

外形寸法図 : OUTLINE DRAWING

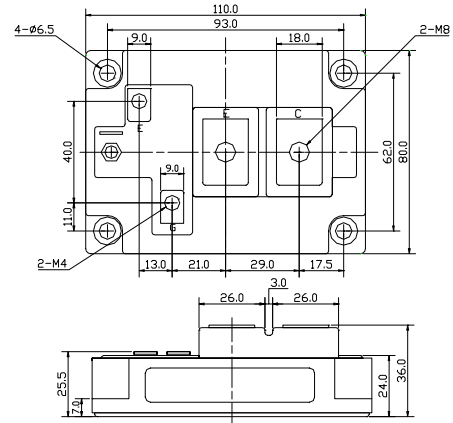
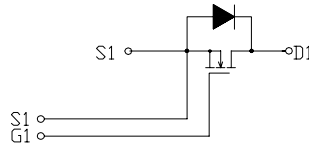
Dimension: [mm]

特長

- * 大容量 (560A_{DC}) です
- * トレンチゲートMOSFETを搭載
- * 超低R_{DS(on)}: 2m (@560A) を実現
- * 内臓ダイオードが高速

用途

- * バッテリーフォークリフト用チョッパ
- * 48V級直流電源制御用

結線図

最大定格 : MAXIMUM RATINGS (T_c = 25)

質量 : 約650g

Item	Symbol	Rated Value	Unit	
ドレイン・ソース間電圧 (V _{GS} = 0V) Drain-Source Voltage	V _{DSS}	150	V	
ゲート・ソース間電圧 Gate-Source Voltage	V _{GSS}	±20	V	
ドレイン電流 Drain Current	I _D	Duty=50%	560	
		DC 端子温度=80	440	
パルスドレイン電流 Pulsed Drain Current	I _{DM}	1,120	A	
全損失 Total Power Dissipation	P _D	1,780	W	
動作接合温度 Junction Temperature Range	T _j	-40 ~ +150		
保存温度 Storage Temperature Range	T _{stg}	-40 ~ +125		
絶縁耐圧(Terminal to Base AC, 1minute) Isolation Voltage	V _{ISO}	2,500	V _(RMS)	
締め付けトルク Mounting Torque	F _{tor}	Module Base to Heatsink	3 (30.6)	
		Busbar to Main Terminal	M4	1.4 (14.3)
			M8	10.5 (107)
			N·m (kgf·cm)	

電気的特性 : ELECTRICAL CHARACTERISTICS (T_c = 25)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
ドレイン遮断電流 Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 150V, V _{GS} = 0V	-	-	3.2	mA
ゲート漏れ電流 Gate-Source Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V	-	-	3.2	μA
ゲートしきい値電圧 Gate-Source Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 16mA	1.0	2.0	3.2	V
ドレイン・ソース間オン抵抗 (MOSFET部) Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 560A	-	1.6	2.0	m
ドレイン・ソース間オン電圧 Drain-Source On-Voltage	V _{DS(on)}	V _{GS} = 10V, I _D = 560A	-	1.0	1.2	V
順伝達コンダクタンス Forward Transconductance	g _{fs}	V _{DS} = 15V, I _D = 560A				
入力容量 Input Capacitance	C _{ies}	V _{GS} = 0V V _{DS} = 10V f = 1MHz	-	110	-	nF
出力容量 Output Capacitance	C _{oss}		-	13	-	pF
帰還容量 Reverse Transfer Capacitance	C _{rss}		-	13	-	pF
スイッチング時間 Switching Time	上昇時間 Rise Time	V _{DD} = 80V I _D = 280A R _G = 1.2 V _{GS} = -5V, +10V	-	400	-	ns
	ターンオン時間 Turn-on Time		-	380	-	
	下降時間 Fall Time		-	170	-	
	ターンオフ時間 Turn-off Time		-	1100	-	

MOSFET Module-Single

560A,150V

PHM5601
内部逆方向ダイオードの定格と特性: *Source-Drain DIODE RATINGS & CHARACTERISTICS* ($T_c=25$)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
ソ - ス電流 Continuous Source Current	I_s	Duty=50% DC 端子温度=80	-	-	560	A
パルスソ - ス電流 Pulsed Source Current	I_{SM}		-	-	1120	V
ダイオード順電圧 Diode Forward Voltage	V_{SD}	$I_s=560A$	-	1.6	2.0	V
逆回復時間 Reverse Recovery Time	t_{rr}	$I_s=560A$ -dis/dt=1100A/ μs	-	-	130	ns

熱 的 特 性 : *THERMAL CHARACTERISTICS*

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
接合・ケ - ス間熱抵抗 Thermal Impedance, Junction to Case	$R_{th(j-c)}$		-	-	0.07	/W
ケ - ス・フィン間熱抵抗 Thermal Impedance, Case to Heatsink	$R_{th(c-f)}$	サ - マルコンパウンド塗布 Mounting surface flat, smooth, and greased	-	-	0.035	/W

