}, T_J = 25^\circ\text{C}$	-	0.79	-	V
		$I_F = 2\text{ A}, T_J = 25^\circ\text{C}$	-	0.85	-	V
		$I_F = 3\text{ A}, T_J = 25^\circ\text{C}$	-	-	0.95	V
		$I_F = 1\text{ A}, T_J = 125^\circ\text{C}$	-	0.65	-	V
		$I_F = 2\text{ A}, T_J = 125^\circ\text{C}$	-	0.73	-	V
		$I_F = 3\text{ A}, T_J = 125^\circ\text{C}$	-	0.78	-	V
Reverse Current	I_R	$V_R = 160\text{ V}, T_J = 25^\circ\text{C}$	-	3	-	nA
		$V_R = 200\text{ V}, T_J = 25^\circ\text{C}$	-	-	1	uA
		$V_R = 200\text{ V}, T_J = 125^\circ\text{C}$	-	-	50	
Reverse Recovery Time	T_{RR}	$I_F = 0.5\text{ A}, I_R = 1\text{ A},$ $I_{RR} = 0.25\text{ A}, T_J = 25^\circ\text{C}$	-	-	35	ns
Reverse Recovery Time	T_{RR}	$I_F = 3\text{ A}, V_R = 200\text{ V}$	-	20	-	ns
Peak Recovery Current	I_{RRM}	$di/dt = 300\text{ A/uS}$	-	4.6	-	A
Reverse Recovery Charge	Q_{RR}	$T_J = 25^\circ\text{C}$	-	52	-	nC
Reverse Recovery Time	T_{RR}	$I_F = 3\text{ A}, V_R = 200\text{ V}$	-	30	-	ns
Peak Recovery Current	I_{RRM}	$di/dt = 300\text{ A/uS}$	-	6.9	-	A
Reverse Recovery Charge	Q_{RR}	$T_J = 125^\circ\text{C}$	-	110	-	nC

NOTES :

1. Mounted on a FR4 PCB, single-sided copper, standard footprint.
2. Mounted on a FR4 PCB, single-sided copper, with 100 cm² copper pad area.

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TYPICAL CHARACTERISTIC CURVES

