

MOSFET MODULE

SF100BA50



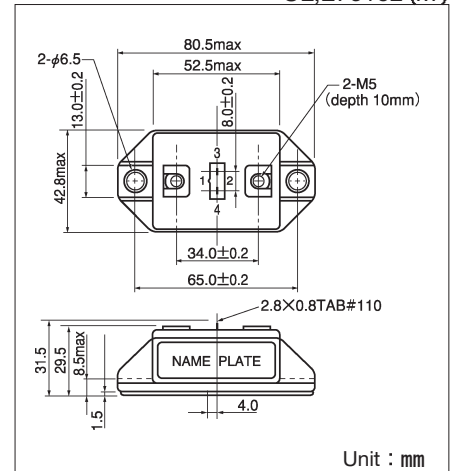
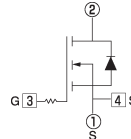
UL;E76102 (M)

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.



Maximum Ratings

($T_j=25^\circ C$)

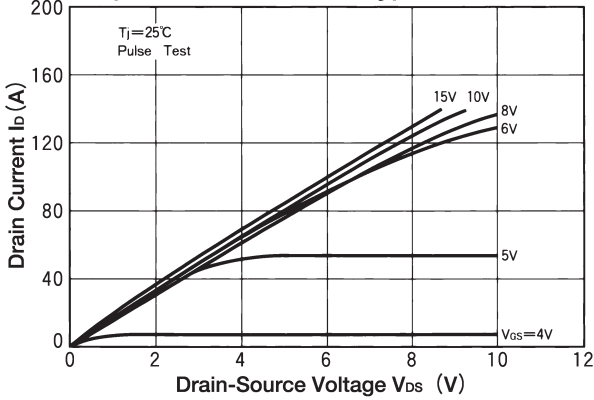
Symbol	Item		Conditions	Ratings		Unit
				SF100BA50		
V_{DSS}	Drain-Source Voltage			500		V
V_{GSS}	Gate-Source Voltage			± 20		V
I_D	Drain Current	DC	Duty = 43%	100		A
I_{DP}		Pulse		200		
$-I_D$	Reverse Drain Current			100		A
P_T	Total Power Dissipation		$T_c=25^\circ C$	600		W
T_j	Channel Temperature			$-40 \sim +150$		$^\circ C$
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

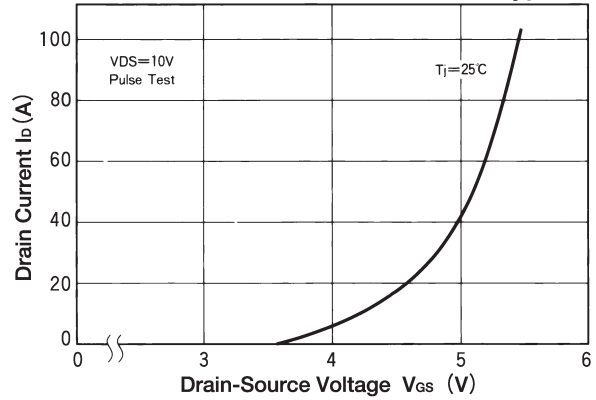
($T_j=25^\circ C$)

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		$V_{DS} = 10A$, $V_D = 50A$		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	$^\circ C/W$

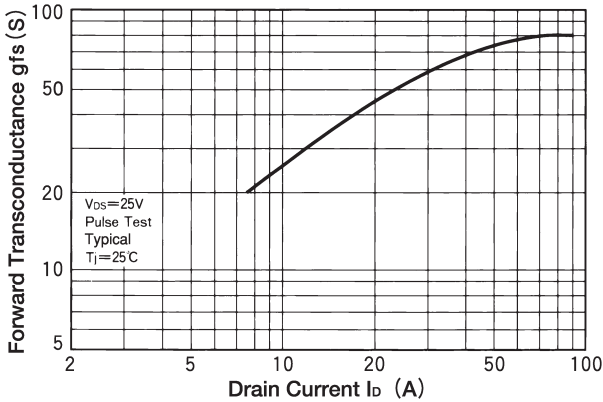
Output Characteristics (Typical)



