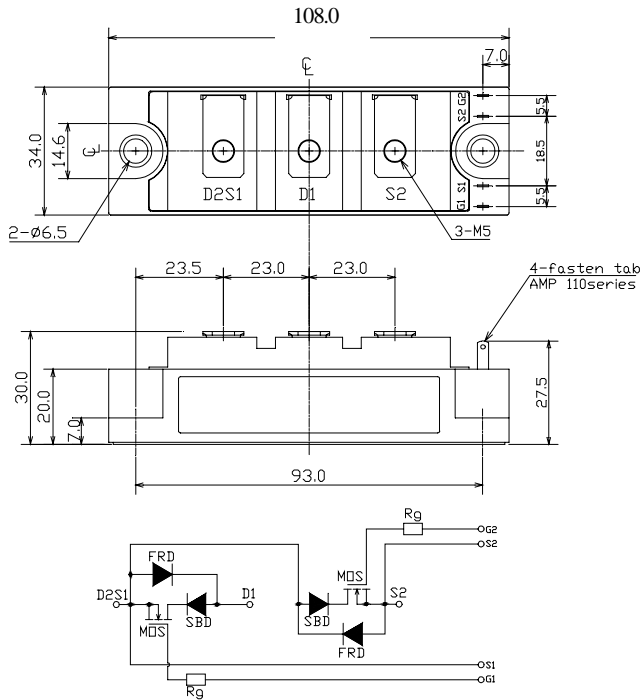
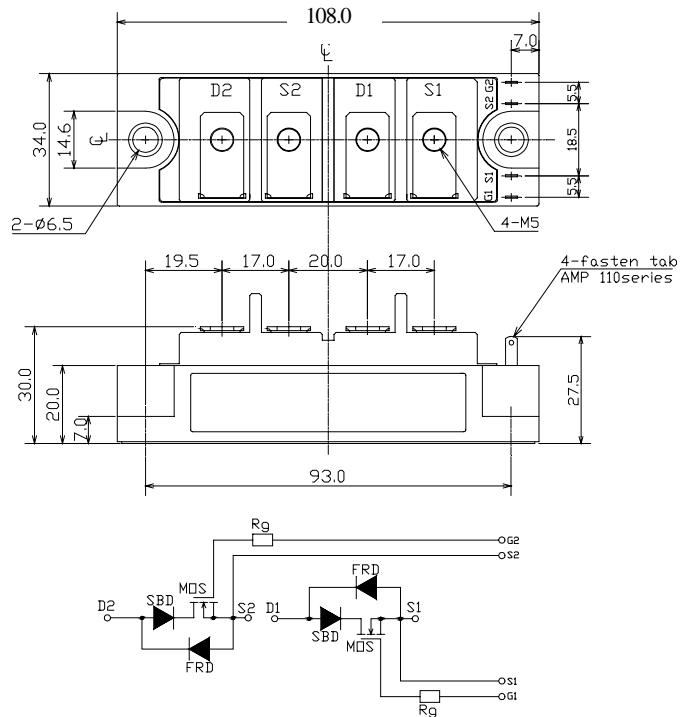


MOSFET
30A 450~500V
PD4M441H PD4M440H
P2H4M441H P2H4M440H
PD4M441H/440H


質量 Approximate Weight :220g

最大定格 Maximum Ratings

P2H4M441H/440H


質量 Approximate Weight :220g

項目 Rating	記号 Symbol	耐压・クラス Grade		単位 Unit
		PD4M441H/P2H4M441H	PD4M440H/P2H4M440H	
ドレイン・ソース間電圧 Drain-Source Voltage	V_{DSS}	450	500	V
		$V_{GS}=0V$		
ゲート・ソース間電圧 Gate-Source Voltage	V_{GSS}	± 20		V
ドレイン電流 (連続) Continuous Drain Current	I_D	30 ($T_c=25$)		A
Duty=50% D.C.		21 ($T_c=25$)		
パルスドレイン電流 Pulsed Drain Current	I_{DM}	60 ($T_c=25$)		A
全損失 Total Power Dissipation	P_D	230 ($T_c=25$)		W
動作接合温度範囲 Operating Junction Temperature Range	T_{jw}	- 40 ~ +150		
保存温度範囲 Storage Temperature Range	T_{stg}	- 40 ~ +125		
絶縁耐圧 RMS Isolation Voltage	V_{iso}	2000		V
		端子 - ベース間, AC1 分間 Terminals to Base, AC 1 min.		
締付トルク Mounting Torque	F_{tor}	3.0 (本体取付 Module Base to Heat sink)		N · m
		2.0 (ネジ端子部 Bus bar to Main Terminals)		

電気的特性 Electrical Characteristics (@Tc = 25 unless otherwise noted)