Fig.1- Output Characteristics (Typical)

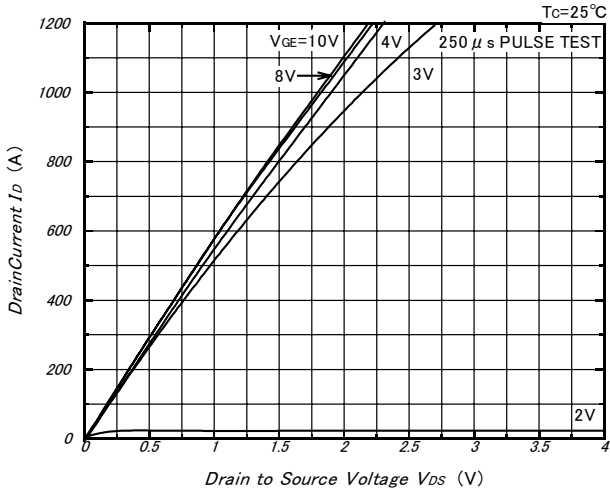


Fig.2- Drain to Source On Voltage vs. Gate to Source Voltage (Typical)

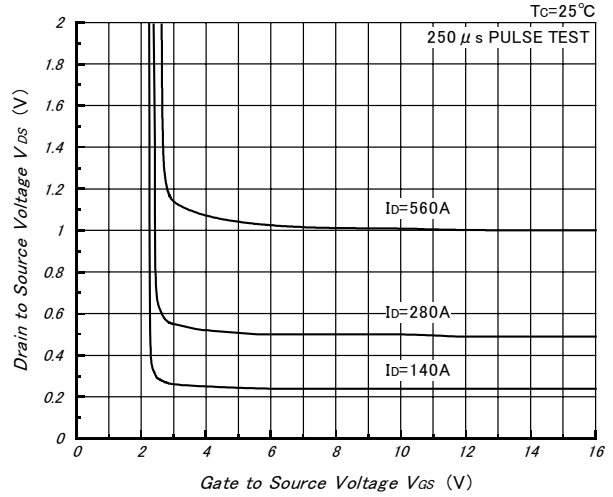


Fig.3- Drain to Source On Voltage vs. Junction Temperature (Typical)

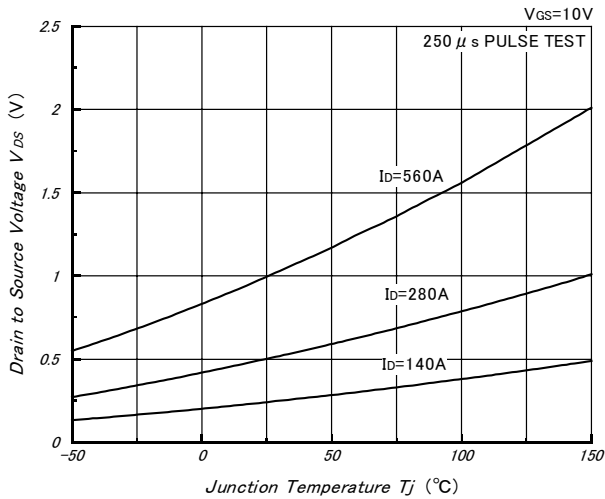


Fig.4- Capacitance vs. Drain to Source Voltage (Typical)

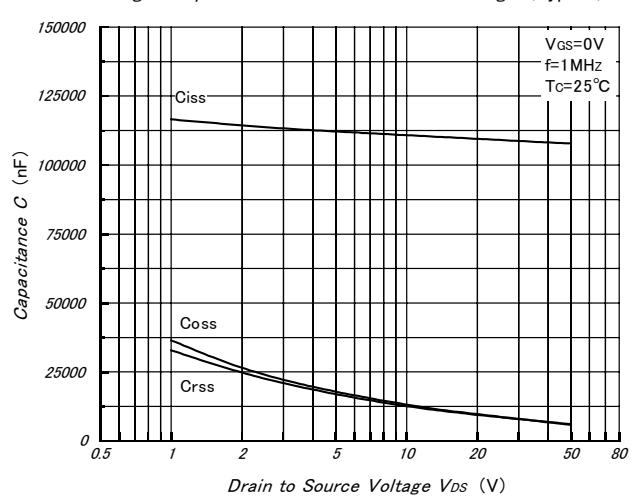


Fig.5- Gate Charge vs. Gate to Source Voltage (Typical)

