PRELIMINARY

SFFR150M
SFFD150M

SOLID STATE DEVICES, INC

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

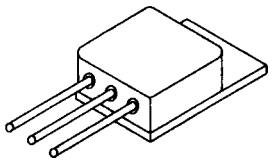
34 AMP
100 VOLTS
0.07 Ω
RADIATION HARDENED
N-CHANNEL MOSFET
SFFR150M: 100KRad(Si) Gamma
SFFD150M: 10KRad (Si) Gamma

Designer's Data Sheet

FEATURES:

- Hermetically Sealed, Isolated Package
- Ceramic Seals
- Available with formed leads
- TX, TXV and S Level
- Replaces: IRH7150/8150, FRF150 R/H, 2N7268, Mil-S-19500/603
- Also available in TO-254Z, TO-258, TO-259, TO-61 and MILPACK
- 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 80% BVDSS typically and survives 2E12 typically if current limited to IDM.
- Photo Current is typically 7.0nA per Rad(Si)/sec.
- Neutron: A)Pre-rad specifications for $3E^{13}$ neutrons/cm^2
  B)Usable to 3E14 neutrons/cm^2
- Single Event: typically survives 1E5 ions/cm^2 having an LET<35 MeV/mg/cm^2 and a range ≥ 30μm at 80% BVDSS

TO-254



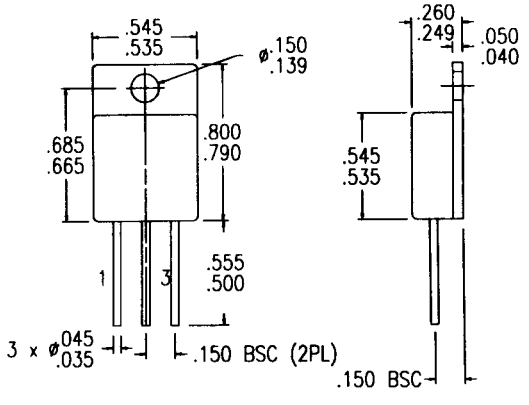
MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	VALUE	UNIT
Drain to Source Voltage	V_{DS}	100	Volts
Gate to Source Voltage	V_{GS}	± 20	Volts
Continuous Drain Current	I_D	34	Amps
Operating and Storage Temperature	T_{op} & T_{stg}	-55 to +150	°C
Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.83	°C/W
Total Device Dissipation @ TA=25°C Derate above 25°C @ 1.2 W/°C	P_D	150	Watts

PACKAGE OUTLINE: TO-254

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 #: FR0015B

MED

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ELECTRICAL CHARACTERISTICS @ TJ=25 C (Unless Otherwise Specified)

RATING		SYMBOL	MIN	TYP	MAX	UNIT
Drain to Source Breakdown Voltage (VGS=0 V, ID=1mA)		BV_{DSS}	100		---	V
Drain to Source on State Resistance (VGS=10 V, ID=21 A)		$R_{DS(on)}$	---	---	0.07	Ω
On State Drain Current (VDS>ID(on) X RDS(on) Max., VGS=10V)		$I_{D(on)}$	34		---	A
Gate Threshold Voltage (VDS=VGS, ID=1mA)		$V_{GS(th)}$	2.0		4.0	V
Forward Transconductance (VDS >ID(on) X RDS(on) Max, IDS=21 A)		g_{fs}	8		---	S(℧)
Zero Gate Voltage Drain Current (VDS=80% rated voltage, VGS=0 V) (VDS=80% rated VDS, VGS=0 V, TA=125°C)		I_{DSS}	--- ---		50 250	μA
Gate to Source Leakage Forward **Gate to Source Leakage Reverse**	At rated VGS	I_{GSSF} I_{GSSR}	--- ---		100 100	nA
Total Gate Charge **Gate to Source Charge** **Gate to Drain Charge**	0≤VGS≤20 Volts 50% rated VDS Rated ID	Q_g Q_{gs} Q_{gd}	--- --- ---		160 35 65	nC
Turn on Delay Time **Rise Time** **Turn Off Delay Time** **Fall Time**	VDD=50% rated VDS ID=21 A RG=2.5Ω	$t_{d(on)}$ t_r $t_{d(off)}$ t_f	--- --- --- ---		45 190 170 130	nsec
Diode Forward Voltage (IS=rated ID, VGS=0 V, TJ=25°C)		V_{SD}	---		1.9	V
Diode Reverse Recovery Time **Reverse Recovery Charge**	TJ=25°C IF=rated ID di/dt=100 A/μsec	t_{rr} Q_{RR}	--- ---		570 ---	nsec μC

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