



THE DATASHEET OF FRS1JE



**SURFACE MOUNT
FAST RECOVERY RECTIFIERS**

**REVERSE VOLTAGE – 600 Volts
FORWARD CURRENT – 1.0 Ampere**

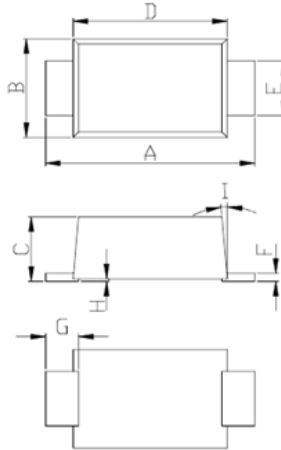
FEATURES

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

MECHANICAL DATA

- Case: JEDEC DO-219AA
- Case Material: "Green" molding compound, UL Flammability classification 94V-0, "Halogen-free".
- Terminals: Lead Free Plating (Matte Tin Finish.)
- Component in accordance to RoHS 2002/95/EC
- Marking code: R1J
- Weight: 16.3 mg (Approximate)

F1A



F1A			
DIM.	MIN.	TYP.	MAX.
A	3.50	3.80	3.90
B	1.70	1.90	2.00
C	0.81	1.18	1.20
D	2.70	2.80	2.90
E	0.80	1.00	1.35
F	0.05	0.15	0.30
G	0.35	0.60	0.85
H	0.03	0.07	0.10
I	0°	5°	8°

All dimension in millimeter.

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

ABSOLUTE RATING

PARAMETER	SYMBOL	VALUE	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	600	V
Maximum DC blocking voltage	V_{DC}	600	V
Average rectified forward current	$I_{(AV)}$	1.0	A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load	I_{FSM}	30	A
Operating temperature range	T_J	-55 ~ +150	°C
Storage temperature rang	T_{STG}	-55 ~ +150	°C

STATIC ELECTRICAL CHARACTERISTICS

PARAMETER	TEST CONDITION		SYMBOL	TYP.	MAX	UNIT
Forward voltage (Note 4)	$I_F=1.0A$	$T_J=25^\circ C$	V_F	1.1	1.3	V
Leakage current	$V_R=600V$	$T_J=25^\circ C$ $T_J=100^\circ C$	I_R	0.5 10	5 200	μA
Typical junction capacitance (Note 5)			C_T	7		pF

THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP.	UNIT
Typical thermal resistance (Note 6)	R_{thJA}	95	°C/W
	R_{thJL}	30	
	R_{thJC}	20	

DYNAMIC ELECTRICAL CHARACTERISTICS

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

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. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.
6. Thermal resistance test performed in accordance with JESD-51. Unit mounted on glass-epoxy substrate with 5 x 7 mm copper pad.

