

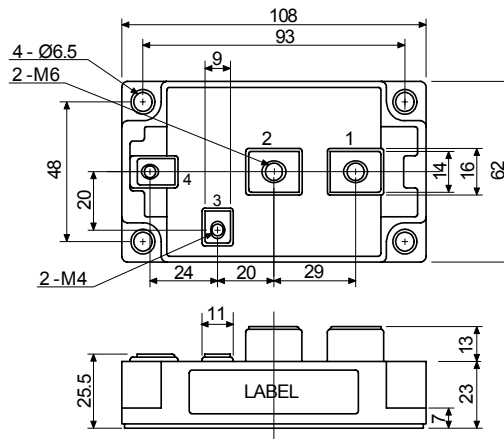
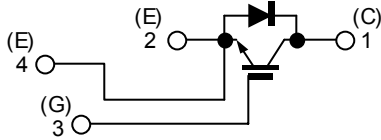
IGBT Module-Single

400A, 600V

PHMB400E6

□ 回路図 : CIRCUIT

□ 外形寸法図 : OUTLINE DRAWING



Dimension: [mm]

□ 最大定格 : MAXIMUM RATINGS (T_c = 25°C)

Item	Symbol	Rated Value	Unit	
コレクタ・エミッタ間電圧 Collector-Emmitter Voltage	V _{CEs}	600	V	
ゲート・エミッタ間電圧 Gate-Emmitter Voltage	V _{GEs}	±20	V	
コレクタ電流 Collector Current	DC	I _C = 400	A	
	1ms	I _{CP} = 800		
コレクタ損失 Collector Power Dissipation	P _C	1470	W	
接合温度 Junction Temperature Range	T _J	-40~+150	°C	
保存温度 Storage Temperature Range	T _{stg}	-40~+125	°C	
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)
			M6	3 (30.6)

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

Characteristic	Symbol	Test Condition	Min.	Tvp.	Max.	Unit
コレクタ遮断電流 Collector-Emmitter Cut-Off Current	I _{CEs}	V _{CE} = 600V, V _{GE} = 0V	—	—	1.0	mA
ゲート漏れ電流 Gate-Emmitter Leakage Current	I _{GEs}	V _{GE} = ±20V, V _{CE} = 0V	—	—	1.0	µA
コレクタ・エミッタ間飽和電圧 Collector-Emmitter Saturation Voltage	V _{CE(sat)}	I _C = 400A, V _{GE} = 15V	—	2.1	2.6	V
ゲートしきい値電圧 Gate-Emmitter Threshold Voltage	V _{GE(th)}	V _{CE} = 5V, I _C = 400mA	4.0	—	8.0	V
入力容量 Input Capacitance	C _{ies}	V _{CE} = 10V, V _{GE} = 0V, f = 1MHz	—	20,000	—	pF
スイッチング時間 Switching Time	上昇時間 Rise Time	t _r	—	0.15	0.35	µs
	ターンオン時間 Turn-on Time	t _{on}	—	0.30	0.85	
	下降時間 Fall Time	t _f	—	0.10	0.25	
	ターンオフ時間 Turn-off Time	t _{off}	—	0.40	0.80	

□ フリーホイールリングダイオードの特性 : FREE WHEELING DIODE RATINGS & CHARACTERISTICS (T_c = 25°C)