項目 Characteristic	記号 Symbol	条件 Condition	特性値(最大) Maximum Value			単位 Unit
			最小 Min.	標準 Typ.	最大 Max.	
ドレイン遮断電流 Zero Gate Voltage Drain Current	IDSS	VDS = VDSS, VGS = 0V			1	mA
		Tj = 125, VDS = VDSS, VGS = 0V			4	
ゲート・ソース間しきい値電圧 Gate-Source Threshold Voltage	VGS(th)	VDS = VGS, ID = 1mA	2	3.2	4	V
ゲート・ソース間漏れ電流 Gate-Source Leakage Current	IGSS	VGS = ±20V, VDS = 0V			1	μA
ドレイン・ソース間オン抵抗 (MOSFET部) Static Drain-Source On-Resistance	rD(on)	VGS = 10V, ID = 15A		190	210	m
ドレイン・ソース間オン電圧 Drain-Source On-Voltage	VD(on)	VGS = 10V, ID = 15A		3.3	3.5	V
順伝達コンダクタンス Forward Transconductance	gfg	VDS = 15V, ID = 15A		27		S
入力容量 Input Capacitance	Ciss	VGS = 0V VDS = 25V f = 1MHz		5.2		nF
出力容量 Output Capacitance	Coss			1.1		nF
帰還容量 Reverse Transfer Capacitance	Crss			0.18		nF
ターン・オン遅延時間 Turn-On Delay Time	t(on)			100		ns
上昇時間 Rise Time	tr	VDD = 1/2VDSS ID = 15A		60		ns
ターン・オフ遅延時間 Turn-Off Delay Time	t(off)	VGS = -5V, +10V RG = 7		180		ns
下降時間 Fall Time	tr			50		ns

内部ダイオード定格・特性 Source-Drain Diode Ratings and Characteristics (@Tc = 25 unless otherwise noted)

項目 Characteristic	記号 Symbol	条件 Condition	特性値(最大) Maximum Value			単位 Unit
			最小 Min.	標準 Typ.	最大 Max.	
ソース電流 (連続) Continuous Source Current	Is	D. C.			21	A
パルスソース電流 Pulsed Source Current	ISM				60	A
ダイオード順電圧 Diode Forward Voltage	VSD	Is = 30A			1.8	V
逆回復時間 Reverse Recovery Time	trr	Is = 30A - dis/dt = 100A/μs		100		ns
逆回復電荷 Reverse Recovery Charge	Qr			0.15		μC

熱抵抗特性 Thermal Characteristics

項目 Characteristic	記号 Symbol	条件 Condition	特性値(最大) Maximum Value			単位 Unit
			最小 Min.	標準 Typ.	最大 Max.	
熱抵抗 (接合部 - ケース間) Thermal Resistance, Junction to Case	Rth(j-c)	MOSFET			0.56	/W
		Diode			2.0	
接触熱抵抗 (ケース - 冷却フィン間) Thermal Resistance, Case to Heatsink	Rth(c-f)	サーマルコンパウンド塗布 Mounting surface flat, smooth, and greased			0.1	

