

N-CHANNEL ENHANCEMENT MOS FET

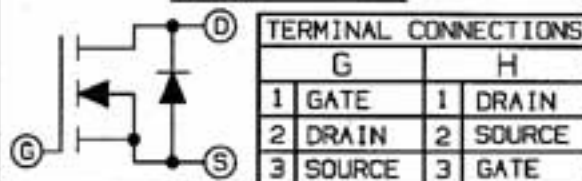
500V, 13A, 0.40 Ω

SDF450 JAA
SDF450 JAB

FEATURES

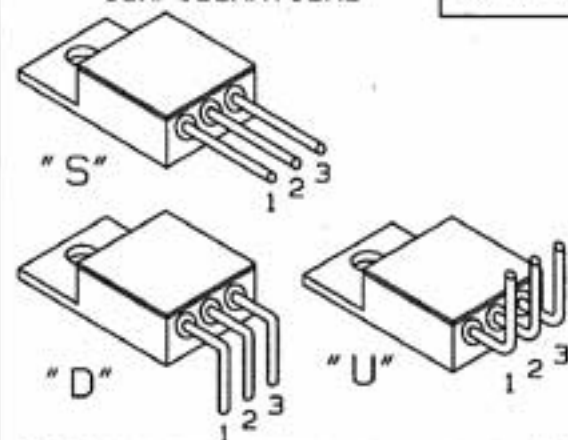
- RUGGED PACKAGE
- HI-REL CONSTRUCTION
- CERAMIC EYELETS
- LEAD BENDING OPTIONS
- COPPER CORED 52 ALLOY PINS
- LOW IR LOSSES
- LOW THERMAL RESISTANCE
- OPTIONAL MIL-S-19500 SCREENING

SCHEMATIC



STANDARD BEND CONFIGURATIONS

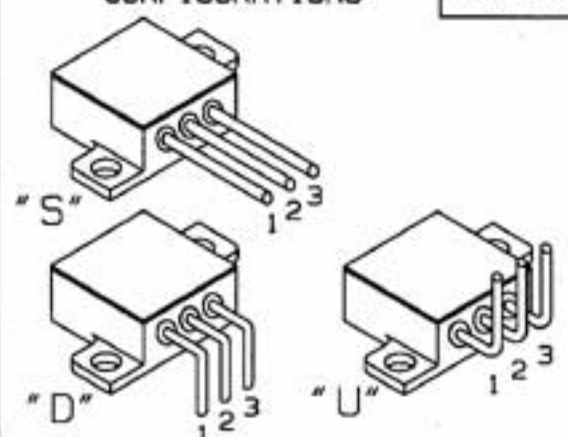
JAA



(CUSTOM BEND OPTIONS AVAILABLE)

STANDARD BEND CONFIGURATIONS

JAB



(CUSTOM BEND OPTIONS AVAILABLE)

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL		UNITS
Drain-source Volt.(1)	V _{DSS}	500	V _{dc}
Drain-Gate Voltage (R _{GS} =1.0M Ω) (1)	V _{DGR}	500	V _{dc}
Gate-Source Voltage Continuous	V _{GS}	± 20	V _{dc}
Drain Current Continuous (T _c = 25°C)	I _D	13	A _{dc}
Drain Current Pulsed(3)	I _{DM}	52	A
Total Power Dissipation	P _D	150	W
Power Dissipation Derating > 25°C		1.2	W/°C
Operating & Storage Temp.	T _J /T _{sig}	-55 TO +150	°C
Thermal Resistance	R _{thJc}	0.8	°C/W
Max.Lead temperature	T _L	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}	V _{GS} =0V I _D =250 μ A	500	-	-	V
Gate Threshold Voltage	V _{GS(TH)}	V _D =V _{GS} I _D =250 μ A	2.0	-	4.0	V
Gate Source Leakage	I _{GSS}	V _{GS} = ± 20 V	-	-	100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _D =MAX.RATING V _{GS} =0 V _D =0.8 MAX.RATING V _{GS} =0 T _J =125°C	-	-	250 1000	μ A
Static Drain-Source On-State Resistance(1)	R _{DS(ON)}	V _{GS} =10 V I _D =7.2A	-	-	0.40	Ω
Forward Trans-Conductance (2)	g _{fs}	V _D \geq 50 V I _D =7.2A	8.7	-	-	S(U)
Input Capacitance	C _{ISS}	V _{GS} =0V V _D =25 V f=1.0 MHz	-	2700	-	pF
Output Capacitance	C _{OSS}		-	350	-	pF
Reverse Transfer Capacitance	C _{RSS}		-	75	-	pF
Turn-On Delay	t _{d(on)}	V _D =250V R _G =6.2 Ω I _D =13A R _D =20 Ω	-	-	20	ns
Rise Time	t _r	(MOSFET switching times are essentially independent of operating temp.)	-	-	100	ns
Turn-Off Delay	t _{d(off)}		-	-	110	ns
Fall Time	t _f		-	-	72	ns
Total Gate Charge (Gate-Source Plus Gate-Drain)	Q _g	V _{GS} =10V, I _D =13A	55	120	-	nC
Gate-Source Charge	Q _{gs}	V _D =0.8 MAX.RATING (Gate charge is essentially independent of the operating temperature)	5.2	19	-	nC
Gate-Drain ("Miller") Charge	Q _{gd}		27	70	-	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)	I _S	Modified MOSFET symbol showing the integral reverse P-N junction rectifier (See schematic)	-	-	13	A
Pulse Source Current (Body Diode) (1)	I _{SM}		-	-	52	A
Diode Forward Voltage (2)	V _{SD}	I _F =13A, V _{GS} =0V T _c =+25°C	-	-	1.4	V
Reverse Recovery Time	t _{rr}	T _c =+25°C	-	-	1200	ns
Reverse Recovery Charge	Q _{rr}	I _F =13A di/dt=100A/ μ S	-	6.7	-	μ C

REV. 10/93

- (1) T_J = 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.