N-CHANNEL ENHANCEMENT MOS FET

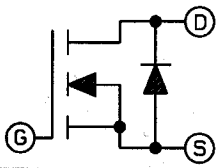
500V, 4.5A, 1.5Ω

SDF430 JAA
SDF430 JAB
SDF430 JDA

FEATURES

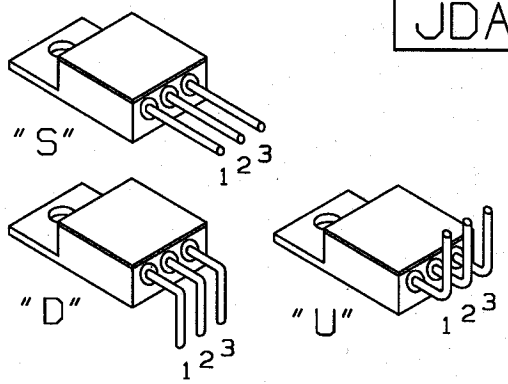
- RUGGED PACKAGE
- HI-REL CONSTRUCTION
- CERAMIC EYELETS: JAA, JAB
- LEAD BENDING OPTIONS
- COPPER CORED 52 ALLOY PINS
- LOW IR LOSSES
- LOW THERMAL RESISTANCE
- OPTIONAL MIL-S-19500 SCREENING

SCHEMATIC



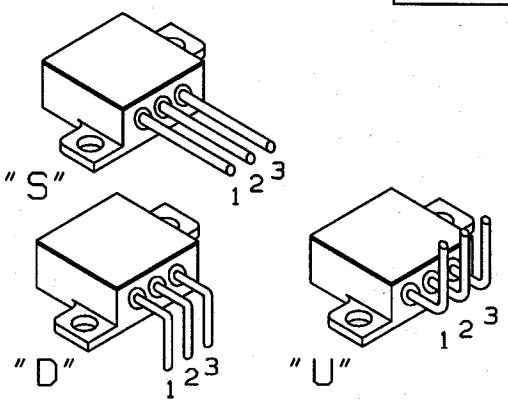
TERMINAL CONNECTIONS			
G		H	
1	GATE	1	DRAIN
2	DRAIN	2	SOURCE
3	SOURCE	3	GATE

STANDARD BEND CONFIGURATIONS — JAA JDA



(CUSTOM BEND OPTIONS AVAILABLE)

STANDARD BEND CONFIGURATIONS — JAB



(CUSTOM BEND OPTIONS AVAILABLE)

REV. 10/93

ABSOLUTE MAXIMUM RATINGS			
PARAMETER	SYMBOL		UNITS
Drain-source Volt.(1)	VDSS	500	Vdc
Drain-Gate Voltage (R_{GS}=1.0MΩ) (1)	VDGR	500	Vdc
Gate-Source Voltage Continuous	VGS	±20	Vdc
Drain Current Continuous (Tc = 25°C)	ID	4.5	Adc
Drain Current Pulsed(3)	IDM	15	A
Total Power Dissipation	PD	75	W
Power Dissipation Derating > 25°C		0.6	W/°C
Operating & Storage Temp.	TJ/Tsig	-55 TO +150	°C
Thermal Resistance	RthJc	1.7	°C/W
Max.Lead temperature	TL	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	VGS=0V ID=250 µA	500	–	–	V
Gate Threshold Voltage	VGS(TH)	VDS=VGS ID=250 µA	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	–	–	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=2.5A	–	–	1.5	Ω
Forward Trans-Conductance (2)	gfs	VDS ≥ 50 V IDS=2.5A	2.7	–	–	S(℧)
Input Capacitance	CISS	VGS=0V VDS=25 V f=1.0 MHz	–	610	–	pF
Output Capacitance	COSS		–	91	–	pF
Reverse Transfer Capacitance	CRSS		–	18	–	pF
Turn-On Delay	td(on)	VDD=250V RG=12Ω ID=4.5A RD=56Ω (MOSFET switching times are essentially independent of operating temp.)	–	–	17	ns
Rise Time	tr		–	–	23	ns
Turn-Off Delay	td(off)		–	–	53	ns
Fall Time	tf		–	–	23	ns
Total Gate Charge (Gate-Source Plus Gate-Drain)	Qg	VGS=10V, ID=4.5A VDS=0.8 MAX.RATING (Gate charge is essentially independent of the operating temperature)	–	–	32	nC
Gate-Source Charge	Qgs		–	–	4.8	nC
Gate-Drain ("Miller") Charge	Qgd		–	–	17	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)	IS	Modified MOSFET symbol showing the integral reverse P-N junction rectifier (See schematic)	–	–	4.5	A
Pulse Source Current (Body Diode) (1)	ISM		–	–	16	A
Diode Forward Voltage (2)	VSD	IF=4.5A VGS=0V Tc=+25°C	–	–	1.6	V
Reverse Recovery Time	trr	Tc=+25° C IF=4.5A di/dt=100A/µS	–	–	760	ns
Reverse Recovery Charge	Qrr		–	2.0	–	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.