

N-CHANNEL ENHANCEMENT MOS FET

900V, 13A, 0.85Ω

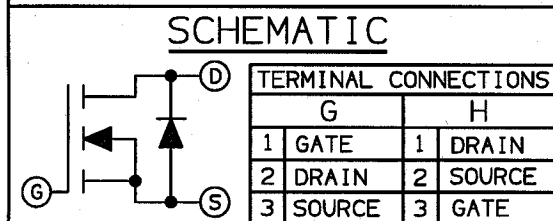
SDF13N90 GAF

FEATURES

- RUGGED PACKAGE
- HI-REL CONSTRUCTION
- CERAMIC EYELETS
- LEAD BENDING OPTIONS
- COPPER CORED 52 ALLOY PINS
- LOW IR LOSSES
- LOW THERMAL RESISTANCE
- OPTIONAL MIL-S-19500 SCREENING

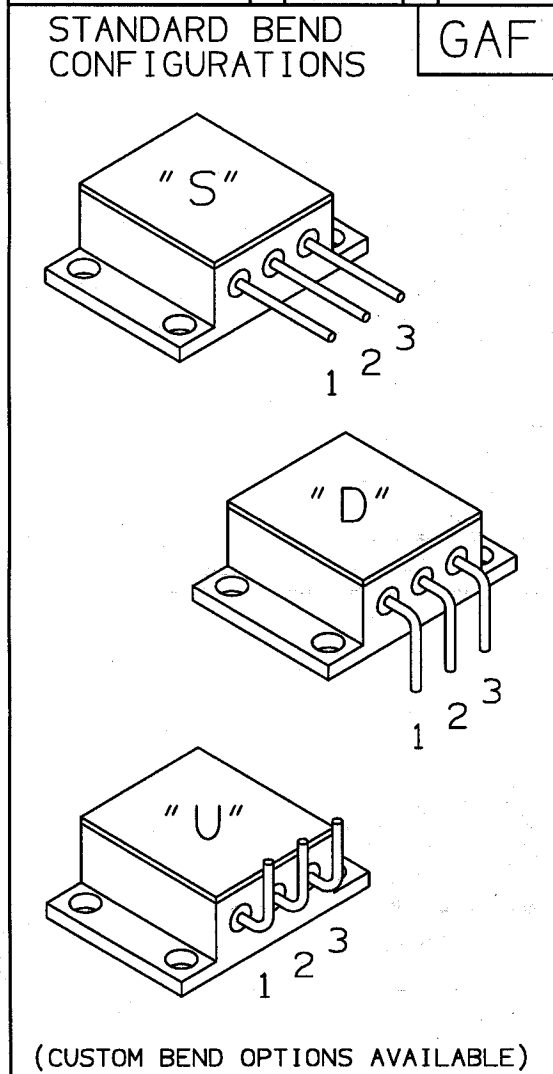
ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL		UNITS
Drain-source Volt.(1)	VDSS	900	Vdc
Drain-Gate Voltage (R _{GS} =1.0MΩ) (1)	VDGR	900	Vdc
Gate-Source Voltage Continuous	VGS	±20	Vdc
Drain Current Continuous (T _c = 25°C)	ID	13	Adc
Drain Current Pulsed(3)	IDM	52	A
Total Power Dissipation	PD	300	W
Power Dissipation Derating > 25°C		2.4	W/°C
Operating & Storage Temp.	TJ/Tsig	-55 TO +150	°C
Thermal Resistance	RthJc	0.42	°C/W
Max. Lead temperature	TL	300	°C



ELECTRICAL CHARACTERISTICS T_c = 25°C (UNLESS OTHERWISE SPECIFIED)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNITS
Drain-source Breakdown Volt.	V(BR)DSS	VGS=0V ID=250 μA	900	-	-	V
Gate Threshold Voltage	VGS(TH)	VDS=VGS ID=250 μA	2.0	-	4.5	V
Gate Source Leakage	IGSS	VGS=±20 V	-	-	100	nA
Zero Gate Voltage Drain Current	IDSS	VDS=MAX.RATING VGS=0	-	-	250	μA
		VDS=0.8 MAX.RATING VGS=0 TJ=125°C	-	-	1000	μA
Static Drain-Source On-State Resistance(1)	RDS(on)	VGS=10 V ID=6.5A	-	-	.85	Ω
Forward Trans-Conductance (2)	gfs	VDS ≥ 15 V IDS=6.5A	7.0	-	-	S(U)
Input Capacitance	CISS		-	4500	-	pF
Output Capacitance	COSS	VGS=0V VDS=25 V f=1.0 MHz	-	550	-	pF
Reverse Transfer Capacitance	CRSS		-	160	-	pF
Turn-On Delay	td(on)	VDD=450V Zo=50Ω ID=6.5A	-	-	100	ns
Rise Time	tr	(MOSFET switching times are essentially independent of operating temp.)	-	-	110	ns
Turn-Off Delay	td(off)		-	-	220	ns
Fall Time	tf		-	-	105	ns
Total Gate Charge (Gate-Source Plus Gate-Drain)	Qg	VGS=10V, ID=13A VDS=0.8 MAX.RATING (Gate charge is essentially independent of the operating temperature)	-	145	-	nC
Gate-Source Charge	Qgs		-	55	-	nC
Gate-Drain ("Miller") Charge	Qgd		-	90	-	nC



SOURCE-DRAIN DIODE RATINGS & CHARACT. T_c = 25°C (UNLESS OTHERWISE SPECIFIED)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNITS
Continuous Source Current (Body Diode)	IS	Modified MOSFET symbol showing the integral reverse P-N junction rectifier (See schematic)	-	-	13	A
Pulse Source Current (Body Diode) (1)	ISM		-	-	52	A
Diode Forward Voltage (2)	VSD	IF=13A VGS=0V Tc=+25°C	-	-	1.5	V
Reverse Recovery Time	trr	Tc=+25° C	-	600	-	ns
Reverse Recovery Charge	Qrr	IF=13A di/dt=100A/μS	-	8.5	-	μC

(1) T_J = 25°C to 150°C.
 (2) Pulse test: Pulse Width < 300μS, Duty Cycle < 2%.
 (3) Repetitive Rating: Pulse Width limited By Max. junction Temperature.