

MOSFET MODULE

SF150BA50



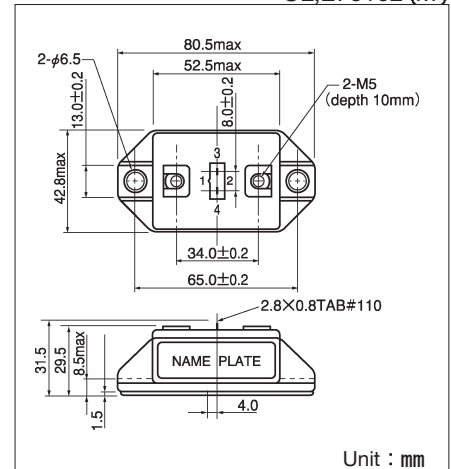
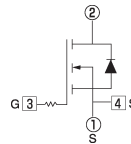
UL;E76102 (M)

SF150BA50 is a isolated power MOSFET module designed for fast switching applications of high voltage and current. The mounting base of the module is electrically isolated from semiconductor elements for simple heatsink construction.

- $I_D=150A$, $V_{DSS}=500V$
- Suitable for high speed switching application.
- Low ON resistance.
- Wide Safe Operating Areas.
- $t_{rr} \leq 700ns$

(Applications)

UPS (CVCF), Motor Control, Switching Power Supply, etc.



Maximum Ratings

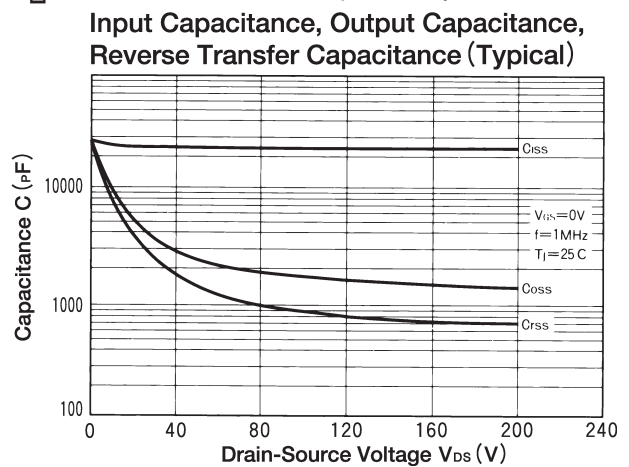
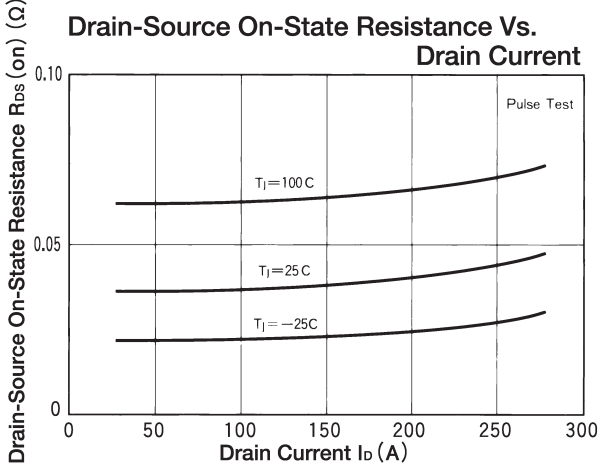
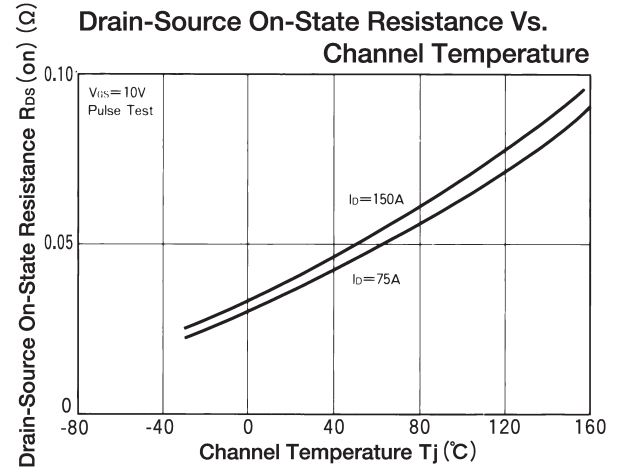
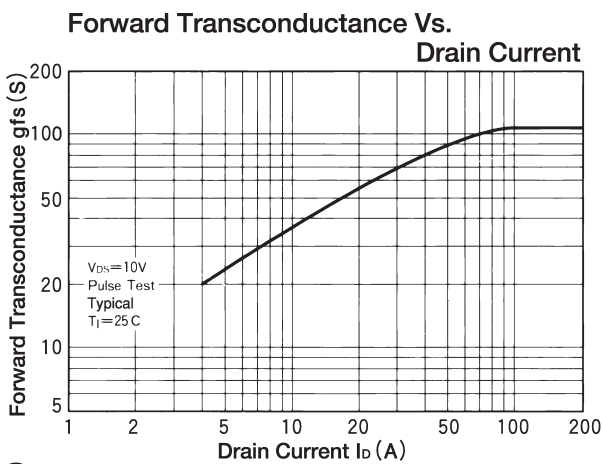
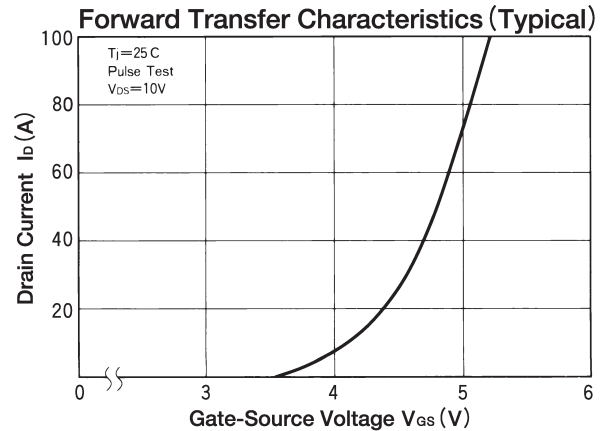
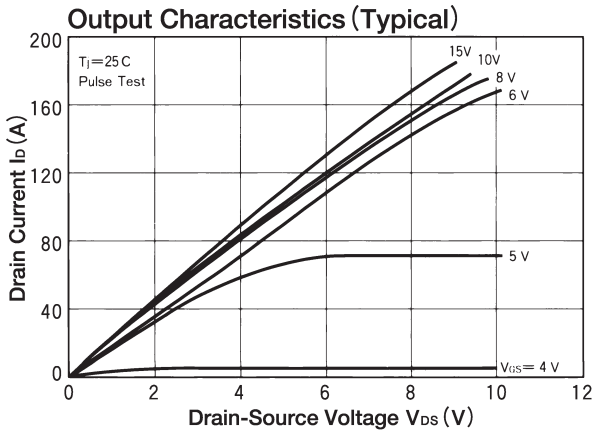
($T_j=25^\circ C$)

