



PRELIMINARY

SOLID STATE DEVICES, INC

14849 Firestone Boulevard · La Mirada, CA 90638
Phone: (714) 670-SSDI (7734) · Fax: (714) 522-7424

Designer's Data Sheet

FEATURES:

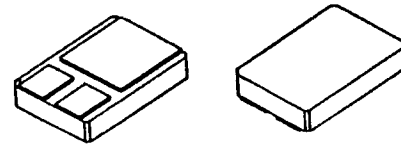
- Hermetically Sealed, Surface Mount Package
- TX, TXV and S Level
- Replaces: IRFM7250/8450, FRF250 R/H
- Also available in TO-254Z, TO-258, TO-259, TO-61

- Second Generation Radiation Hardened Mosfet results from new design concepts.
- Gamma:
 - A) Meets pre-rad specifications to 100 KRad(Si)
 - B) Defined end-point specs at 300 and 1000 KRad(Si)
 - C) Performance permits limited use to 3000 KRad(Si)
- Gamma Dot survives 3E9 Rad(Si)/sec at 500 BVDSS typically and survives 2E12 typically if current limited to IDM.
- Photo Current is typically 30nA per Rad(Si)/sec.
- Neutron:
 - A) Pre-rad specifications for 3E12 neutrons/cm²
 - B) Usable to 3E13 neutrons
- Single Event: typically survives 1E3 ions/cm² having an LET < 35 MeV/mg/cm² and a range ≥ 30μm at 200 BVDSS

SFFR250 SFFD250

27 AMP 200 VOLTS 0.100 Ω RADIATION HARDENED N-CHANNEL MOSFET

MILPACK



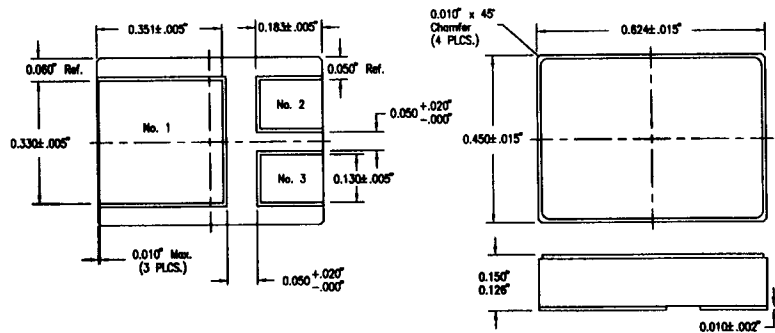
MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	VALUE	UNIT
Drain to Source Voltage	V _{DS}	200	Volts
Gate to Source Voltage	V _{GS}	± 20	Volts
Continuous Drain Current	I _D	27	Amps
Operating and Storage Temperature	Top & Tstg	-55 to +150	°C
Thermal Resistance, Junction to Case	R _{θJC}	1.0	°C/W
Total Device Dissipation @ TA=25°C Derate above 25°C @ 1 W/°C	P _D	125	Watts

PACKAGE OUTLINE: MILPACK

PIN OUT:

PIN 1: DRAIN
PIN 2: SOURCE
PIN 3: GATE



NOTE: All specifications are subject to change without notification. SCD's for these devices should be reviewed by SSDI prior to release.

DATA SHEET #: FR0003 A

MED

SFFR250 SFFD250

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ELECTRICAL CHARACTERISTICS @ T_J=25 °C (Unless Otherwise Specified)

RATING		SYMBOL	MIN	TYP	MAX	UNIT
Drain to Source Breakdown Voltage (VGS=0 V, ID=1mA)		BV_{DSS}	200		---	V
Drain to Source on State Resistance (VGS=10 V, ID=17A)		R_{DS(on)}	---		0.100	Ω
On State Drain Current (VDS>ID(on) X RDS(on) Max., VGS=10V)		I_{D(on)}	27		---	A
Gate Threshold Voltage (VDS=VGS, ID=1mA)		VGS(th)	2.0		4.0	V
Forward Transconductance (VDS > ID(on) X RDS(on) Max, IDS=60% rated ID)		g_{fs}	13		---	S(Ω)
Zero Gate Voltage Drain Current (VDS=max rated voltage, VGS=0 V) (VDS=80% rated VDS, VGS=0 V, TA=125° C)		I_{DSS}	---		500 250	μA
Gate to Source Leakage Forward Gate to Source Leakage Reverse	At rated VGS	I_{GSS}	---		100 -100	nA
Total Gate Charge Gate to Source Charge Gate to Drain Charge	VGS=10 Volts 50% rated VDS Rated ID	Q_g Q_{gs} Q_{gd}	60 10 30		250 50 100	nC
Turn on Delay Time Rise Time Turn Off Delay Time Fall Time	VDD=50% rated VDS rated ID RG=25Ω 0 < VGS ≤ 10	t_{d(on)} t_r t_{d(off)} t_f	---		170 600 580 500	nsec
Diode Forward Voltage (IS=rated ID, VGS=0 V, T _J =25° C)		VSD	---		2.0	V
Diode Reverse Recovery Time Reverse Recovery Charge	T _J =25° C IF=rated ID di/dt=100 A/μsec	t_{rr} QRR	---		1700 ---	nsec μC

For thermal derating curves and other characteristic curves please contact SSDI Marketing Department.