

N-CHANNEL ENHANCEMENT MOS FET
ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL		UNITS
Drain-source Volt.(1)	VDSS	500	Vdc
Drain-Gate Voltage (RGS=1.0Ma) (1)	VDGR	500	Vdc
Gate-Source Voltage Continuous	VGS	±20	Vdc
Drain Current Continuous (Tc = 25°C)	ID	40	Adc
Drain Current Pulsed(3)	IDM	160	A
Total Power Dissipation	PD	500	W
Power Dissipation Derating > 25°C		4.0	W/°C
Operating & Storage Temp.	TJ/Tsig	-55 TO +150	°C
Thermal Resistance	RthJc	0.25	°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=500 µA	500	-	-	V
Gate Threshold Voltage	VGS(TH)	VDS=VGS ID=500 µA	2.0	-	4.0	V
Gate Source Leakage	IGSS	VGS=±20 V	-	-	200	nA
Zero Gate Voltage Drain Current	IDSS	VDS=MAX. RATING VGS=0	-	-	500	µA
		VDS=0.8 MAX. RATING VGS=0 TJ=125°C	-	-	2.0	mA
Static Drain-Source On-State Resistance(1)	RDS(ON)	VGS=10 V ID=24A	-	-	0.14	Ω
Forward Trans-Conductance (2)	gfs	VDS ≥ 50 V IDS=24A	13	-	-	S(U)
Input Capacitance	CISS	VGS=0V VDS=25 V f=1.0 MHz	-	8200	-	pF
Output Capacitance	COSS		-	970	-	pF
Reverse Transfer Capacitance	CRSS		-	170	-	pF
Turn-On Delay	td(on)	VDD=100V RG=2.2 Ω ID=40A	-	-	35	ns
Rise Time	tr	(MOSFET switching times are essentially independent of operating temp.)	-	-	120	ns
Turn-Off Delay	td(off)		-	-	130	ns
Fall Time	tf		-	-	100	ns
Total Gate Charge (Gate-Source Plus Gate-Drain)	Qg	VGS=10V, ID=40A	-	-	380	nC
Gate-Source Charge	Qgs	VDS=0.8 MAX. RATING (Gate charge is essentially independent of the operating temperature)	-	-	54	nC
Gate-Drain ("Miller") Charge	Qgd		-	-	185	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)	-	-	40	A
Pulse Source Current (Body Diode) (1)	ISM		-	-	160	A
Diode Forward Voltage (2)	VSD	IF=40A VGS=0V Tc=+25°C	-	-	2.0	V
Reverse Recovery Time	trr	Tc=+25°C IF=40A	-	-	1000	ns
Reverse Recovery Charge	Qrr	di/dt=100A/µS	-	15	-	µC

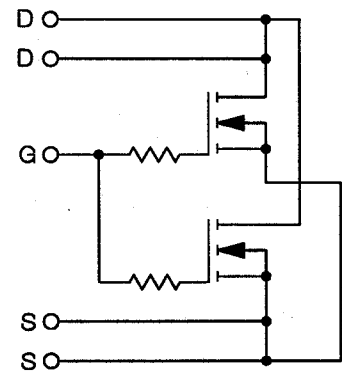
(1) TJ = 25 °C to 150 °C.

(2) Pulse test: Pulse Width < 300µS, Duty Cycle < 2%.

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

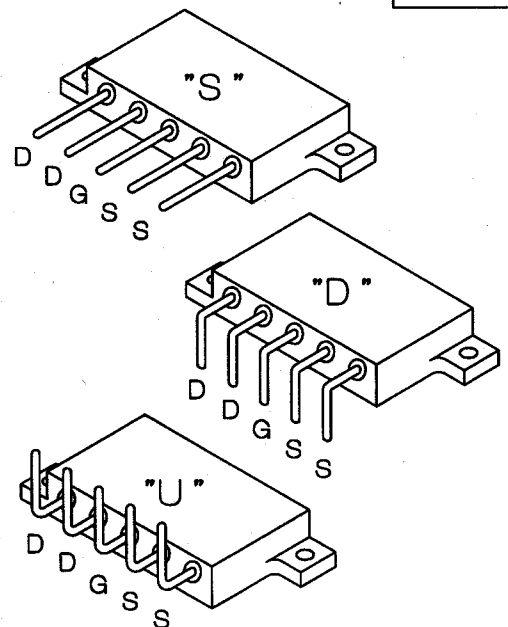
500V, 40A, 0.14 Ω
SDF40N50 JAM
FEATURES

- RUGGED PACKAGE
- HI-REL CONSTRUCTION
- CERAMIC EYELETS
- LEAD BENDING OPTIONS
- COPPER CORED 52 ALLOY PINS
- LOW IR LOSSES
- LOW THERMAL RESISTANCE
- OPTIONAL MIL-STD-883 SCREENING

SCHEMATIC


(CUSTOM SCHEMATIC OPTIONS AVAILABLE)

STANDARD BEND CONFIGURATION

JAM


(CUSTOM BEND OPTIONS AVAILABLE)