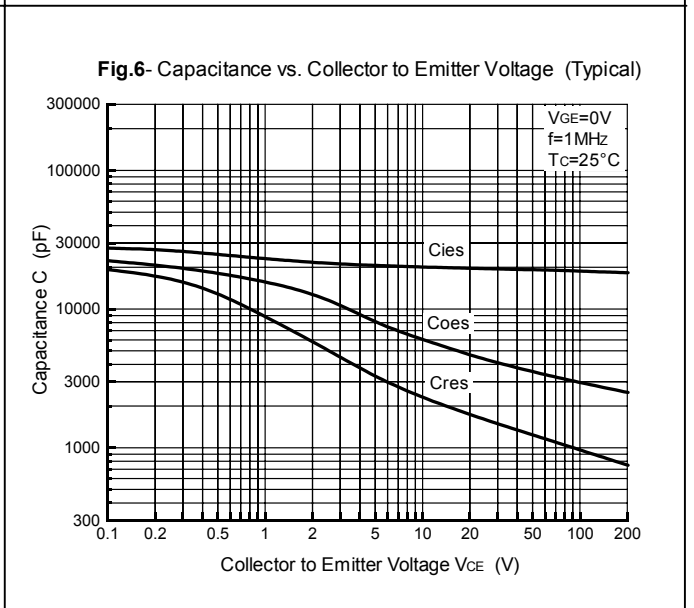
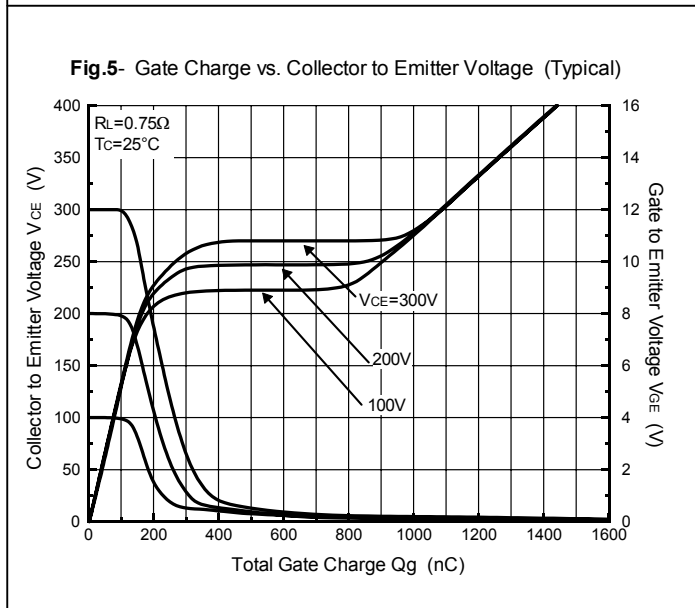
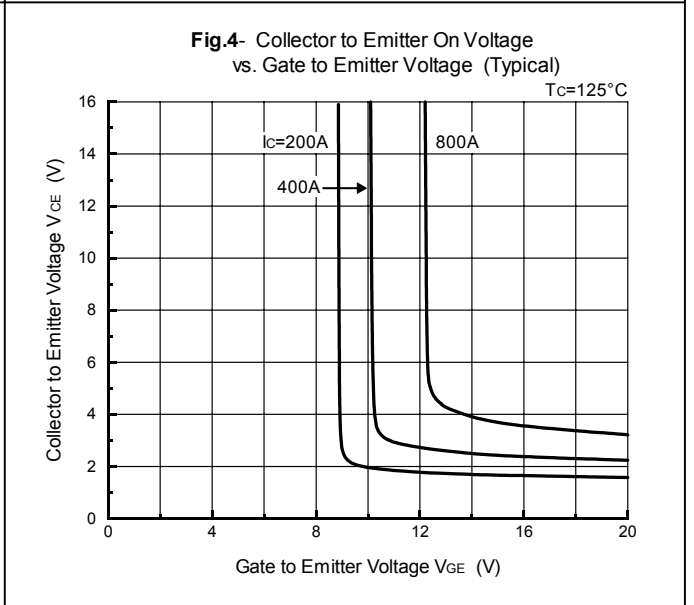
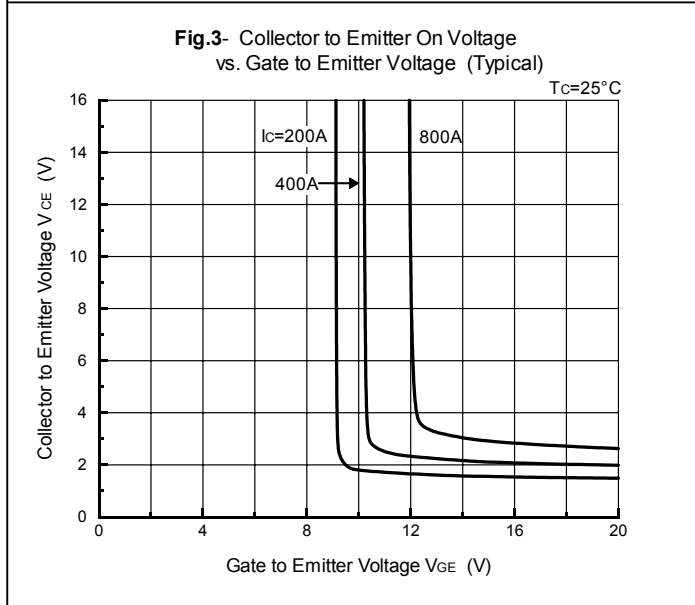
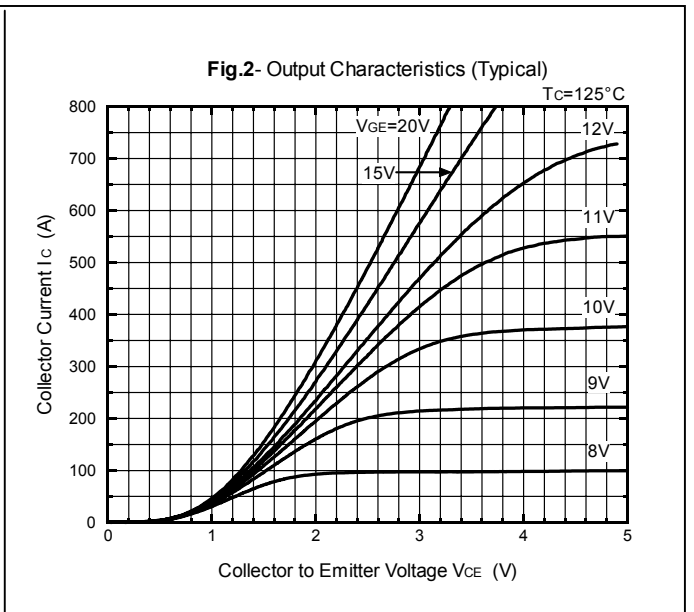
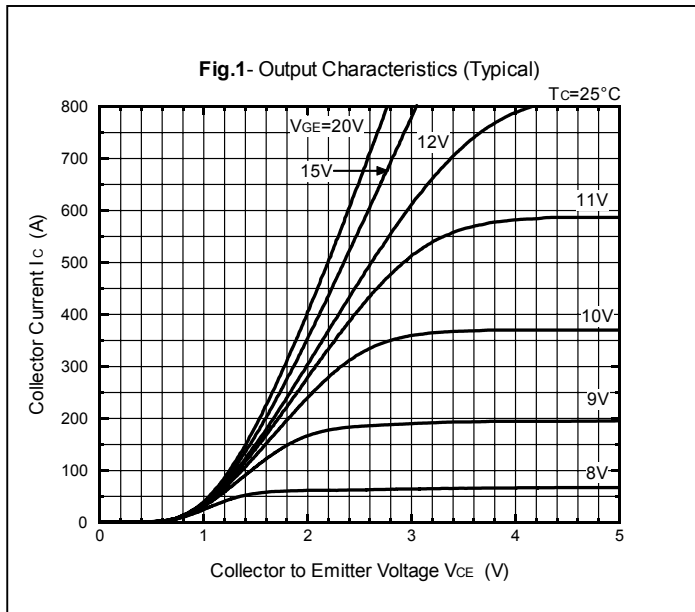
Item	Symbol	Rated Value	Unit
順電流 Forward Current	DC	I _F = 400	A
	1ms	I _{FM} = 800	

