Solitron DEVICES, INC.

N-CHANNEL ENHANCEMENT MOS FET

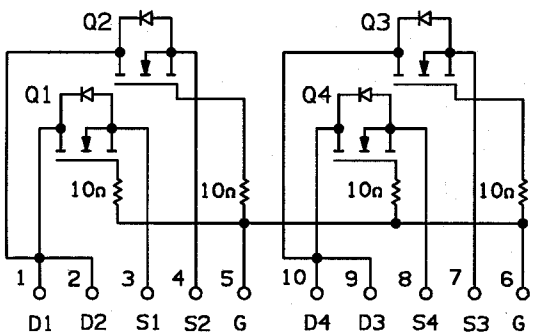
500V, 86A, 0.07Ω

SDF85NA50 HI
SDF85NA50 JD

FEATURES

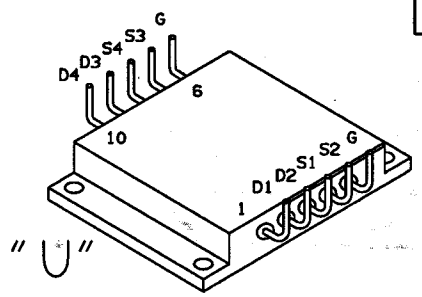
- RUGGED PACKAGE
- HI-REL CONSTRUCTION
- CERAMIC EYELETS
- LEAD BENDING OPTIONS
- COPPER CORED 52 ALLOY PINS
- LOW IR LOSSES
- LOW THERMAL RESISTANCE
- OPTIONAL MIL-STD-883 SCREENING

SCHEMATIC



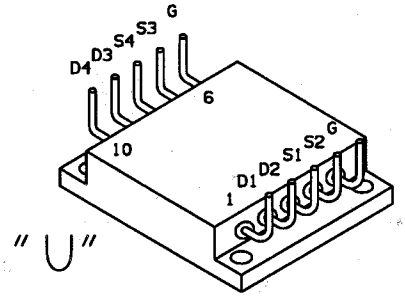
(CUSTOM SCHEMATIC OPTIONS AVAILABLE)

STANDARD BEND CONFIGURATION **HI**



(CUSTOM BEND OPTIONS AVAILABLE)

STANDARD BEND CONFIGURATION **JD**



(CUSTOM BEND OPTIONS AVAILABLE)

ABSOLUTE MAXIMUM RATINGS			
PARAMETER	SYMBOL		UNITS
DRAIN-SOURCE VOLTAGE	VDSS	500	Vdc
DRAIN-GATE VOLTAGE (R_{GS}=1.0MΩ)	VDGR	500	Vdc
GATE-SOURCE VOLTAGE CONTINUOUS	VGS	±20	Vdc
DRAIN CURRENT CONTINUOUS (Tc = 25°C)	ID	85	Adc
DRAIN CURRENT PULSED	IDM	340	A
TOTAL POWER DISSIPATION	PD	850	W
POWER DISSIPATION DERATING > 25°C		6.67	W/°C
OPERATING & STORAGE TEMP.	TJ/Tsig	-55 TO +150	°C
THERMAL RESISTANCE	RthJc	0.15	°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=12A	–	–	.27	Ω
Forward Trans-Conductance (2)	gfs	VDS ≥ 50 V IDS=12A	13	–	–	S(℧)
Input Capacitance	CISS	VGS=0V VDS=25 V f=1.0 MHz	–	4100	–	pF
Output Capacitance	COSS		–	480	–	pF
Reverse Transfer Capacitance	CRSS		–	84	–	pF
Turn-On Delay	td(on)	VDD=250V RG=4.3Ω ID=21A RD=12Ω (MOSFET switching times are essentially independent of operating temp.)	–	–	35	ns
Rise Time	tr		–	–	120	ns
Turn-Off Delay	td(off)		–	–	130	ns
Fall Time	tf		–	–	98	ns
Total Gate Charge (Gate-Source Plus Gate-Drain)	Qg	VGS=10V, ID=21A VDS=0.8 MAX.RATING (Gate charge is essentially independent of the operating temperature)	–	–	190	nC
Gate-Source Charge	Qgs		–	–	27	nC
Gate-Drain ("Miller") Charge	Qgd		–	–	93	nC

TOTAL MODULE RATINGS AND CHARACTERISTICS T_C=25°C (UNLESS OTHERWISE SPECIFIED)					
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	MAX.	UNITS
PIN-CASE ISOLATION	PCI	VCASE-PINS ALL PINS SHORTED TO CASE	10	–	mΩ
STATIC DRAIN-SOURCE ON-STATE VOLTAGE	VDS(ON)	VGS ≥ 10V ID = 85A	–	5.0	V
STATIC DRAIN-SOURCE ON-STATE RESISTANCE	RDS(ON)	VGS = 10V ID = 42A	–	0.05	OHM
ZERO GATE VOLTAGE DRAIN CURRENT	IDSS	VGS = 0V VDS = 500V	–	1.0	mA

(1) TJ = 25°C TO 150°C.
(2) PULSE TEST: PULSE WIDTH < 300µS, DUTY CYCLE < 2%.
(3) TEST ARE PERFORMED AT ELEMENT EVALUATION. TEST CONDITIONS AND LIMITS APPLY TO EACH MOSFET SEPARATELY.