MOSFET MODULE

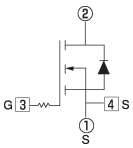
SF100BA50

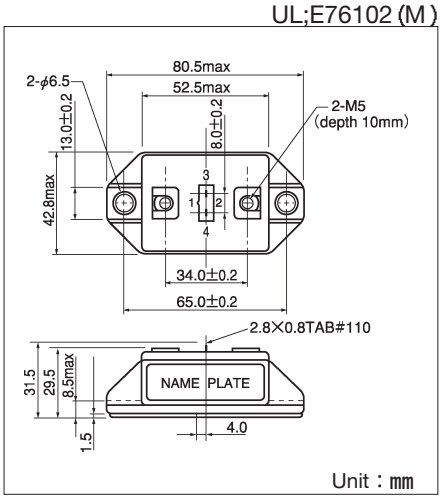
UL;E76102 (M)

SF100BA50 is a isolated power MOSFET module designed for fast swiching 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}≦700ns

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





■Maximum Ratings

(Tj=25℃)

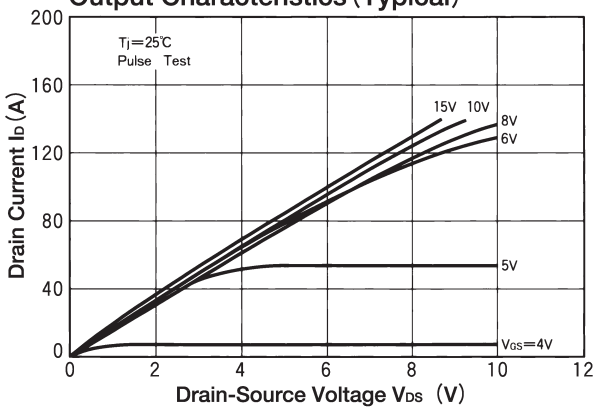
Symbol	Item		Conditions	Ratings	Unit
				SF100BA50	
V_{DSS}	Drain-Source Voltage			500	V
V_{GSS}	Gate-Source Voltage			±20	V
I_D	Drain Current	DC	Duty=43%	100	A
I_{DP}		Pulse		200	
$-I_D$	Reverse Drain Current			100	A
P_T	Total Power Dissipation		Tc=25℃	600	W
Tj	Channel Temperature			−40～+150	℃
Tstg	Storage Temperature			−40～+125	℃
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

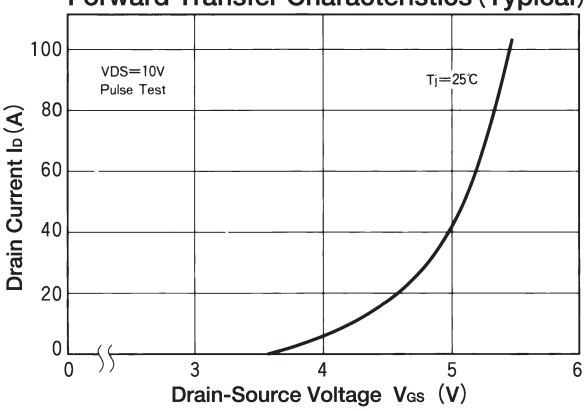
(Tj=25℃)

Symbol	Item		Conditions	Ratings			Unit
				Min.	Typ.	Max.	
I_{GSS}	Gate Leakage Current		V_{GS}=±20V, V_{DS}=0V			±2.0	μA
I_{DSS}	Zero Gate Voltage Drain Current		V_{GS}=0V, V_{DS}=500V			1.0	mA
$V_{(BR)DSS}$	Darin-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	mΩ
$V_{DS(on)}$	Drain-Source On-State Voltage		I_D=50A, V_{GS}=15V			3.5	V
gfs	Forward Transconductance		V_{DS}=10A, V_D=50A		60		S
Ciss	Input Capacitance		V_{GS}=0V, V_{DS}=25V, f=1.0MHz			20000	pF
Coss	Output Capacitance		V_{GS}=0V, V_{DS}=25V, f=1.0MHz			3800	pF
Crss	Reverse Transfer Capacitance		V_{GS}=0V, V_{DS}=25V, f=1.0MHz			1500	pF
td(on)	Switching Time	Turn-on Delay Time	R_L=6Ω, R_{GS}=50Ω, V_{GS}=15V I_D=50A, R_G=5Ω		70		μs
tr		Rise Time			120		
td(off)		Turn-off Delay Time			1100		
tf		Fall Time			280		
V_{SDS}	Diode Forward Voltage		$-I_D$=50A, V_{GS}=0V			1.5	V
trr	Reverse Recovery Time		$-I_D$=50A, V_{GS}=0V, di/dt=100A/μs		700		ns
Rth(j-c)	Thermal Resistance					0.21	℃/W