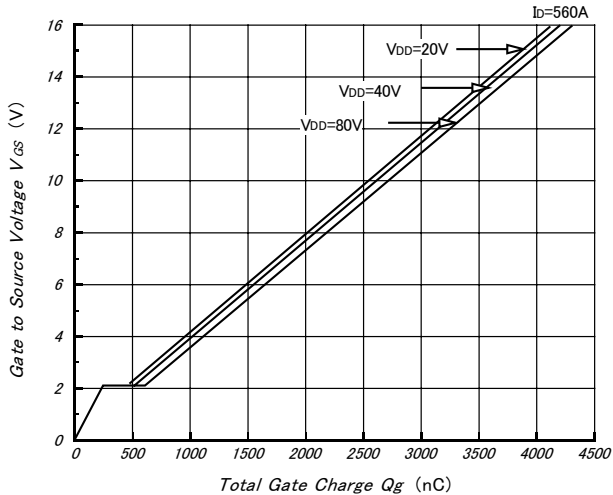


Fig.6- Series Gate Impedance vs. Switching Time (Typical)

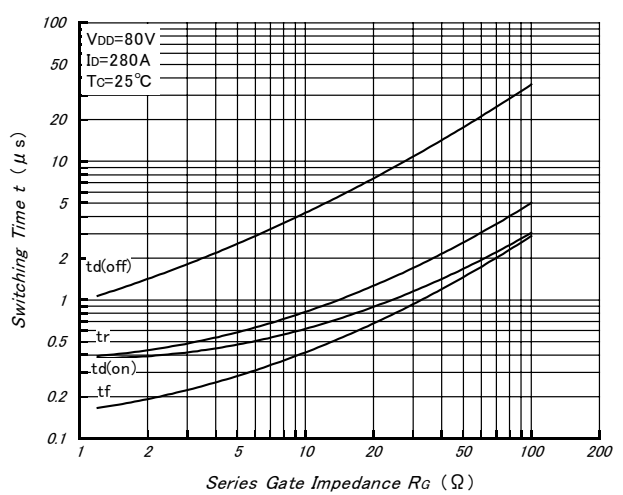


Fig.7- Drain Current vs. Switching Time (Typical)

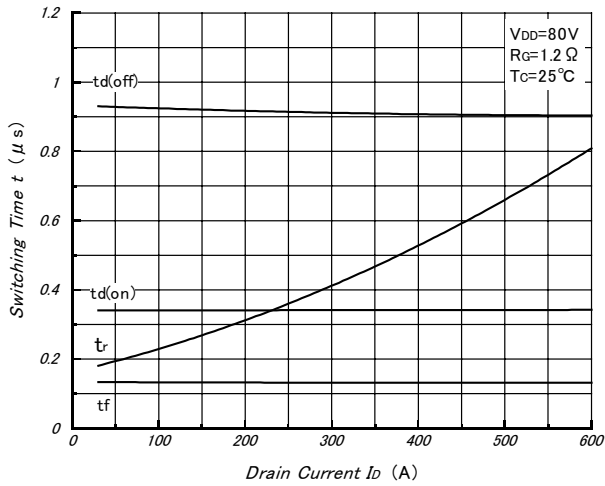


Fig.8- Source to Drain Diode Forward Characteristics (Typical)

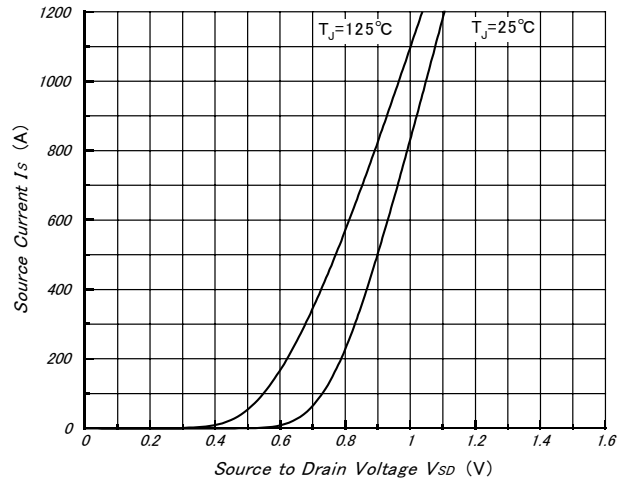


Fig.9- Reverse Recovery Characteristics (Typical)

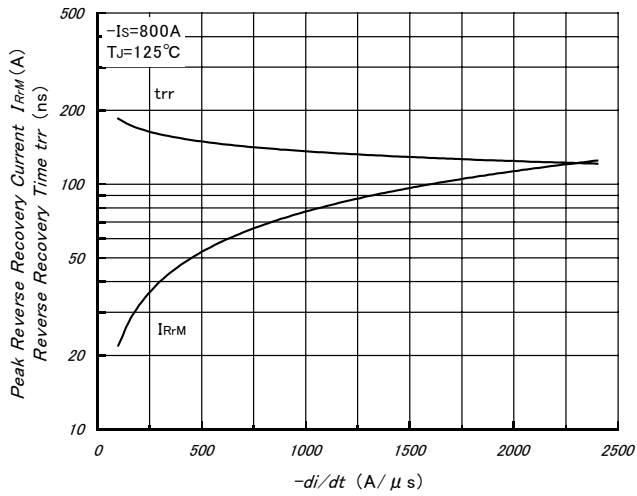


Fig.10- Maximum Transient Thermal Impedance

