

# MOSFET MODULE

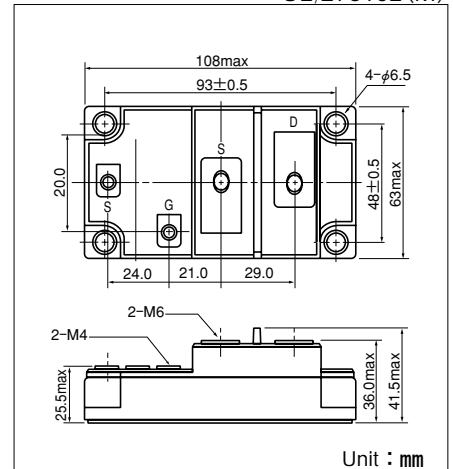
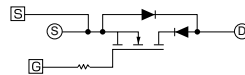
# SF100CB100

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			$\pm 30$			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)	4.7 (48)			N·m (kgf·cm)
		Terminal (M6)	Recommended Value 2.5-3.9 (25-40)	4.7 (48)			
		Terminal (M4)	Recommended Value 1.0-1.4 (10-14)	1.5 (15)			
	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		$V_{GS} = \pm 20\text{V}$ , $V_{DS} = 0\text{V}$			$\pm 0.1$	$\mu\text{A}$
$I_{DSS}$	Zero Gate Voltage Drain Current		$V_{GS} = 0\text{V}$ , $V_{DS} = 800\text{V}$			4.0	mA
$V_{(BR)DS}$	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 $\Omega$
$V_{DS(on)}$	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	Turn-on Delay Time	$R_L = 6\Omega$ , $V_{GS} = 15\text{V}/-5\text{V}$ $I_D = 100\text{A}$ , $R_G = 2.2\Omega$			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	

