

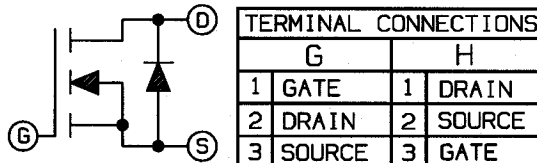
## N-CHANNEL ENHANCEMENT MOS FET

100V, 25A, 0.10Ω	
SDF140	JAA
SDF140	JAB
SDF140	JDA

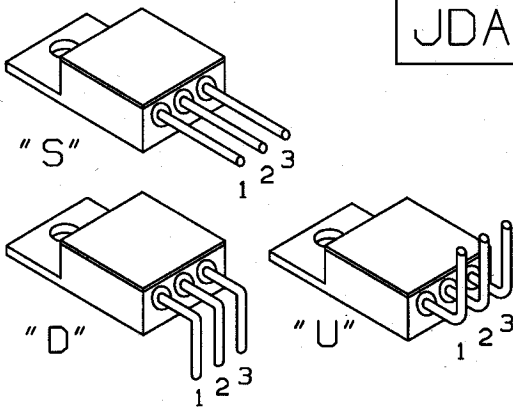
### FEATURES

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

### SCHEMATIC



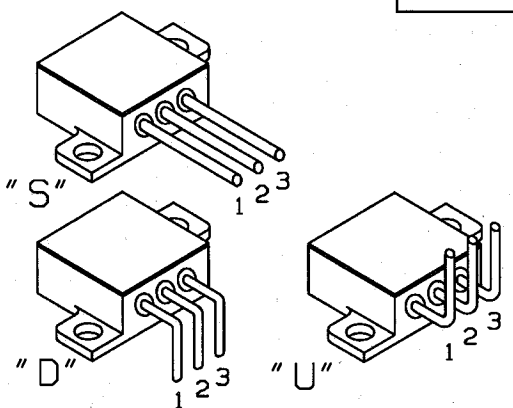
#### STANDARD BEND CONFIGURATIONS



JAA  
JDA

(CUSTOM BEND OPTIONS AVAILABLE)

#### STANDARD BEND CONFIGURATIONS



JAB

(CUSTOM BEND OPTIONS AVAILABLE)

### ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL		UNITS
Drain-source Volt.(1)	VDSS	100	Vdc
Drain-Gate Voltage (R <sub>GS</sub> =1.0M $\Omega$ ) (1)	VDGR	100	Vdc
Gate-Source Voltage Continuous	VGS	$\pm 20$	Vdc
Drain Current Continuous (T <sub>c</sub> = 25°C)	ID	25	Adc
Drain Current Pulsed(3)	IDM	100	A
Total Power Dissipation	PD	100	W
Power Dissipation Derating > 25°C		0.83	W/°C
Operating & Storage Temp.	TJ/Tsig	-55 TO +150	°C
Thermal Resistance	RthJc	1.2	°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	100	-	-	V
Gate Threshold Voltage	VGS(TH)	VDS=VGS ID=250 $\mu$ A	2.0	-	4.0	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=15A	-	-	0.10	$\Omega$
Forward Trans-Conductance (2)	gfs	VDS $\geq 50$ V IDS=15A	8.7	-	-	S(U)
Input Capacitance	CISS		-	1500	-	pF
Output Capacitance	COSS	VGS=0V VDS=25 V f=1.0 MHz	-	500	-	pF
Reverse Transfer Capacitance	CRSS		-	90	-	pF
Turn-On Delay	td(on)	VDD=50V RG=9.1n ID=25A RD=1.8 $\Omega$	-	-	23	ns
Rise Time	tr	(MOSFET switching times are essentially independent of operating temp.)	-	-	110	ns
Turn-Off Delay	td(off)		-	-	60	ns
Fall Time	tf		-	-	75	ns
Total Gate Charge (Gate-Source Plus Gate-Drain)	Qg	VGS=10V, ID=25A VDS=0.8 MAX.RATING	-	-	59	nC
Gate-Source Charge	Qgs	(Gate charge is essentially independent of the operating temperature)	-	-	12	nC
Gate-Drain ("Miller") Charge	Qgd		-	-	28	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)	-	-	25	A
Pulse Source Current (Body Diode) (1)	ISM		-	-	100	A
Diode Forward Voltage (2)	VSD	IF=25A, VGS=0V Tc=+25°C	-	-	2.5	V
Reverse Recovery Time	trr	Tc=+25°C	-	-	300	ns
Reverse Recovery Charge	Qrr	IF=25A di/dt=100A/ $\mu$ S	-	0.91	-	$\mu$ C

REV. 10/93

- (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.