



# 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<sub>A</sub> = 25 °C unless otherwise noted)

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



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## TYPICAL CHARACTERISTIC CURVES

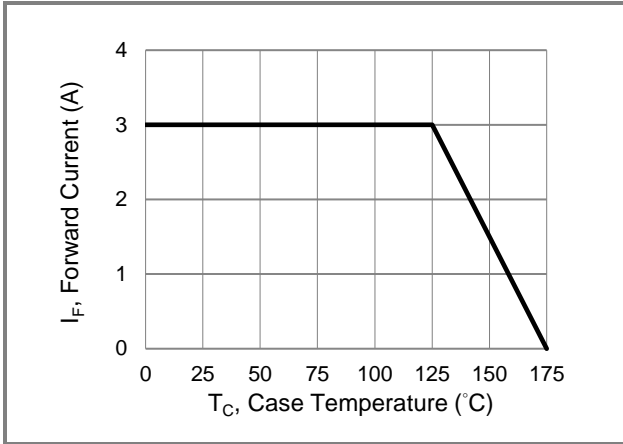


Fig.1 Forward Current Derating Curve

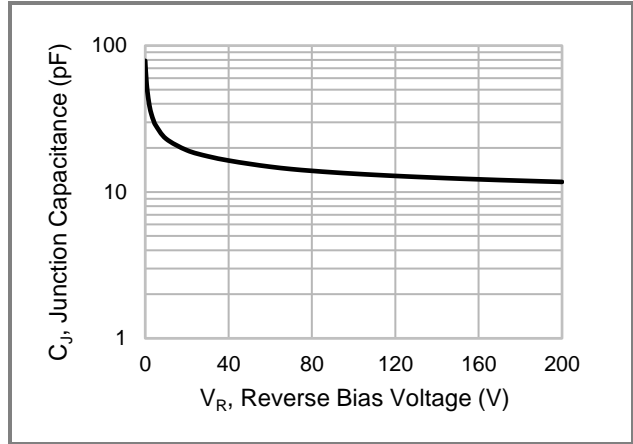


Fig.2 Typical Junction Capacitance

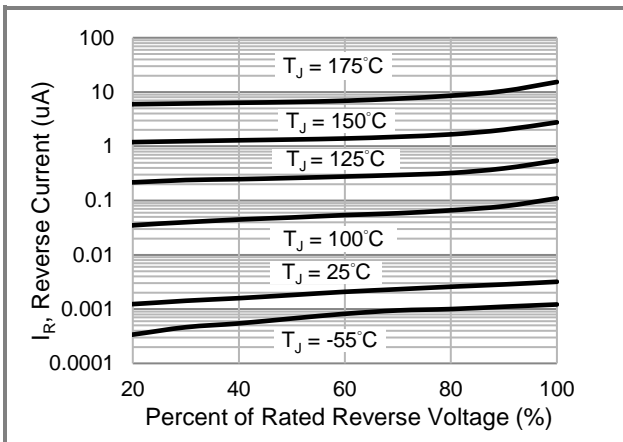


Fig.3 Typical Reverse Characteristics

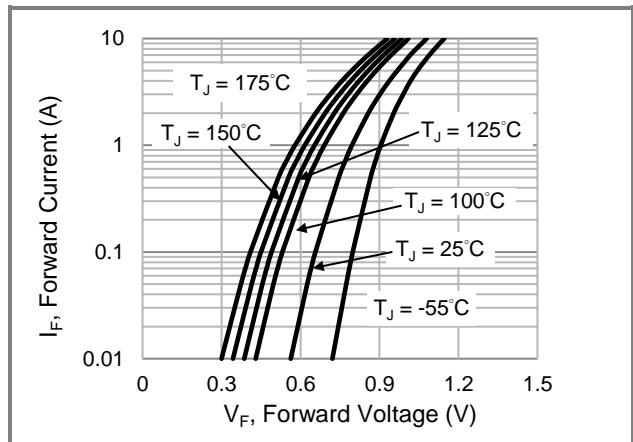


Fig.4 Typical Forward Characteristics

