

FRS3MB(LS)

SURFACE MOUNT FAST RECOVERY RECTIFIER

REVERSE VOLTAGE – 1000 Volts
FORWARD CURRENT – 3 Amperes

FEATURES

- Glass Passivated Chip
- Fast switching for high efficiency
- For surface mounted application
- Low reverse leakage current
- Low forward voltage drop
- Qualification is according to AEC-Q101 Rev_C
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

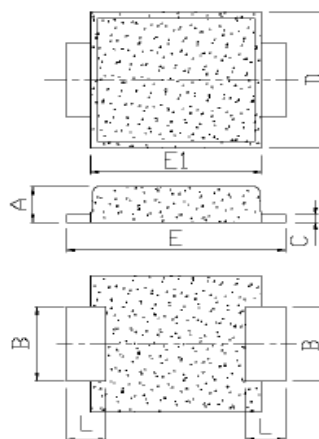
APPLICATIONS

- Power converters
- Switching-mode power supplies
- Freewheeling diodes

MECHANICAL DATA

- Package: JEDEC DO-221AA
- Package Material: "Green" molding compound, UL flammability classification 94V-0, (No Br. Sb. Cl.) "Halogen-free".
- Moisture Sensitivity Level 1 per J-STD-020
- Lead free finish, RoHS compliant
- Weight: 0.0496 grams (Approximate)
- Marking code: FRS3MB

DO-221AA



DO-221AA		
DIM	MIN	MAX
A	0.90	1.10
B	1.95	2.20
C	0.15	0.40
D	3.30	3.95
E	5.10	5.60
E1	4.05	4.60
L	0.75	1.50

All dimension in millimeter

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

ABSOLUTE RATINGS

PARAMETER	SYMBOL	VALUE	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	1000	V
Maximum DC blocking voltage	V_{DC}	1000	V
Maximum Average rectified output current	$I_{(AV)}$	3	A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load.	I_{FSM}	100	A
Operating junction and Storage Temperature range	T_J, T_{STG}	-55 ~ +150	°C

STATIC ELECTRICAL CHARACTERISTICS

PARAMETER	TEST CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage (Note 4)	$I_F=3A$ $T_J=25^\circ C$ $T_J=125^\circ C$	V_F	-- 0.90	1.3 --	V
Reverse Leakage current	$V_R=1000V$ $T_J=25^\circ C$ $T_J=125^\circ C$	I_R	-- 47.9	5 250	μA

DYNAMIC ELECTRICAL CHARACTERISTICS

PARAMETER	TEST CONDITIONS	SYMBOL	MAX	UNIT
Reverse recovery time	$I_F=0.5A, I_{rr}=0.25A, I_R=1.0A$	t_{rr}	250	ns

THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	TYP	UNIT
Typical thermal resistance (Note 5, 6)	R_{thJC}	10	°C/W
	R_{thJL}	8	
	R_{thJA}	30	

Note :

1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. 300us pulse width, 2% duty cycle.
5. Thermal resistance test performed in accordance with JESD-51.
6. The unit mounted on 10mm x 10mm cooper heatsink

