

N-CHANNEL ENHANCEMENT MOS FET

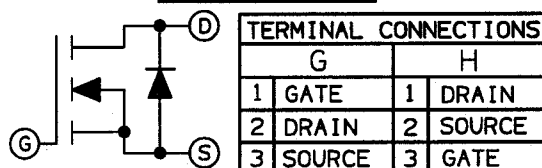
500V, 24A, 0.25Ω

SDF24N50 GAF

FEATURES

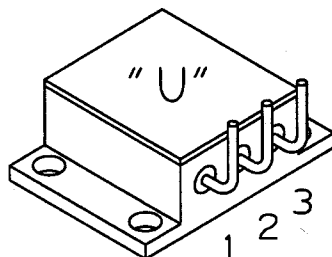
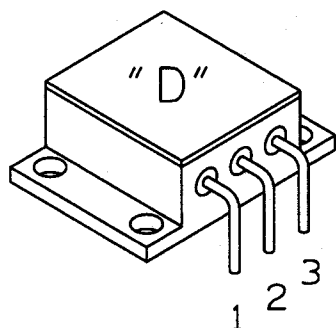
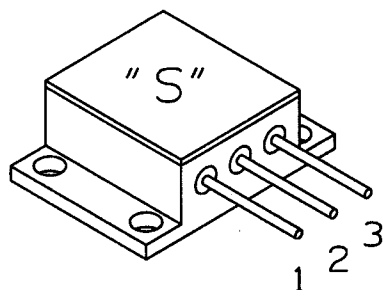
- RUGGED PACKAGE
- HI-REL CONSTRUCTION
- CERAMIC EYELETS
- LEAD BENDING OPTIONS
- COPPER CORED 52 ALLOY PINS
- LOW IR LOSSES
- LOW THERMAL RESISTANCE
- OPTIONAL MIL-S-19500 SCREENING

SCHEMATIC



STANDARD BEND CONFIGURATIONS

GAF



(CUSTOM BEND OPTIONS AVAILABLE)

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL		UNITS
Drain-source Volt.(1)	VDSS	500	Vdc
Drain-Gate Voltage (RGS=1.0Ma) (1)	VDGR	500	Vdc
Gate-Source Voltage Continuous	VGS	±20	Vdc
Drain Current Continuous (Tc = 25°C)	ID	24	Adc
Drain Current Pulsed(3)	IDM	96	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 Tc = 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	500	-	-	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=12A	-	-	.25	Ω
Forward Trans-Conductance (2)	gfs	VDS ≥ 50 V IDS=12A	11	-	-	S(U)
Input Capacitance	CISS	VGS=0V VDS=25 V f=1.0 MHz	-	4500	-	pF
Output Capacitance	COSS		-	550	-	pF
Reverse Transfer Capacitance	CRSS		-	160	-	pF
Turn-On Delay	td(on)	VDD=250V Zo=50Ω ID=12A	-	-	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=24A VDS=0.8 MAX.RATING (Gate charge is essentially independent of the operating temperature)	-	165	-	nC
Gate-Source Charge	Qgs		-	65	-	nC
Gate-Drain ("Miller") Charge	Qgd		-	100	-	nC

SOURCE-DRAIN DIODE RATINGS & CHARACT. Tc = 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)	-	-	24	A
Pulse Source Current (Body Diode) (1)	ISM		-	-	96	A
Diode Forward Voltage (2)	VSD	IF=24A VGS=0V Tc=+25°C	-	-	1.5	V
Reverse Recovery Time	trr	Tc=+25° C IF=24A	-	500	-	ns
Reverse Recovery Charge	Qrr	di/dt=100A/μS	-	8.0	-	μC

(1) TJ = 25°C to 150°C.

(2) Pulse test: Pulse Width < 300μS, Duty Cycle < 2%.

(3) Repetitive Rating: Pulse Width limited By Max. junction Temperature.