Symbol	Item		Conditions	Ratings		Unit
				SF150BA50		
V_{DSS}	Drain-Source Voltage			500		V
V_{GS}	Gate-Source Voltage			± 20		V
I_D	Drain Current	DC	Duty = 35%	150		A
I_{DP}		Pulse		300		
$-I_D$	Reverse Drain Current			150		A
P_T	Total Power Dissipation		$T_c=25^\circ C$	780		W
T_j	Channel Temperature			$-40 \sim +150$		$^\circ C$
T_{stg}	Storage Temperature			$-40 \sim +125$		$^\circ C$
V_{iso}	Isolation Voltage (R.M.S.)		A.C. 1minute	2500		V
	Mounting Torque	Mounting (M6)	Recommended Value 2.5~3.9 (25~40)	4.7 (48)		N·m (kgf·cm)
		Terminal (M5)	Recommended Value 1.5~2.5 (15~25)	2.7 (28)		
	Mass		Typical Value	160		g

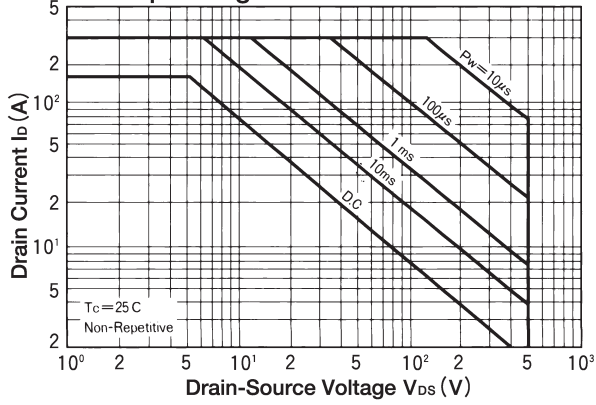
Electrical Characteristics

($T_j=25^\circ C$)