Characteristic	Symbol	Test Condition	Min.	Tvp.	Max.	Unit
順電圧 Peak Forward Voltage	V _F	I _F = 400A, V _{GE} = 0V	—	1.9	2.4	V
逆回復時間 Reverse Recovery Time	t _{rr}	I _F = 400A, V _{GE} = -10V di/dt = 800A/µs	—	0.15	0.25	µs

□ 熱的特性 : THERMAL CHARACTERISTICS

Characteristic	Symbol	Test Condition	Min.	Tvp.	Max.	Unit
熱抵抗 Thermal Impedance	R _{th(j-c)}	IGBT	—	—	0.085	°C/W
		Diode	—	—	0.20	

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

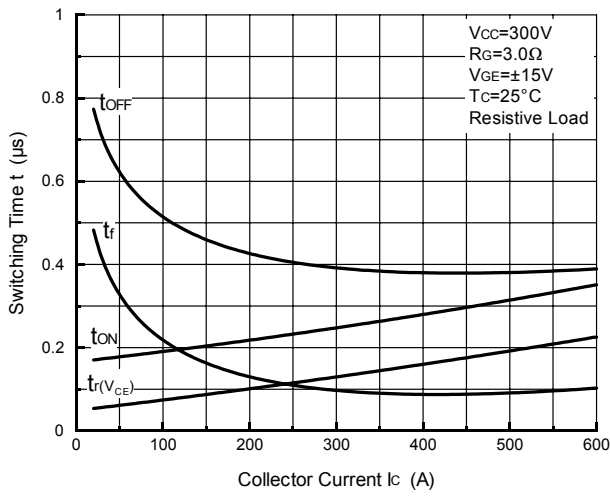


Fig.8- Series Gate Impedance vs. Switching Time (Typical)