REV.-2, Nov-2021, KSEP14

FIG.1 FORWARD CURRENT DERATING CURVE

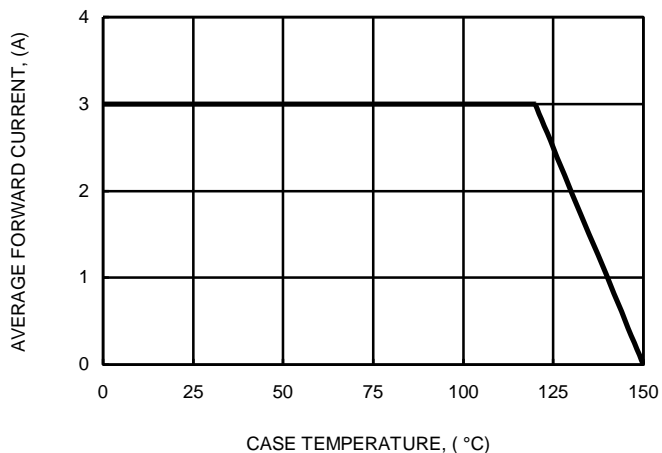


FIG.2 MAXIMUM NON-REPETITIVE SURGE CURRENT

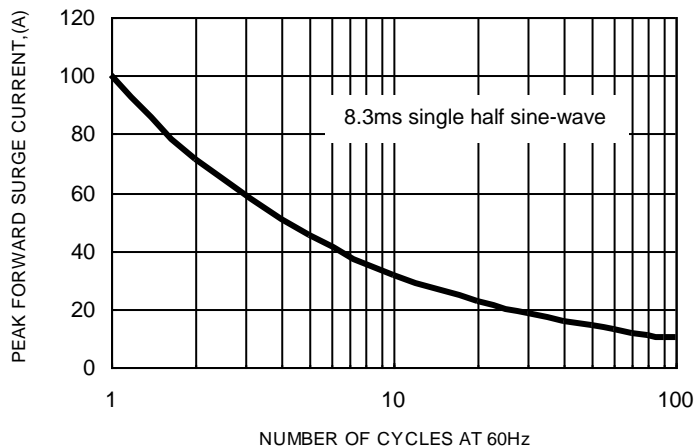


FIG.3 TYPICAL FORWARD CHARACTERISTICS

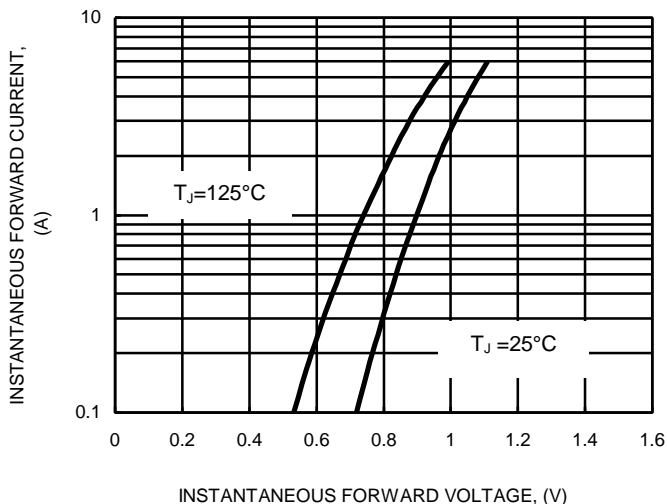


FIG.4 TYPICAL JUNCTION CAPACITANCE

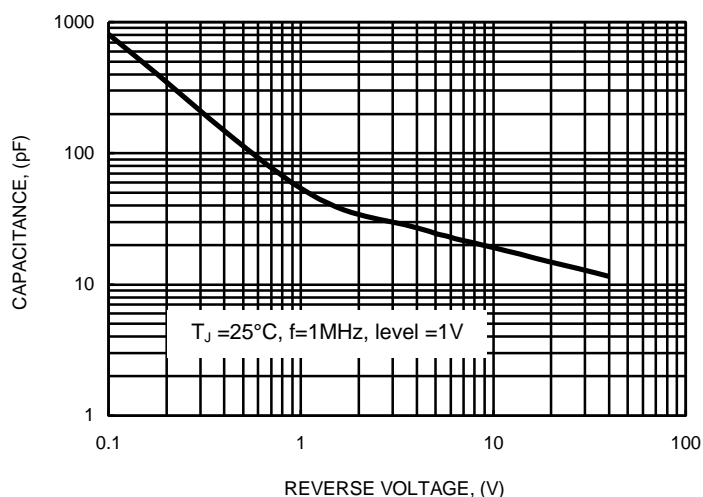
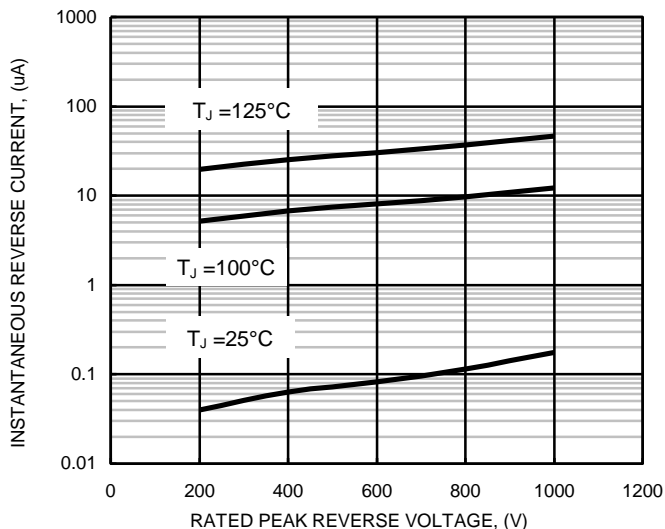


FIG.5 TYPICAL REVERSE CHARACTERISTICS

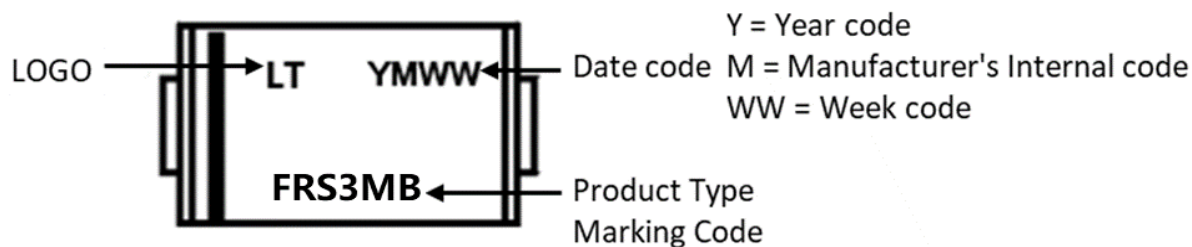


MARKING AND PACKAGING INFORMATION
FRS3MB(LS)

Ordering Information:

Part Number	Package	Packing	
		Qty.	Carrier
FRS3MB_HF	DO-221AA	5000	Tape & Reel

Marking Information:



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