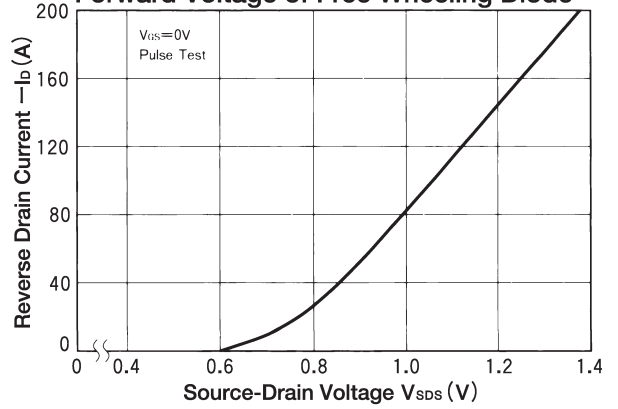
Symbol	Item		Conditions	Ratings			Unit
				Min.	Typ.	Max.	
I_{GSS}	Gate Leakage Current		$V_{GS} = \pm 20V$, $V_{DS} = 0V$			± 2.0	μA
I_{DSS}	Zero Gate Voltage Drain Current		$V_{GS} = 0V$, $V_{DS} = 500V$			2.0	mA
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage		$V_{GS} = 0V$, $I_D = 1mA$	500			V
$V_{GS(th)}$	Gate-Source Threshold Voltage		$V_{DS} = V_{GS}$, $I_D = 10mA$	1.0		5.0	V
$R_{DS(on)}$	Drain-Source On-State Resistance		$I_D = 75A$, $V_{GS} = 15V$			50	m Ω
$V_{DS(on)}$	Drain-Source On-State Voltage		$I_D = 75A$, $V_{GS} = 15V$			2.5	V
g_{fs}	Forward Transconductance		$V_{DS} = 10V$, $I_D = 75A$		80		S
C_{iss}	Input Capacitance		$V_{GS} = 0V$, $V_{DS} = 25V$, $f = 1.0MHz$			27000	pF
C_{oss}	Output Capacitance		$V_{GS} = 0V$, $V_{DS} = 25V$, $f = 1.0MHz$			5000	pF
C_{rss}	Reverse Transfer Capacitance		$V_{GS} = 0V$, $V_{DS} = 25V$, $f = 1.0MHz$			2000	pF
$t_{d(on)}$	Switching Time	Turn-on Delay Time	$R_L = 4 \Omega$, $R_G = 50 \Omega$, $V_{GS} = 15V$ $I_D = 75A$, $R_G = 5 \Omega$		90	ns	
t_r		Rise Time			180		
$t_{d(off)}$		Turn-off Delay Time			1400		
t_f		Fall Time			360		
V_{SDS}	Diode Forward Voltage		$-I_D = 75A$, $V_{GS} = 0V$			1.5	V
t_{rr}	Reverse Recovery Time		$-I_D = 75A$, $V_{GS} = 0V$, $di/dt = 100A/\mu s$		700		ns
$R_{th(j-c)}$	Thermal Resistance					0.16	$^\circ C/W$



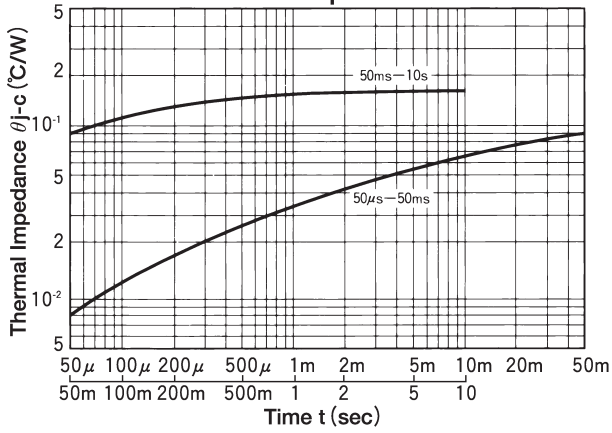
Safe Operating Area



Forward Voltage of Free Wheeling Diode



Transient Thermal Impedance



Normalized Transient Thermal Impedance Vs. Pulse Width

