

### ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL		UNITS
Drain-source Volt.(1)	VDSS	1000	Vdc
Drain-Gate Voltage (R <sub>GS</sub> =1.0M $\Omega$ ) (1)	VDGR	1000	Vdc
Gate-Source Voltage Continuous	VGS	$\pm 20$	Vdc
Drain Current Continuous (T <sub>c</sub> = 25°C)	ID	12	Adc
Drain Current Pulsed(3)	IDM	48	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	R $\theta$ Jc	0.42	°C/W
Max. Lead temperature	TL	300	°C

### ELECTRICAL CHARACTERISTICS T<sub>c</sub> = 25°C (UNLESS OTHERWISE SPECIFIED)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNITS
Drain-source Breakdown Volt.	V(BR)DSS	VGS=0V ID=250 $\mu$ A	1000	-	-	V
Gate Threshold Voltage	VGS(TH)	VDS=VGS ID=250 $\mu$ A	2.0	-	4.5	V
Gate Source Leakage	IGSS	VGS= $\pm 20$ V	-	-	100	nA
Zero Gate Voltage Drain Current	IDSS	VDS=MAX. RATING VGS=0	-	-	250	$\mu$ A
		VDS=0.8 MAX. RATING VGS=0 TJ=125°C	-	-	1000	$\mu$ A
Static Drain-Source On-State Resistance(1)	RDS(ON)	VGS=10 V ID=6.0A	-	-	1.0	$\Omega$
Forward Trans-Conductance (2)	g <sub>fs</sub>	VDS $\geq$ 50 V IDS=6.0A	6.0	-	-	S(D)
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	t <sub>d(on)</sub>	VDD=500V Z <sub>o</sub> =50 $\Omega$ ID=6.0A	-	-	100	ns
Rise Time	t <sub>r</sub>		-	-	110	ns
Turn-Off Delay	t <sub>d(off)</sub>	(MOSFET switching times are essentially independent of operating temp.)	-	-	220	ns
Fall Time	t <sub>f</sub>		-	-	105	ns
Total Gate Charge (Gate-Source Plus Gate-Drain)	Q <sub>g</sub>		-	145	-	nC
Gate-Source Charge	Q <sub>gs</sub>	VGS=10V, ID=12A VDS=0.8 MAX. RATING (Gate charge is essentially independent of the operating temperature)	-	55	-	nC
Gate-Drain ("Miller") Charge	Q <sub>gd</sub>		-	90	-	nC

### SOURCE-DRAIN DIODE RATINGS & CHARACT. T<sub>c</sub> = 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)	-	-	12	A
Pulse Source Current (Body Diode) (1)	ISM		-	-	48	A
Diode Forward Voltage (2)	VSD	IF=12A VGS=0V T <sub>c</sub> =+25°C	-	-	1.5	V
Reverse Recovery Time	t <sub>rr</sub>	T <sub>c</sub> =+25° C IF=12A	-	600	-	ns
Reverse Recovery Charge	Q <sub>rr</sub>	di/dt=100A/ $\mu$ S	-	8.5	-	$\mu$ C

 (1) T<sub>J</sub> = 25°C to 150°C.

 (2) Pulse test: Pulse Width < 300 $\mu$ S, Duty Cycle < 2%.

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

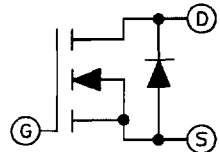
 1000V, 12A, 1.0 $\Omega$ 

SDF12N100 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

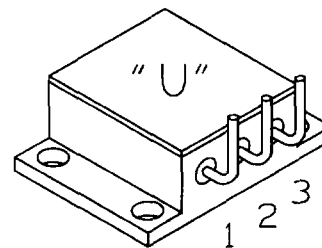
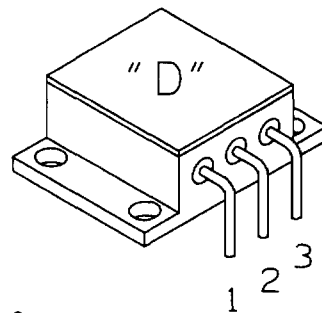
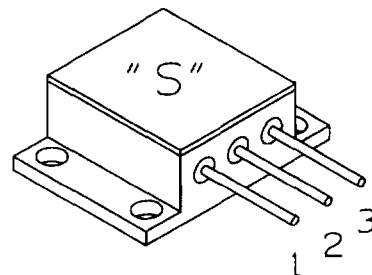


#### TERMINAL CONNECTIONS

G		H	
1	GATE	1	DRAIN
2	DRAIN	2	SOURCE
3	SOURCE	3	GATE

STANDARD BEND CONFIGURATIONS

GAF



(CUSTOM BEND OPTIONS AVAILABLE)