

MOSFET MODULE

SF100BA50



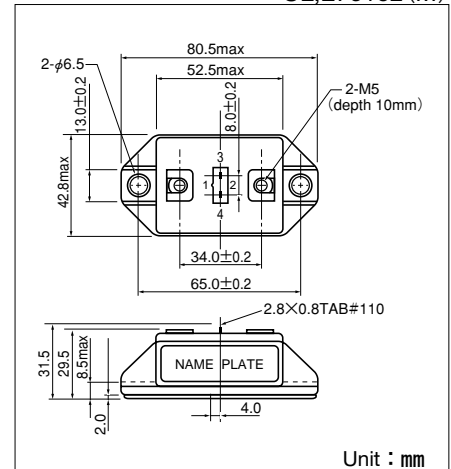
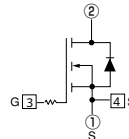
UL;E76102 (M)

SF100BA50 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.

- $I_D=100A$, $V_{DSS}=500V$
- Suitable for high speed switching applications.
- Low ON resistance.
- Wide Safe Operating Areas.
- $t_{rr} \leq 700ns$

(Applications)

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



Unit : mm

Maximum Ratings

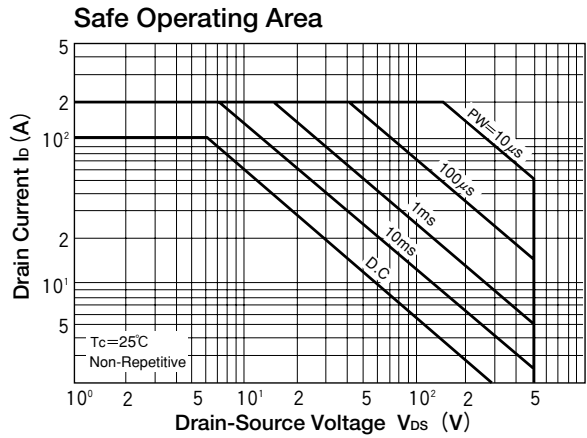
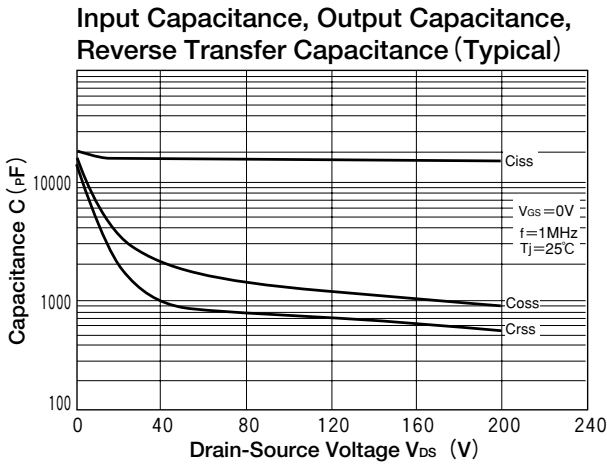
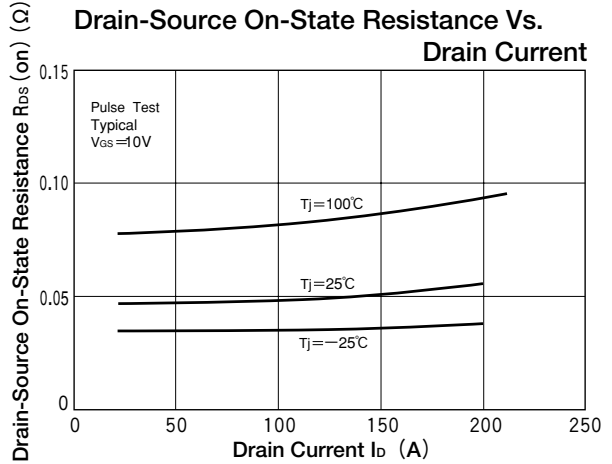
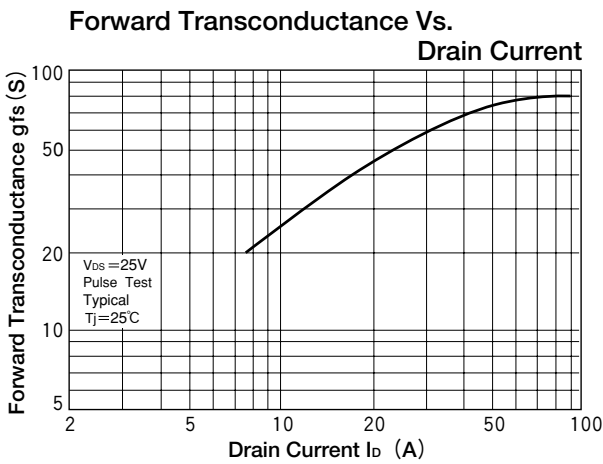
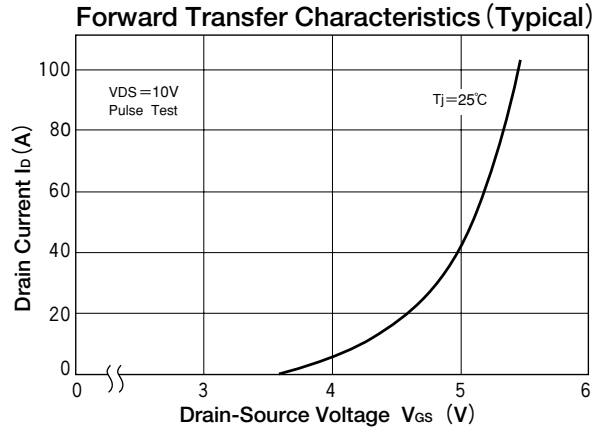
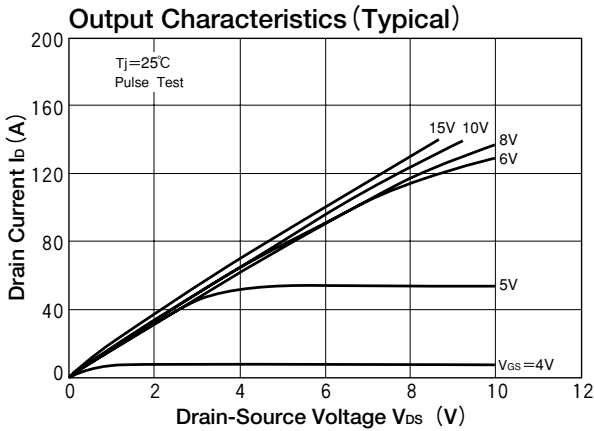
($T_j=25^\circ C$ unless otherwise specified)