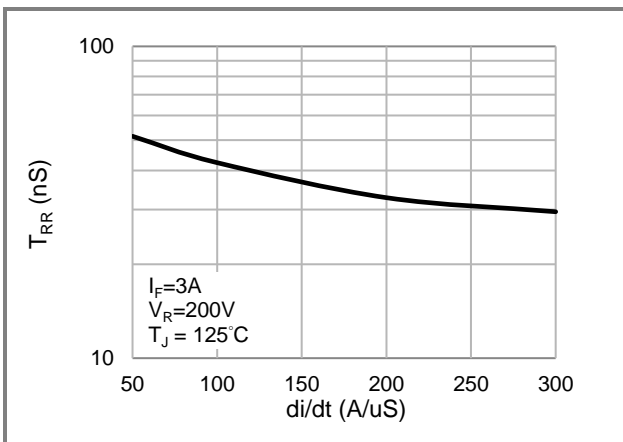


Fig.5 Typical Reverse Recovery Time Versus di/dt

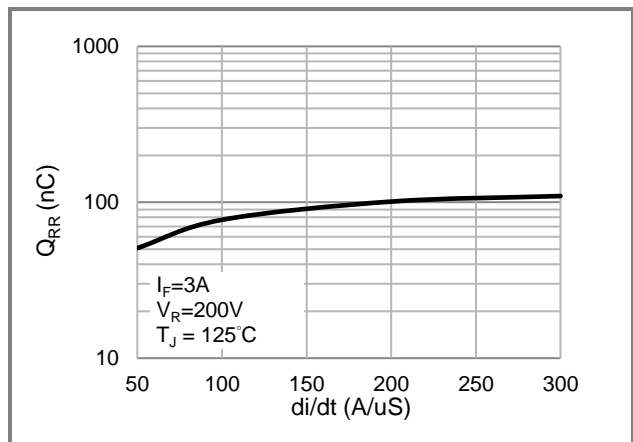


Fig.6 Typical Reverse Recovery Charge Versus di/dt

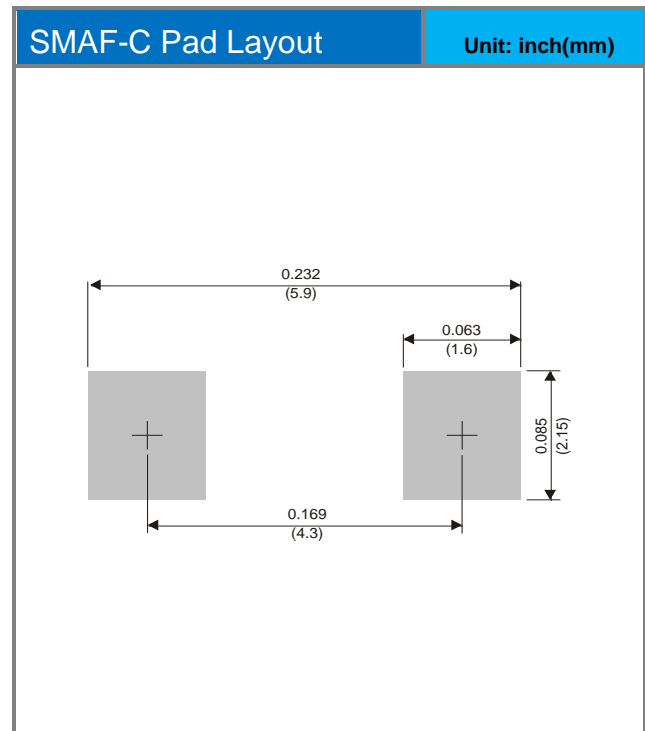
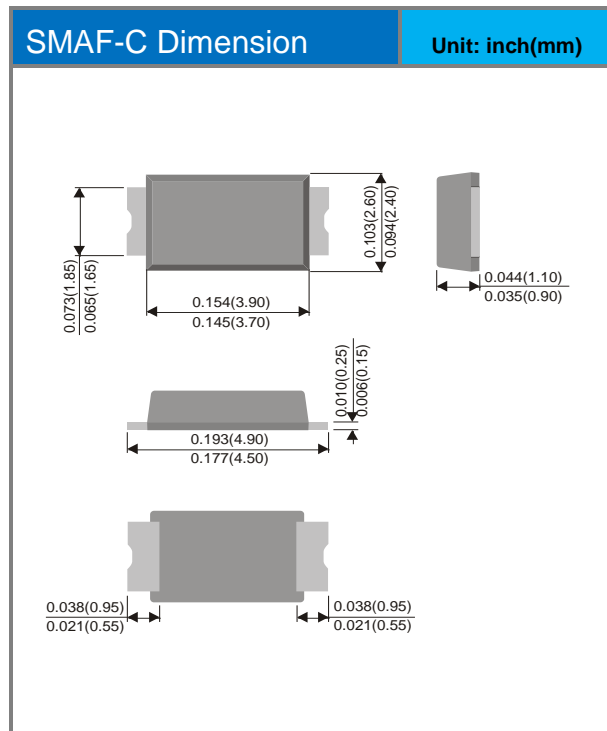


# MER3DAFC

Part No. Packing Code Version

Part No. Packing Code	Package Type	Packing Type	Marking	Version
MER3DAFC_R1_00701	SMAF-C	3K / 7" Reel	MER3D	Halogen free RoHS compliant

## Packaging Information & Mounting Pad Layout





## MER3DAFC

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