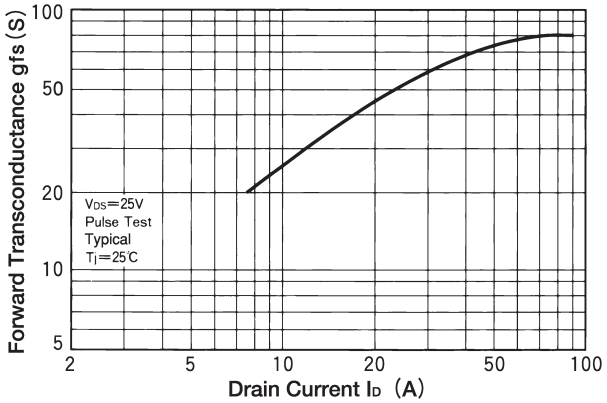
Output Characteristics (Typical)



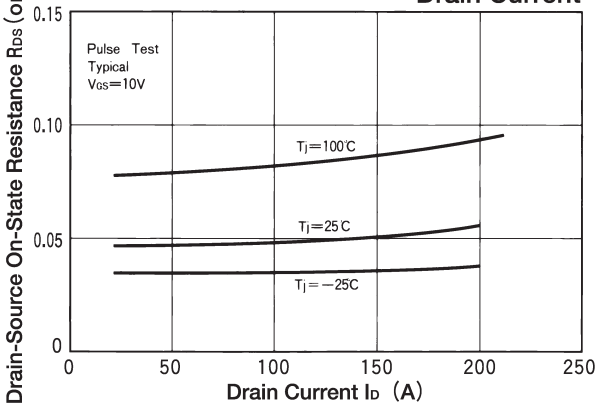
Forward Transfer Characteristics (Typical)



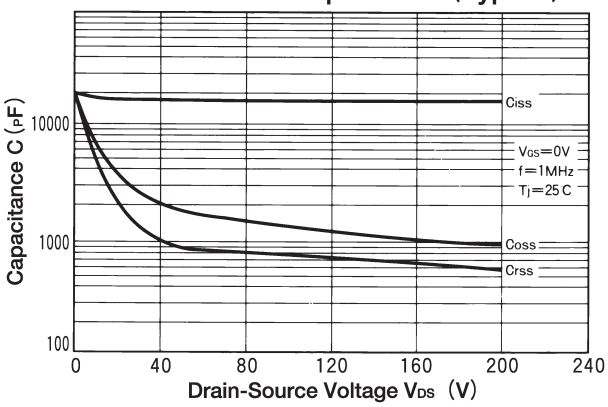
Forward Transconductance Vs. Drain Current



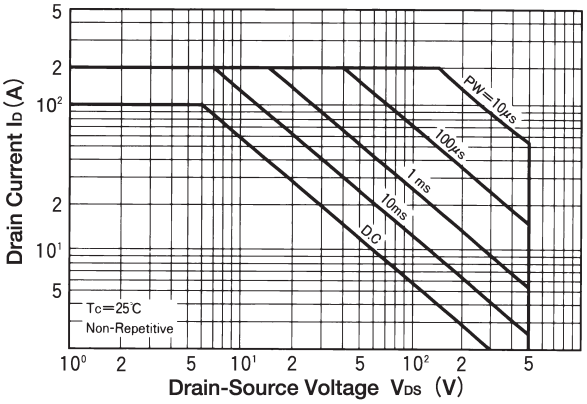
Drain-Source On-State Resistance Vs. Drain Current



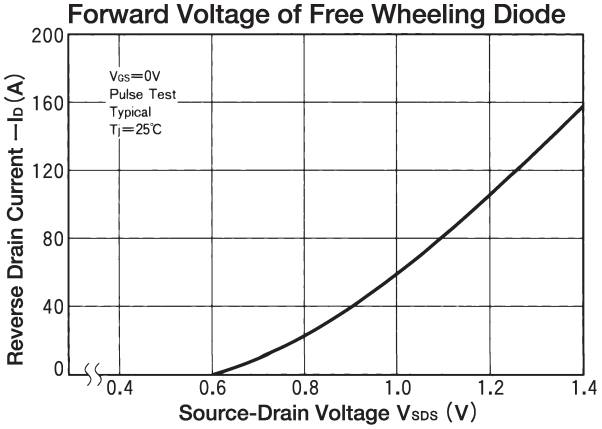
Input Capacitance, Output Capacitance, Reverse Transfer Capacitance (Typical)



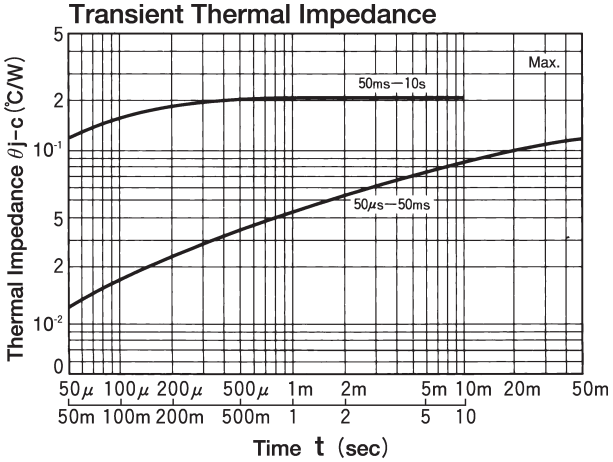
Safe Operating Area



Forward Voltage of Free Wheeling Diode



Transient Thermal Impedance



Normalized Transient Thermal Impedanse Vs. Pulse Width