Symbol	Item		Conditions	Ratings		Unit
				SF100BA50		
V_{DSS}	Drain-Source Voltage			500		V
V_{GSS}	Gate-Source Voltage			± 20		V
I_D	Drain Current	DC	Duty=43%	100		A
I_{DP}		Pulse		200		
$-I_D$	Source Current			100		A
P_T	Total Power Dissipation		$T_c=25^\circ C$	600		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

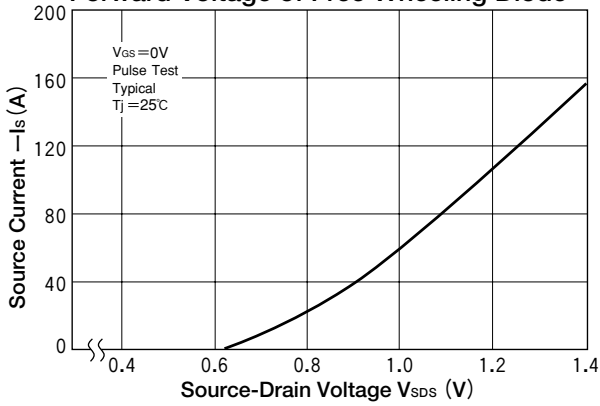
($T_j=25^\circ C$ unless otherwise specified)

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		$V_{GS}=0V$, $V_{DS}=500V$			1.0	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		$I_D=50A$, $V_{GS}=15V$			70	m Ω
$V_{DS(on)}$	Drain-Source On-State Voltage		$I_D=50A$, $V_{GS}=15V$			3.5	V
g_{fs}	Forward Transconductance		$V_{DS}=10A$, $I_D=50A$		60		S
C_{iss}	Input Capacitance		$V_{GS}=0V$, $V_{DS}=25V$, $f=1.0MHz$			20000	pF
C_{oss}	Output Capacitance		$V_{GS}=0V$, $V_{DS}=25V$, $f=1.0MHz$			3800	pF
C_{rss}	Reverse Transfer Capacitance		$V_{GS}=0V$, $V_{DS}=25V$, $f=1.0MHz$			1500	pF
$t_{d(on)}$	Switching Time	Turn-on Delay Time	$R_L=6\Omega$, $R_{GS}=50\Omega$, $V_{GS}=15V$ $I_D=50A$, $R_G=5\Omega$		70		μs
t_r		Rise Time			120		
$t_{d(off)}$		Turn-off Delay Time			1100		
t_f		Fall Time			280		
V_{SDS}	Diode Forward Voltage		$-I_D=50A$, $V_{GS}=0V$			1.5	V
t_{rr}	Reverse Recovery Time		$-I_D=50A$, $V_{GS}=0V$, $di/dt=100A/\mu s$		700		ns
$R_{th(j-c)}$	Thermal Resistance					0.21	$^\circ C/W$

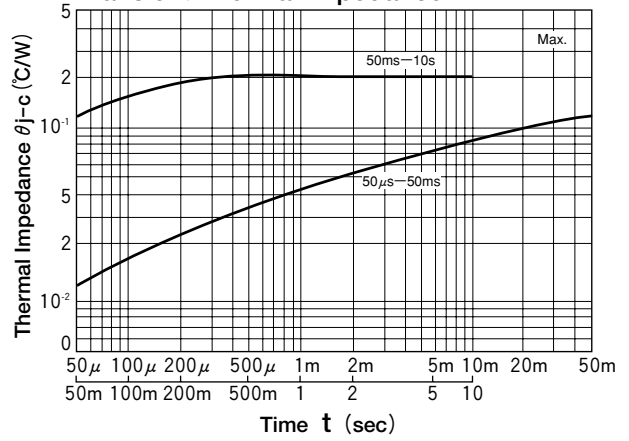




Forward Voltage of Free Wheeling Diode



Transient Thermal Impedance



Normalized Transient Thermal Impedance Vs. Pulse Width

