

SOLID STATE DEVICES, INC

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

SFFR150M
SFFD150M

34 AMP
100 VOLTS
0.07 Ω

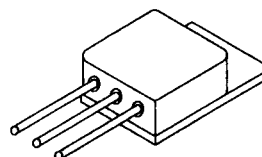
**RADIATION HARDENED
N-CHANNEL MOSFET**
SFFR150M: 100KRad(Si) Gamma
SFFD150M: 10KRad (Si) Gamma

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
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- 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 $3E13$ neutrons/cm²
 - B) Usable to $3E14$ neutrons/cm²
 - Single Event: typically survives $1E5$ ions/cm² having an LET < 35 MeV/mg/cm² and a range $\geq 30\mu$ m at 80% BVDSS

TO-254



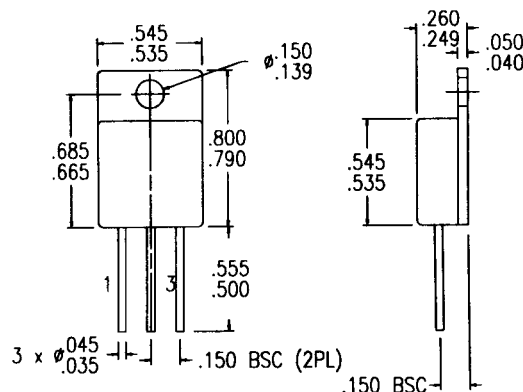
MAXIMUM RATINGS

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 _{θJC}	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

SFFR150M
SFFD150M

PRELIMINARY



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

RATING		SYMBOL	MIN	TYP	MAX	UNIT
Drain to Source Breakdown Voltage (V _{GS} =0 V, I _D =1mA)		BV _{DSS}	100		---	V
Drain to Source on State Resistance (V _{GS} =10 V, I _D =21 A)		R _{DS(on)}	---	---	0.07	Ω
On State Drain Current (V _{DS} >I _{D(on)} X R _{DS(on)} Max., V _{GS} =10V)		I _{D(on)}	34		---	A
Gate Threshold Voltage (V _{DS} =V _{GS} , I _D =1mA)		V _{GS(th)}	2.0		4.0	V
Forward Transconductance (V _{DS} >I _{D(on)} X R _{DS(on)} Max, I _{DS} =21 A)		g _{fs}	8		---	S(Ω)
Zero Gate Voltage Drain Current (V _{DS} =80% rated voltage, V _{GS} =0 V) (V _{DS} =80% rated V _{DS} , V _{GS} =0 V, T _A =125°C)		I _{DSS}	---		50 250	μA
Gate to Source Leakage Forward	At rated V _{GS}	I _{GSSF}	---		100	nA
Gate to Source Leakage Reverse		I _{GSSR}	---		100	
Total Gate Charge	0≤V _{GS} ≤20 Volts	Q _g	---		160	nC
Gate to Source Charge	50% rated V _{DS}	Q _{gs}	---		35	
Gate to Drain Charge	Rated I _D	Q _{gd}	---		65	
Turn on Delay Time	V _{DD} =50% rated V _{DS}	t _{d(on)}	---		45	nsec
Rise Time	I _D =21 A	t _r	---		190	
Turn Off Delay Time	R _G =2.5Ω	t _{d(off)}	---		170	
Fall Time		t _f	---		130	
Diode Forward Voltage (I _S =rated I _D , V _{GS} =0 V, T _J =25°C)		V _{SD}	---		1.9	V
Diode Reverse Recovery Time	T _J =25°C	t _{rr}	---		570	nsec
Reverse Recovery Charge	I _F =rated I _D di/dt=100 A/μsec	Q _{RR}	---		---	

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