定格・特性曲線

Fig. 1 Typical Output Characteristics

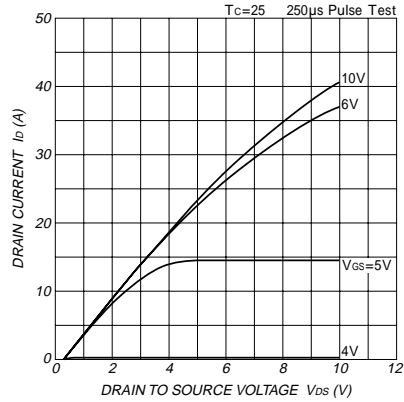


Fig. 2 Typical Drain-Source On-Voltage Vs. Gate-Source Voltage

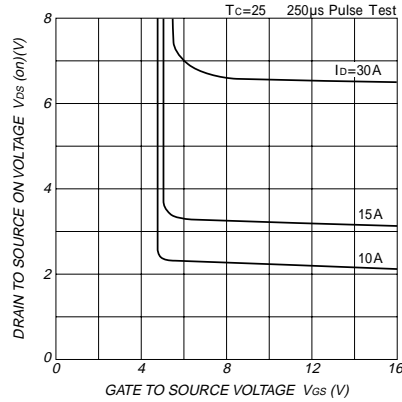


Fig. 3 Typical Drain-Source On Voltage Vs. Junction Temperature

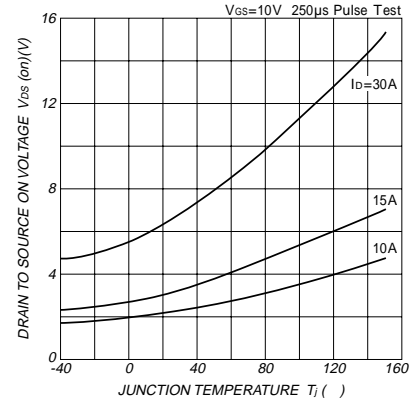


Fig. 4 Typical Capacitance Vs. Drain-Source Voltage

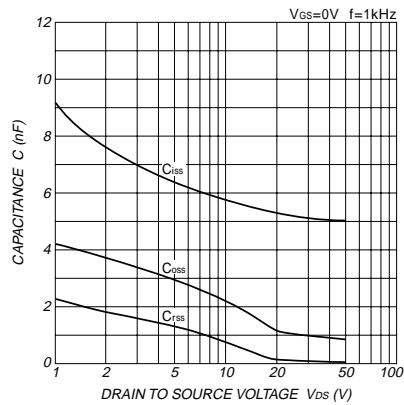


Fig. 5 Typical Gate Charge Vs. Gate-Source Voltage

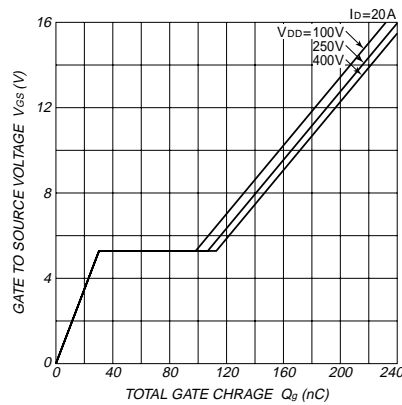


Fig. 6 Typical Switching Time Vs. Series Gate Impedance

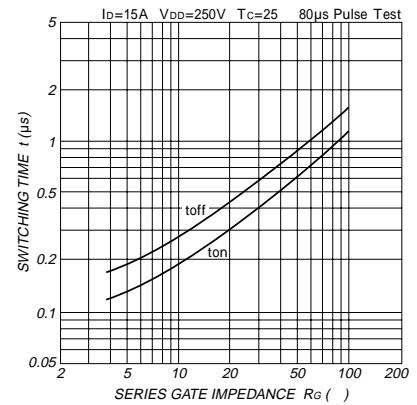


Fig. 7 Typical Switching Time Vs. Drain Current

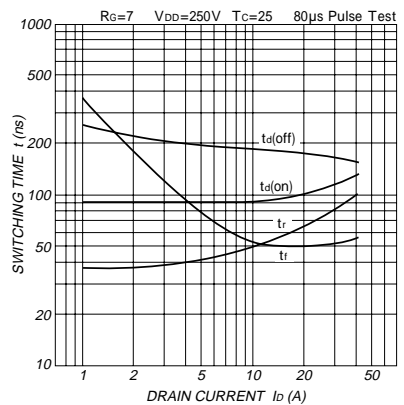


Fig. 8 Typical Source-Drain Diode Forward Characteristics

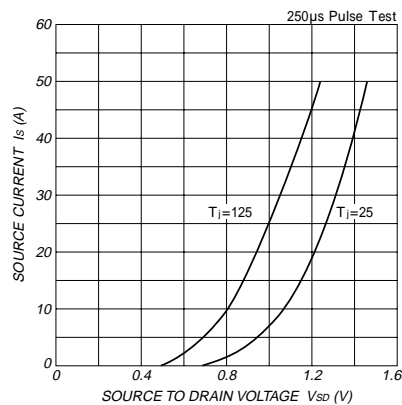


Fig. 9 Typical Reverse Recovery Characteristics

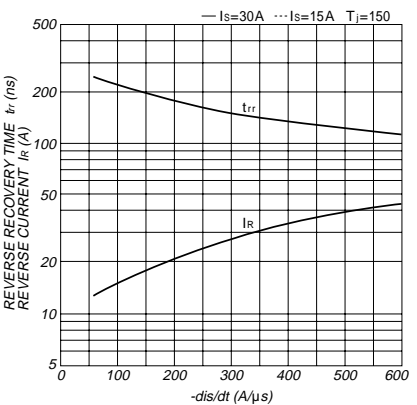


Fig. 10 Maximum Safe Operating Area

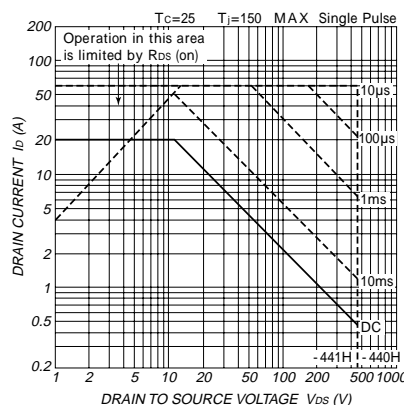


Fig. 11-1 Normalized Transient Thermal Impedance(MOSFET)

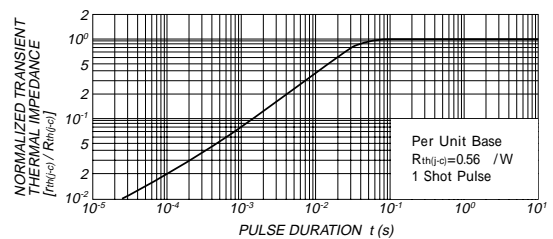


Fig. 11-2 Normalized Transient Thermal Impedance(DIODE)

