

MOSFET MODULE

SF100CB100

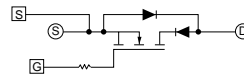
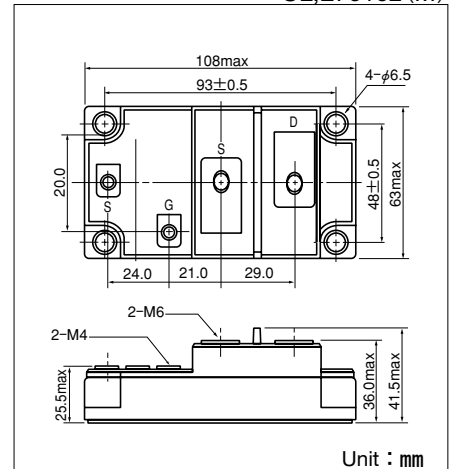


UL;E76102 (M)

SF100CB100 is a isolated power MOSFET module designed for fast switching applications of high voltage and current with a fast recovery diode ($t_{rr} \leq 300\text{ns}$) reverse connected. The mounting base of the module is electrically isolated from semiconductor elements for simple heatsink construction.

- $I_D = 100\text{A}$, $V_{DS} = 1000\text{V}$
- Suitable for high speed switching applications.
- Low ON resistance.
- Wide Safe Operating Areas.
- $t_{rr} \leq 300\text{ns}$ fast recovery diode for free wheel

(Applications)



Maximum Ratings

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

Symbol	Item	Conditions	Ratings			Unit
			SF100CB100			
V_{DS}	Drain-Source Voltage		1000			V
V_{GS}	Gate-Source Voltage		± 30			V
I_D	Drain Current	DC	100			A
I_{DP}		Pulse	200			
$-I_D$	Source Current		100			A
P_T	Total Power Dissipation	$T_c = 25^\circ\text{C}$	800			W
T_j	Channel Temperature		-40 to +150			$^\circ\text{C}$
T_{stg}	Storage Temperature		-40 to +125			$^\circ\text{C}$
V_{iso}	Isolation Voltage (R.M.S.)	A.C. 1minute	2500			V
	Mounting Torque	Mounting (M6)	Recommended Value 2.5-3.9 (25-40)			N·m (kgf·cm)
		Terminal (M6)	Recommended Value 2.5-3.9 (25-40)			
		Terminal (M4)	Recommended Value 1.0-1.4 (10-14)			
	Mass	Typical Value	460			g

Electrical Characteristics

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

Symbol	Item	Conditions	Ratings			Unit
			Min.	Typ.	Max.	
I_{GSS}	Gate Leakage Current	$V_{GS} = \pm 20\text{V}$, $V_{DS} = 0\text{V}$			± 0.1	μA
I_{DSS}	Zero Gate Voltage Drain Current	$V_{GS} = 0\text{V}$, $V_{DS} = 800\text{V}$			4.0	mA
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS} = 0\text{V}$, $I_D = 1\text{mA}$	1000			V
$V_{GS(th)}$	Gate-Source Threshold Voltage	$V_{DS} = V_{GS}$, $I_D = 10\text{mA}$	1.5		3.5	V
$R_{DS(on)}$	Drain-Source On-State Resistance	$I_D = 100\text{A}$, $V_{GS} = 15\text{V}$			150	m Ω
$V_{DS(on)}$	Drain-Source On-State Voltage	$I_D = 100\text{A}$, $V_{GS} = 15\text{V}$			15	V
g_{fs}	Forward Transconductance	$V_{DS} = 10\text{A}$, $V_D = 75\text{A}$	30	50		S
C_{iss}	Input Capacitance	$V_{GS} = 0\text{V}$, $V_{DS} = 25\text{V}$, $f = 1.0\text{MHz}$		16000	19200	pF
C_{oss}	Output Capacitance	$V_{GS} = 0\text{V}$, $V_{DS} = 25\text{V}$, $f = 1.0\text{MHz}$		2900	4200	pF
C_{rss}	Reverse Transfer Capacitance	$V_{GS} = 0\text{V}$, $V_{DS} = 25\text{V}$, $f = 1.0\text{MHz}$		1800	2600	pF
$t_{d(on)}$	Switching Time	$R_L = 6\Omega$, $V_{GS} = 15\text{V}/-5\text{V}$ $I_D = 100\text{A}$, $R_G = 2.2\Omega$	Turn-on Delay Time		150	ns
t_r			Rise Time		300	
$t_{d(off)}$			Turn-off Delay Time		600	
t_f			Fall Time		300	
V_{SDS}	Diode Forward Voltage	$-I_D = 100\text{A}$, $V_{GS} = 0\text{V}$			1.8	V
t_{rr}	Reverse Recovery Time	$-I_D = 100\text{A}$, $V_{GS} = 15\text{V}$, $di/dt = 400\text{A}/\mu\text{s}$			300	ns
$R_{th(j-c)}$	Thermal Resistance	MOSFET			0.16	$^\circ\text{C}/\text{W}$
		Diode			0.64	