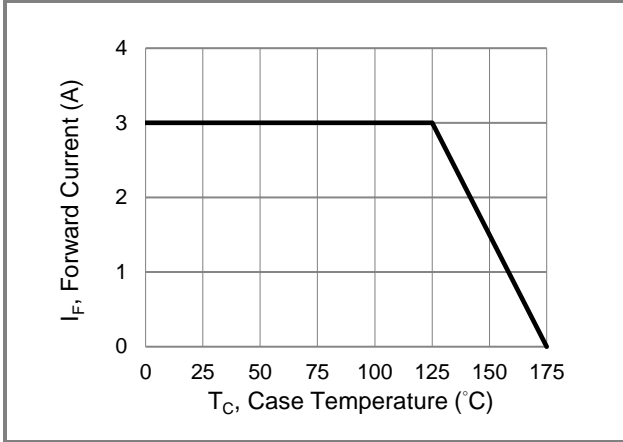


Fig.1 Forward Current Derating Curve

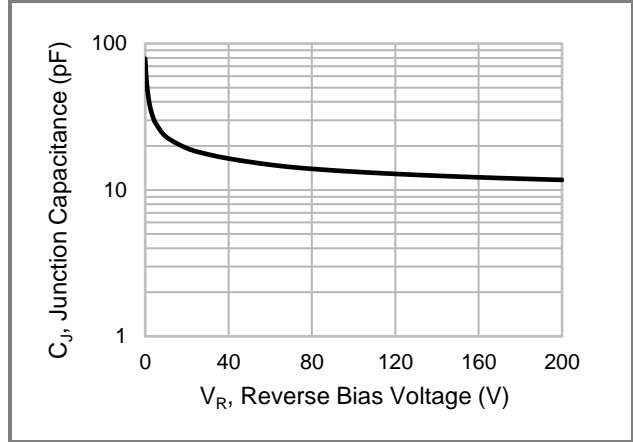


Fig.2 Typical Junction Capacitance

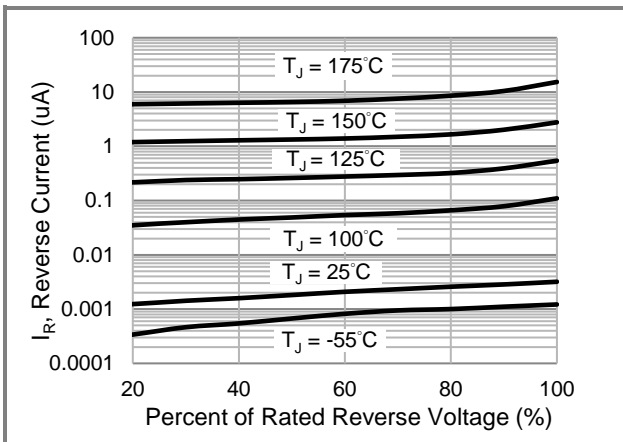


Fig.3 Typical Reverse Characteristics

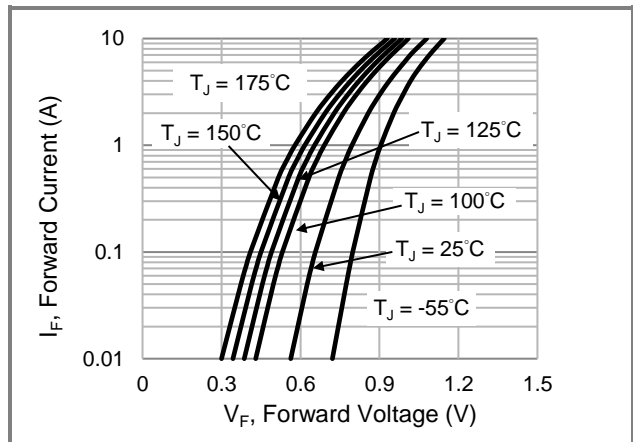


Fig.4 Typical Forward Characteristics

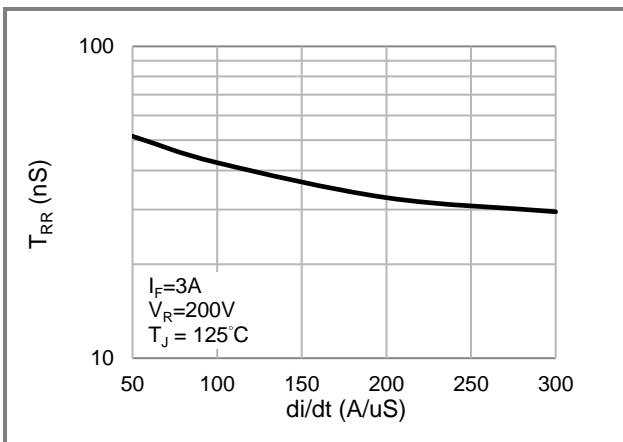


Fig.5 Typical Reverse Recovery Time Versus di/dt

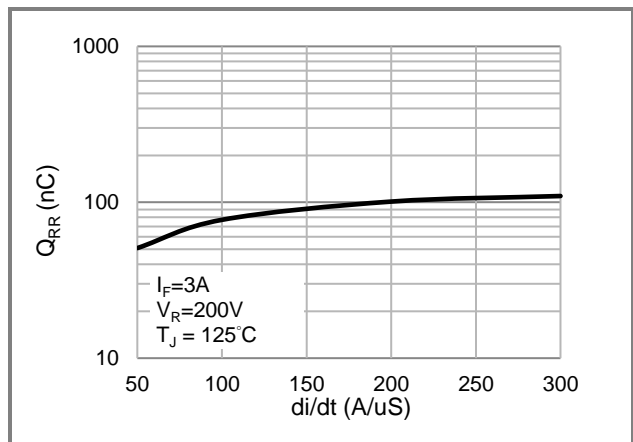


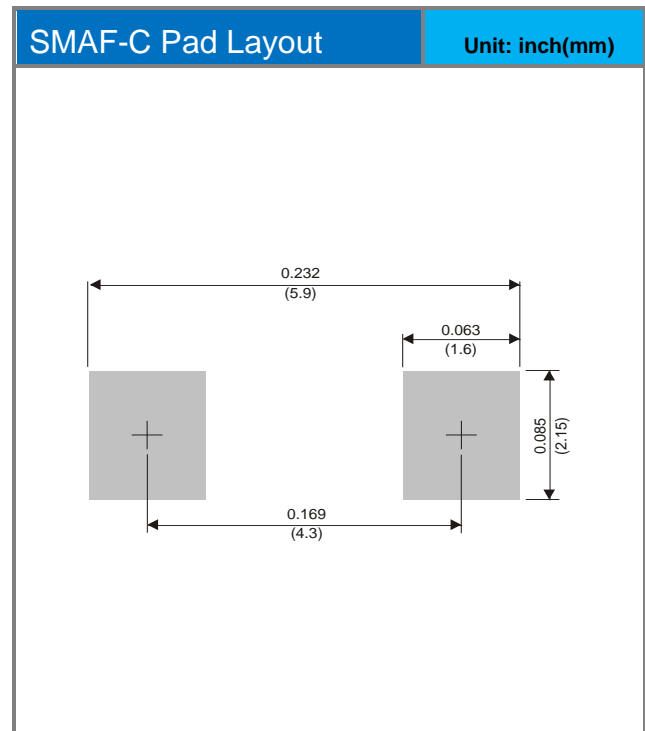
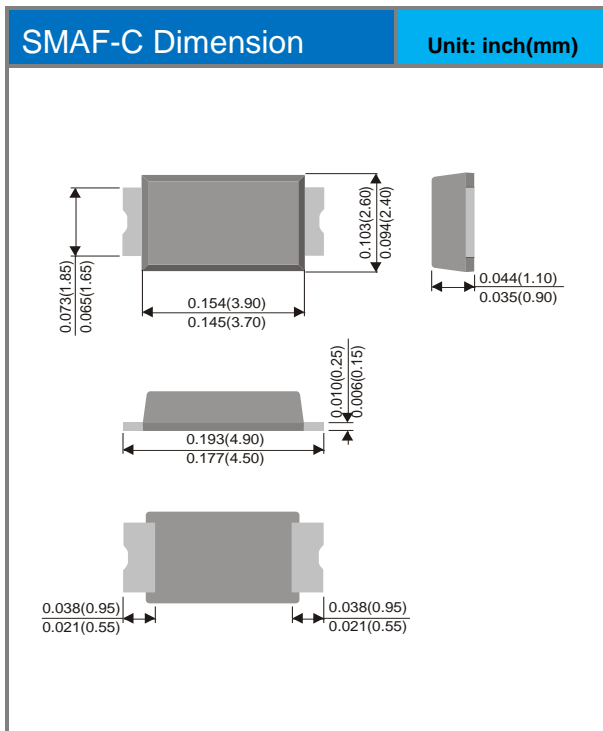
Fig.6 Typical Reverse Recovery Charge Versus di/dt

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Product and Packing Information

Part No.	Package Type	Packing Type	Marking
MER3DAFC	SMAF-C	3K / 7" Reel	MER3D

Packaging Information & Mounting Pad Layout



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