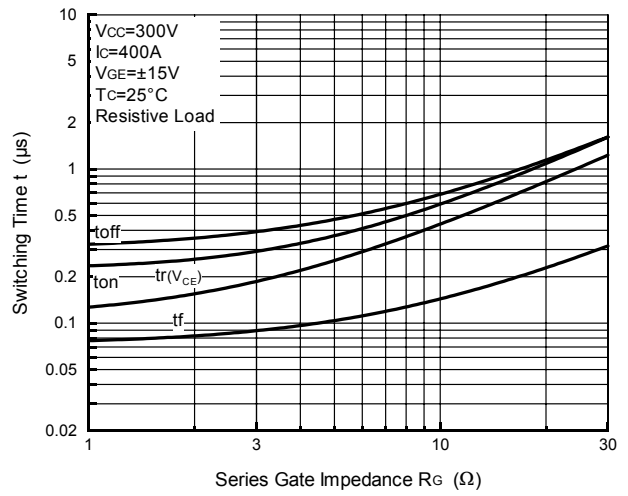


Fig.9- Collector Current vs. Switching Time

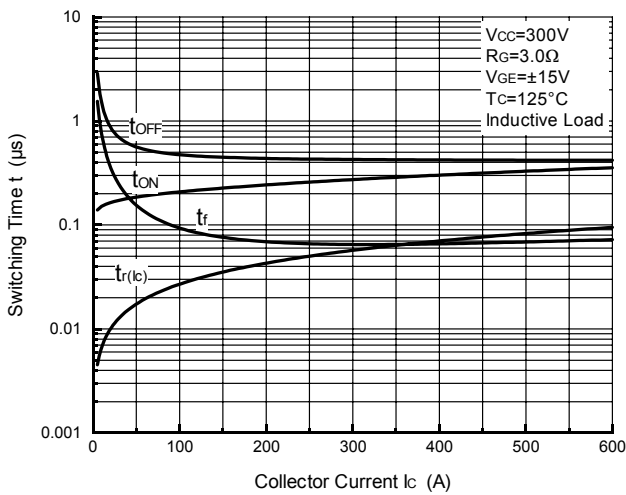


Fig.10- Series Gate Impedance vs. Switching Time

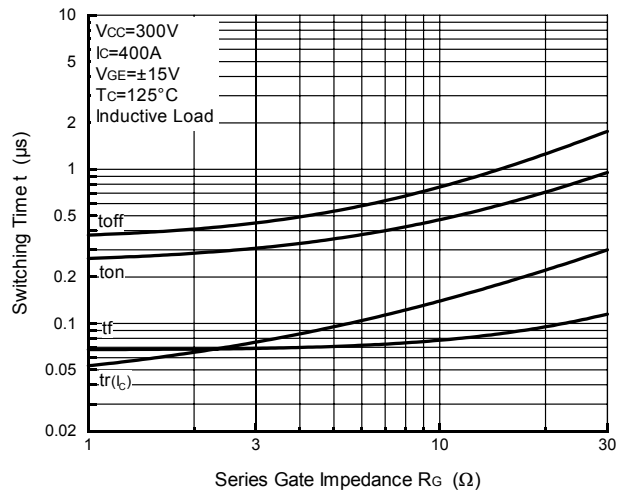


Fig.11- Collector Current vs. Switching Loss

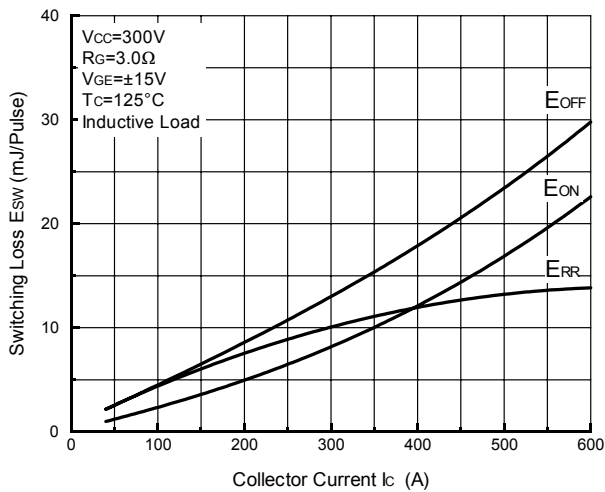
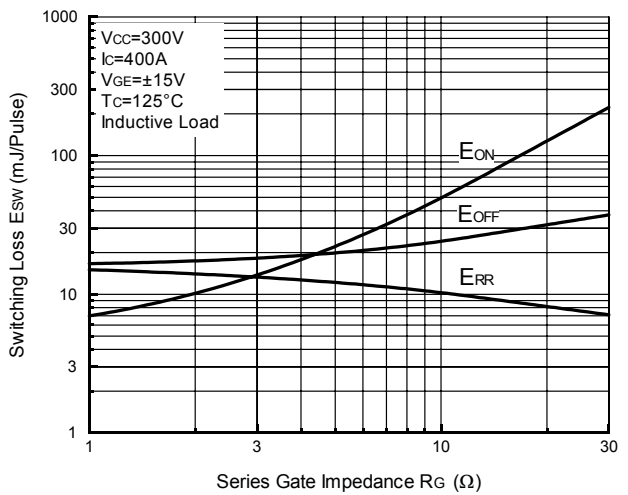


Fig.12- Series Gate Impedance vs. Switching Loss



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