

N-CHANNEL ENHANCEMENT MOS FET

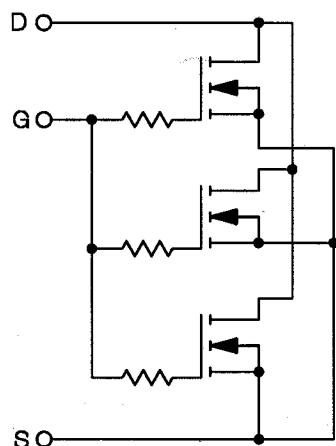
200V, 75A, 0.035 Ω

SDF75NA20 GBN

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

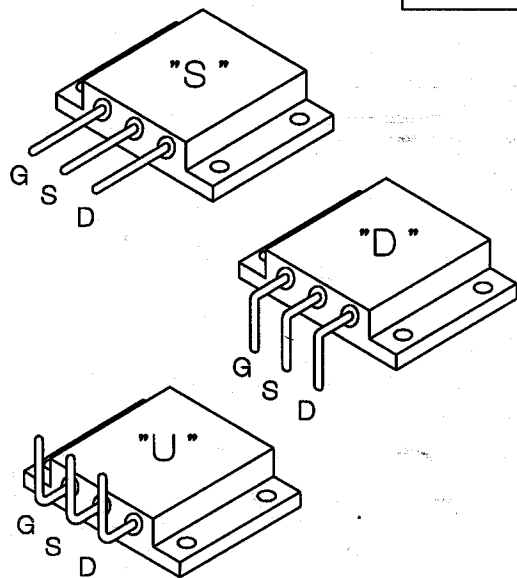
SCHEMATIC



(CUSTOM SCHEMATIC OPTIONS AVAILABLE)

STANDARD BEND CONFIGURATION

GBN



(CUSTOM BEND OPTIONS AVAILABLE)

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL		UNITS
Drain-source Volt.(1)	V _{DSS}	200	V _{dc}
Drain-Gate Voltage (R _{GS} =1.0MΩ) (1)	V _{DGR}	200	V _{dc}
Gate-Source Voltage Continuous	V _{GS}	±20	V _{dc}
Drain Current Continuous (T _c = 25°C)	I _D	75	A _{dc}
Drain Current Pulsed(3)	I _{DM}	360	A
Total Power Dissipation	PD	450	W
Power Dissipation Derating > 25°C		3.3	W/°C
Operating & Storage Temp.	T _J /T _{stg}	-55 TO +150	°C
Thermal Resistance	R _{thJc}	0.3	°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}	V _{GS} =0V I _D =250 μA	200	-	-	V
Gate Threshold Voltage	V _{GS(TH)}	V _D =V _{GS} I _D =250 μA	2.0	-	4.0	V
Gate Source Leakage	I _{GSS}	V _{GS} =±20 V	-	-	300	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _D =MAX.RATING V _{GS} =0	-	-	750	μA
		V _D =0.8 MAX.RATING V _{GS} =0 T _J =125°C	-	-	3.0	mA
Static Drain-Source On-State Resistance(1)	R _{DS(ON)}	V _{GS} =10 V I _D =48A	-	-	.035	Ω
Forward Trans-Conductance (2)	g _{fS}	V _D ≥ 50 V I _D =48A	13	-	-	S(U)
Input Capacitance	C _{ISS}	V _{GS} =0V V _D =25 V f=1.0 MHz	-	7800	-	pF
Output Capacitance	C _{OSS}		-	1950	-	pF
Reverse Transfer Capacitance	C _{RSS}		-	450	-	pF
Turn-On Delay	t _{d(on)}	V _{DD} =100V R _G =6.2 Ω I _D =75A R _D =1.3 Ω	-	-	30	ns
Rise Time	t _r	(MOSFET switching times are essentially independent of operating temp.)	-	-	180	ns
Turn-Off Delay	t _{d(off)}		-	-	100	ns
Fall Time	t _f		-	-	120	ns
Total Gate Charge (Gate-Source Plus Gate-Drain)	Q _g	V _{GS} =10V, I _D =75A V _D =0.8 MAX.RATING	-	-	345	nC
Gate-Source Charge	Q _{gs}	(Gate charge is essentially independent of the operating temperature)	-	-	63	nC
Gate-Drain ("Miller") Charge	Q _{gd}		-	-	180	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)	-	-	75	A
Pulse Source Current (Body Diode) (1)	I _{SM}		-	-	300	A
Diode Forward Voltage (2)	V _{SD}	I _F =75A, V _{GS} =0V T _c =+25°C	-	-	2.0	V
Reverse Recovery Time	t _{rr}	T _c =+25° C	-	-	950	ns
Reverse Recovery Charge	Q _{rr}	I _F =75A di/dt=100A/μS	-	11.4	-	μC

(1) T_J = 25 °C to 150 °C.

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

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