RATING AND CHARACTERISTIC CURVES

FRS1JE

FIG.1- FORWARD CURRENT DERATING CURVE

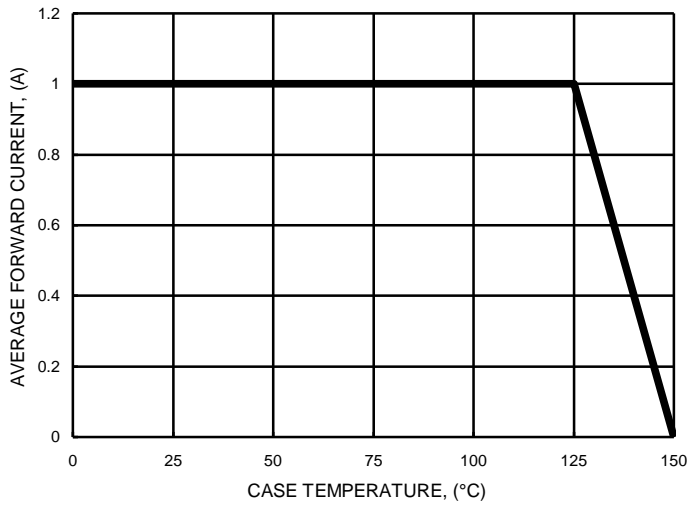


FIG.2- MAXIMUM NON-REPETITIVE SURGE CURRENT

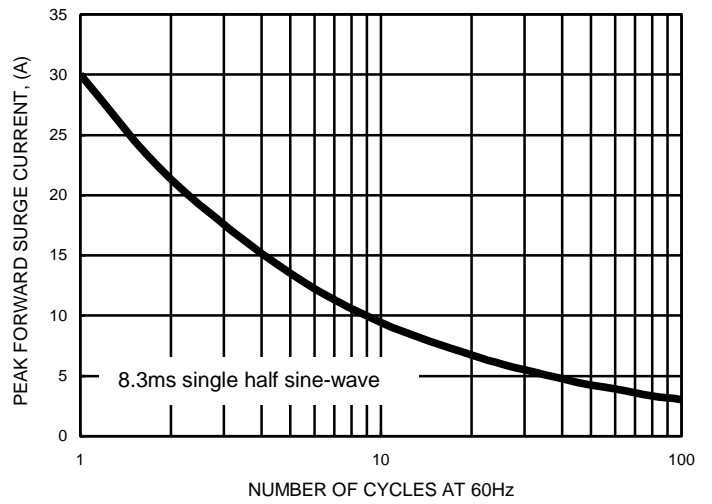


FIG.3- TYPICAL FORWARD CHARACTERISTICS

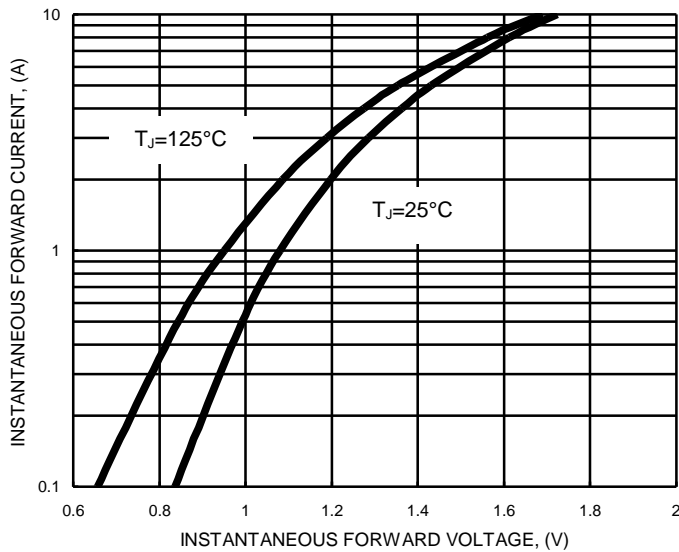


FIG.4- TYPICAL JUNCTION CAPACITANCE

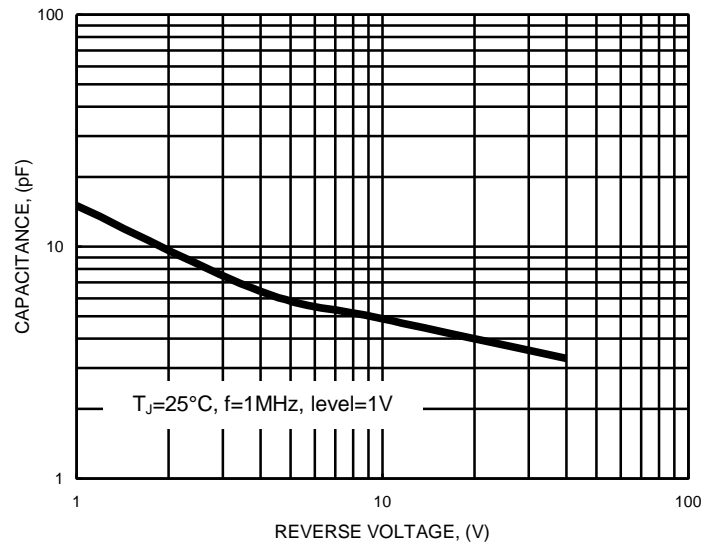
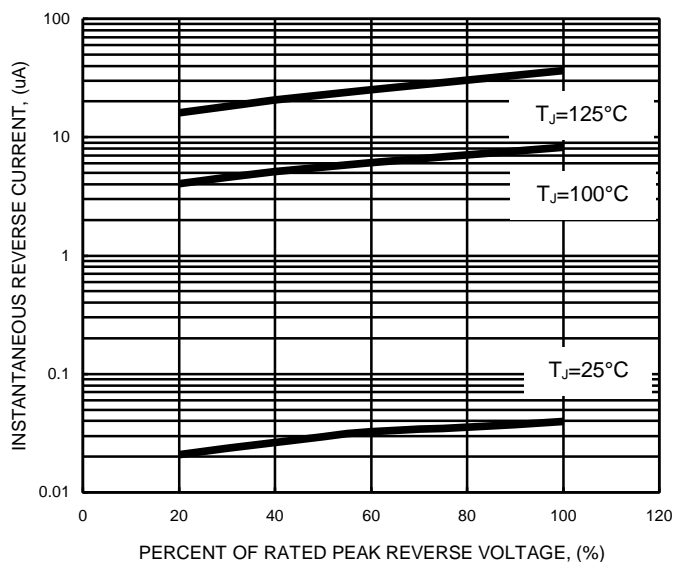


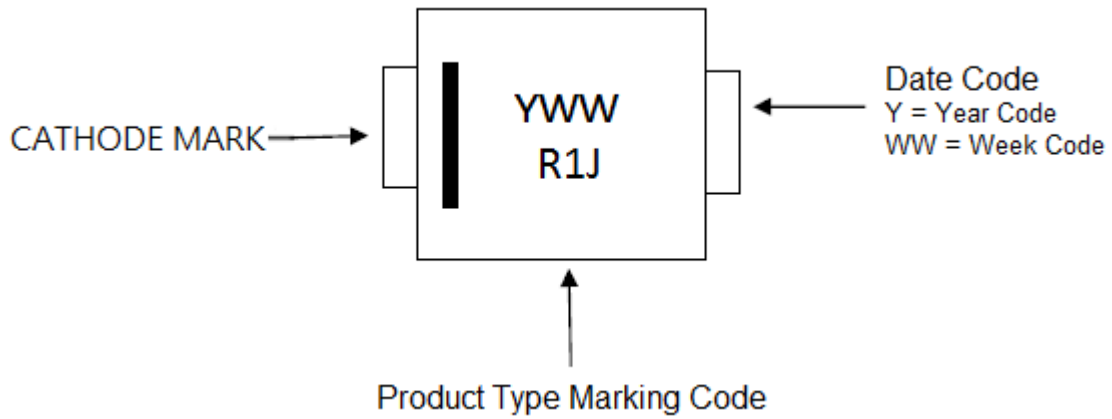
FIG.5- TYPICAL REVERSE CHARACTERISTICS



Ordering Information :

Part Number	Package	Packing	
		Qty.	Carrier
FRS1JE-7	F1A	2500	Tape & Reel
FRS1JE	F1A	10000	Tape & Reel

Marking Information :



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