

N-CHANNEL ENHANCEMENT MOS FET

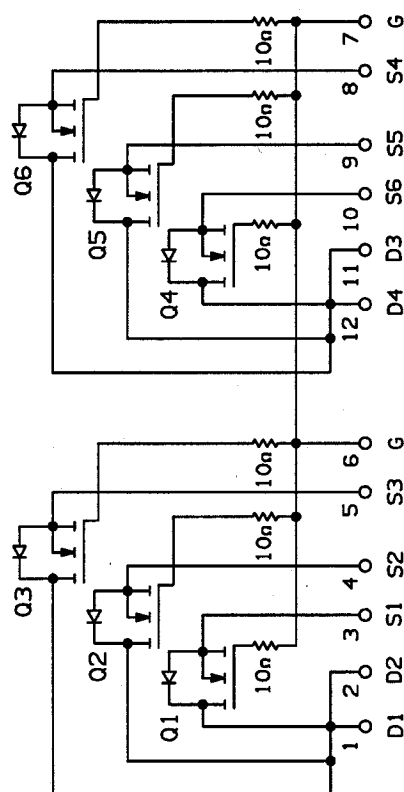
400V, 150A, 0.035 Ω

SDF150NA40 HE

FEATURES

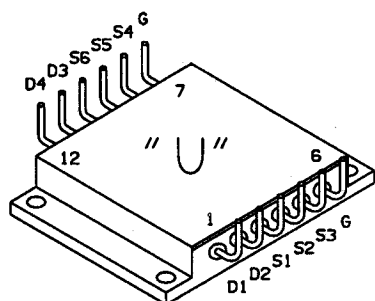
- RUGGED PACKAGE
- HI-REL CONSTRUCTION
- CERAMIC EYELETS
- LEAD BENDING OPTIONS
- COPPER CORED 52 ALLOY PINS
- LOW IR LOSSES
- LOW THERMAL RESISTANCE
- OPTIONAL MIL-STD-883 SCREENING

SCHEMATIC



STANDARD BEND CONFIGURATION

HE



(CUSTOM BEND OPTIONS AVAILABLE)

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL		UNITS
DRAIN-SOURCE VOLTAGE	V _{DSS}	400	V _{dc}
DRAIN-GATE VOLTAGE (R _{GS} =1.0M Ω)	V _{DGR}	400	V _{dc}
GATE-SOURCE VOLTAGE CONTINUOUS	V _{GS}	± 20	V _{dc}
DRAIN CURRENT CONTINUOUS (T _c = 25°C)	I _D	150	A _{dc}
DRAIN CURRENT PULSED	I _{DM}	600	A
TOTAL POWER DISSIPATION	P _D	1250	W
POWER DISSIPATION DERATING > 25°C		10.0	W/°C
OPERATING & STORAGE TEMP.	T _J /T _{stg}	-55 TO +150	°C
THERMAL RESISTANCE	R _{thJc}	0.10	°C/W
MAX. LEAD TEMPERATURE	T _L	300	°C

ELECTRICAL CHARACTERISTICS T_c = 25°C (UNLESS OTHERWISE SPECIFIED)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNITS
DRAIN-SOURCE BREAKDOWN VOLTAGE (1 & 2)	V(BR) _{DSS}	V _{GS} =0V I _D =250 μ A	400	-	-	V
GATE THRESHOLD VOLTAGE	V _{GS} (TH)	V _D =V _{GS} I _D =250 μ A	2.0	-	4.0	V
GATE SOURCE LEAKAGE	I _{GSS}	V _{GS} = ± 20 V	-	-	100	nA
ZERO GATE VOLTAGE DRAIN CURRENT	I _{DSS}	V _D =MAX.RATING V _{GS} =0	-	-	250	μ A
		V _D =0.8 MAX.RATING V _{GS} =0 T _J =125°C	-	-	1000	μ A
STATIC DRAIN-SOURCE ON-STATE RESISTANCE (2)	R _{DS} (ON)	V _{GS} =10 V I _D =13A	-	-	0.20	Ω
FORWARD TRANS-CONDUCTANCE (2)	g _{fs}	V _D $\geq$ 50 V I _D =13A	14	-	-	S(U)
INPUT CAPACITANCE	C _{ISS}	V _{GS} =0V V _D =25 V f=1.0 MHz (3)	-	4100	-	pF
OUTPUT CAPACITANCE	C _{OSS}		-	480	-	pF
REVERSE TRANSFER CAPACITANCE	C _{RSS}		-	84	-	pF
TURN-ON DELAY	t _d (on)	V _{DD} =200V R _G =4.3 Ω I _D =25A R _D =7.5 Ω	-	-	33	ns
RISE TIME	t _r	(MOSFET SWITCHING TIMES ARE ESSENTIALLY INDEPENDENT OF OPERATING TEMP. NOTE 3)	-	-	140	ns
TURN-OFF DELAY	t _d (off)		-	-	120	ns
FALL TIME	t _f		-	-	99	ns
TOTAL GATE CHARGE (GATE-SOURCE PLUS GATE-DRAIN)	Q _g	V _{GS} =10V, I _D =25A V _D =0.8 MAX.RATING	-	-	190	nC
GATE SOURCE CHARGE	Q _{gs}	(GATE CHARGE IS ESSENTIALLY INDEPENDENT OF THE OPERATING TEMPERATURE NOTE 3)	-	-	27	nC
GATE-DRAIN ("MILLER") CHARGE	Q _{gd}		-	-	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	V _{CASE} -PINS ALL PINS SHORTED TO CASE	10	-	m Ω
STATIC DRAIN-SOURCE ON-STATE VOLTAGE	V _D (ON)	V _{GS} $\geq$ 10V I _D = 150A	-	5.0	V
STATIC DRAIN-SOURCE ON-STATE RESISTANCE	R _{DS} (ON)	V _{GS} = 10V I _D = 75A	-	.035	OHM
ZERO GATE VOLTAGE DRAIN CURRENT	I _{DSS}	V _{GS} = 0V V _D = 400V	-	1.5	mA

(1) T_J = 25°C TO 150°C.

(2) PULSE TEST: PULSE WIDTH < 300 μ S, DUTY CYCLE < 2%.

(3) TEST ARE PERFORMED AT ELEMENT EVALUATION. TEST CONDITIONS AND LIMITS APPLY TO EACH MOSFET SEPARATELY.