

N-CHANNEL ENHANCEMENT MOS FET

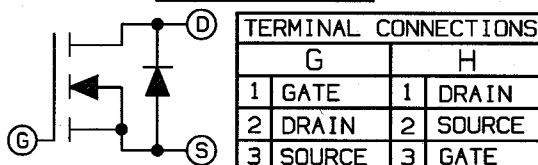
500V, 13A, 0.40 Ω

SDF450 JAA
SDF450 JAB

FEATURES

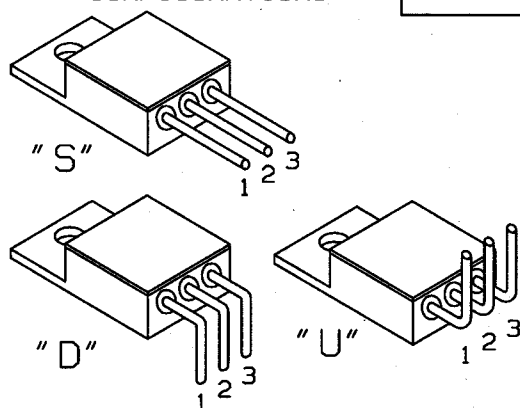
- RUGGED PACKAGE
- HI-REL CONSTRUCTION
- CERAMIC EYELETS
- LEAD BENDING OPTIONS
- COPPER CORED 52 ALLOY PINS
- LOW IR LOSSES
- LOW THERMAL RESISTANCE
- OPTIONAL MIL-S-19500 SCREENING

SCHEMATIC



STANDARD BEND CONFIGURATIONS

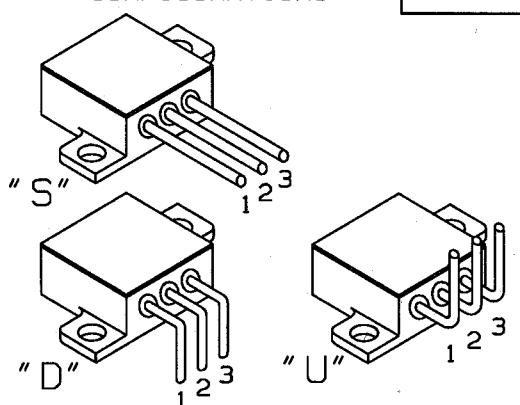
JAA



(CUSTOM BEND OPTIONS AVAILABLE)

STANDARD BEND CONFIGURATIONS

JAB



(CUSTOM BEND OPTIONS AVAILABLE)

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL		UNITS
Drain-source Volt.(1)	VDSS	500	Vdc
Drain-Gate Voltage (Rgs=1.0M Ω) (1)	VDGR	500	Vdc
Gate-Source Voltage Continuous	VGS	± 20	Vdc
Drain Current Continuous (Tc = 25°C)	ID	13	Adc
Drain Current Pulsed(3)	IDM	52	A
Total Power Dissipation	PD	150	W
Power Dissipation Derating > 25°C		1.2	W/°C
Operating & Storage Temp.	TJ/Tsig	-55 TO +150	°C
Thermal Resistance	RthJc	0.8	°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 μ A	500	-	-	V
Gate Threshold Voltage	VGS(TH)	VDS=VGS ID=250 μ A	2.0	-	4.0	V
Gate Source Leakage	IGSS	VGS= ± 20 V	-	-	100	nA
Zero Gate Voltage Drain Current	IDSS	VDS=MAX.RATING VGS=0 TJ=125°C	-	-	250	μ A
Static Drain-Source On-State Resistance(1)	RDS(ON)	VGS=10 V ID=7.2A	-	-	0.40	Ω
Forward Trans-Conductance (2)	gfs	VDS ≥ 50 V IDS=7.2A	8.7	-	-	S(0)
Input Capacitance	CISS	VGS=0V VDS=25 V f=1.0 MHz	-	2700	-	pF
Output Capacitance	COSS		-	350	-	pF
Reverse Transfer Capacitance	CRSS		-	75	-	pF
Turn-On Delay	td(on)	VDD=250V RG=6.2 Ω ID=13A RD=20 Ω	-	-	20	ns
Rise Time	tr	(MOSFET switching times are essentially independent of operating temp.)	-	-	100	ns
Turn-Off Delay	td(off)		-	-	110	ns
Fall Time	tf		-	-	72	ns
Total Gate Charge (Gate-Source Plus Gate-Drain)	Qg	VGS=10V, ID=13A VDS=0.8 MAX.RATING	55	-	120	nC
Gate-Source Charge	Qgs	(Gate charge is essentially independent of the operating temperature)	5.2	-	19	nC
Gate-Drain ("Miller") Charge	Qgd		27	-	70	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)	-	-	13	A
Pulse Source Current (Body Diode) (1)	ISM		-	-	52	A
Diode Forward Voltage (2)	VSD	IF=13A, VGS=0V Tc=+25°C	-	-	1.4	V
Reverse Recovery Time	trr	Tc=+25°C IF=13A	-	-	1200	ns
Reverse Recovery Charge	Qrr	di/dt=100A/ μ S	-	6.7	-	μ C

(1) TJ = 25°C to 150°C.

(2) Pulse test: Pulse Width < 300 μ S. Duty Cycle < 2%.

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