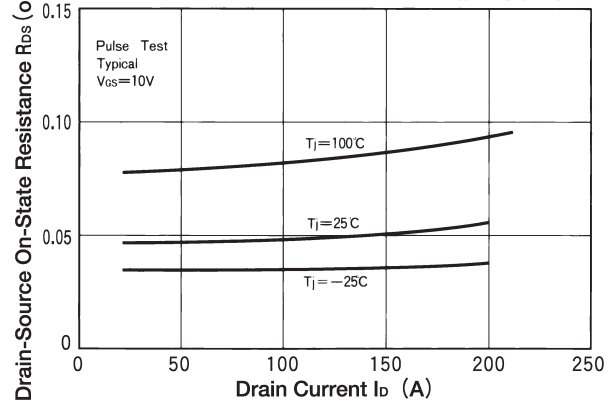
Forward Transfer Characteristics (Typical)



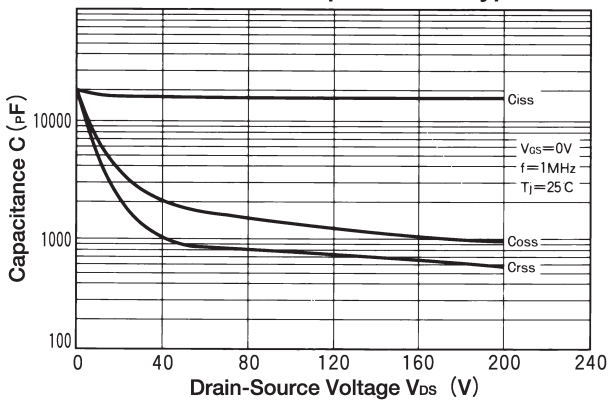
Forward Transconductance Vs. Drain Current



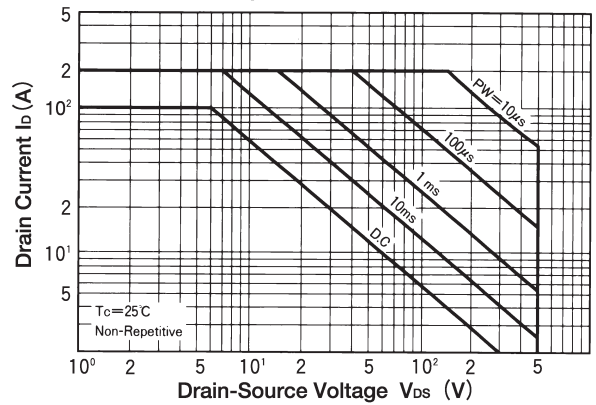
Drain-Source On-State Resistance Vs. Drain Current



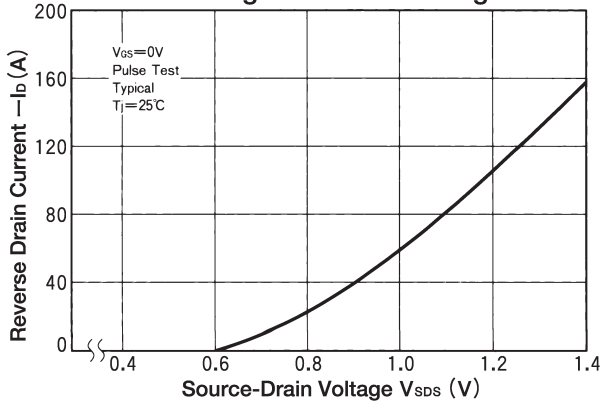
Input Capacitance, Output Capacitance, Reverse Transfer Capacitance (Typical)



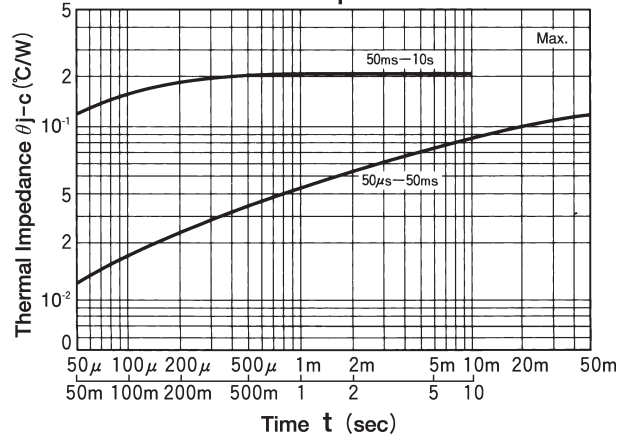
Safe Operating Area



Forward Voltage of Free Wheeling Diode



Transient Thermal Impedance



Normalized Transient Thermal Impedance Vs. Pulse Width

