PM5050N

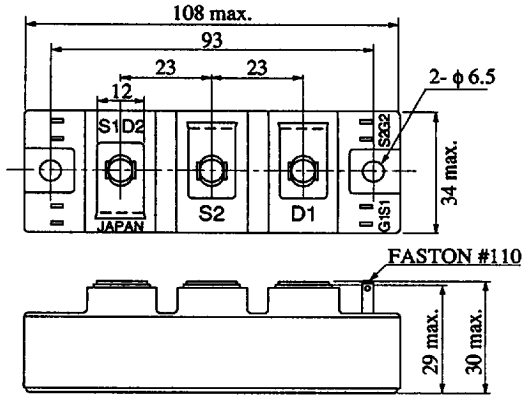
Preliminary

SILICON N-CHANNEL POWER MOS FET MODULE

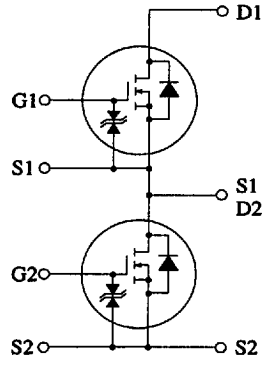
HIGH SPEED POWER SWITCHING

■ FEATURES

- Equipped with Power MOS FET
- Low On-Resistance
- High Speed Switching
- Low Drive Current
- Wide Area of Safe Operation
- Inherent Parallel Diod between Source and Drain
- Isolated Base from Terminal
- Suitable for Motor Driver, Switching Regulator and etc.



(Dimensions in mm)



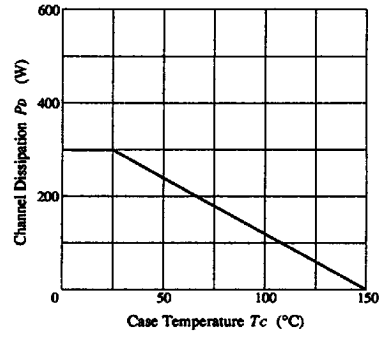
■ABSOLUTE MAXIMUM RATINGS (Ta = 25℃) (Per FET chip)

Item	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	500	V
Gate-Source Voltage	V_{GSS}	±30	V
Drain Current	I_D	50	A
Drain Peak Current	$I_{D(peak)}$	120	A
Body-Drain Diode Reverse Drain Current	I_{DR}	50	A
Body-Drain Diode Reverse Drain Peak Current	$I_{DR(peak)}$	120	A
Channel Dissipation	P_D*	300	W
Channel Temperature	T_{ch}	150	℃
Storage Temperature	T_{stg}	-45~+125	℃
Insulation Dielectric	V_{isol}**	2000	V

* Value at Tc = 25℃

** Base to Terminals AC minute

POWER VS. TEMPERATURE DERATING



■ELECTRICAL CHARACTERISTICS (Ta = 25℃) (Per FET chip)

Item	Symbol	Test Condition	min.	typ.	max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D = 10mA, V_{GS} = 0	500	—	—	V
Gate-Source Leak Current	I_{GSS}	V_{GS} = ±25V, V_{DS} = 0	—	—	±10	μA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 400V, V_{GS} = 0	—	—	500	μA
Gate-Source Threshold Voltage	$V_{GS(th)}$	I_D = 1mA, V_{DS} = 10V	2.0	—	3.0	V
Drain-Source Saturation Voltage	$V_{DS(on)}$	I_D = 25A, V_{GS} = 10V *	—	3.75	4.50	V
Static Drain-Source on State Resistance	$R_{DS(on)}$	I_D = 25A, V_{GS} = 10V *	—	0.15	0.18	Ω
Forward Transfer Admittance	$\|yfs\|$	I_D = 25A, V_{DS} = 10V *	18	30	—	S
Input Capacitance	*Ciss*	V_{DS} = 10V, V_{GS} = 0 f = 1MHz	—	5800	—	pF
Output Capacitance	*Coss*		—	1550	—	pF
Reverse Transfer Capacitance	*Crss*		—	170	—	pF
Turn-on Delay Time	$t_{d(on)}$	I_D = 25A, V_{GS} = 10V R_L = 1.2Ω	—	85	—	ns
Rise Time	t_r		—	400	—	ns
Turn-off Delay Time	$t_{d(off)}$		—	400	—	ns
Fall Time	t_f		—	340	—	ns
Body-Drain Diode Forward Voltage	V_{DF}	I_F = 50A, V_{GS} = 0	—	1.4	—	V
Body-Drain Diode Reverse Recovery Time	t_{rr}	I_F = 50A, V_{GS} = 0	—	130	—	ns

* Pulse Test

■MECHANICAL CHARACTERISTICS

Item	Symbol	Condition	Rating	Unit
Fixing Strength	—	Mounted into main-terminal with M5 screw	15~20	kg · cm
	—	Mounted into heat sink with M6 screw	20~30	kg · cm
Weight		Typical value	200	g