

Power Module

600V 100A IGBT Module

Electrical and Thermal Specifications ($T_c = 25^\circ\text{C}$, unless otherwise specified)

Symbol	Parameters	Test Conditions	Min	Typ	Max	Unit	
IGBT							
V _{GE(th)}	Gate - Emitter Threshold Voltage	V _{CE} =V _{GE} , I _C =250μA	3.5		5.5	V	
V _{CE(sat)}	Collector - Emitter Saturation Voltage	I _C =100A, V _{GE} =15V, T _J =25°C		1.9		V	
		I _C =100A, V _{GE} =15V, T _J =125°C		2.1		V	
I _{CES}	Collector Leakage Current	V _{CE} =600V, V _{GE} =0V, T _J =25°C			0.5	mA	
		V _{CE} =600V, V _{GE} =0V, T _J =125°C		3		mA	
I _{GES}	Gate Leakage Current	V _{CE} =0V, V _{GE} =±20V	-1.1		1.1	μA	
Q _{ge}	Gate Charge	V _{CC} =300V, I _C =100A , V _{GE} =±15V		230		nC	
C _{ies}	Input Capacitance	V _{CE} =25V, V _{GE} =0V, f =1MHz		5.3		nF	
C _{oes}	Output Capacitance			0.52			
C _{res}	Reverse Transfer Capacitance			0.34			
t _{d(on)}	Turn - on Delay Time	V _{CC} =300V I _C =100A R _G =10Ω V _{GE} =±15V Inductive Load	T _J =25°C		45	ns	
			T _J =125°C		50	ns	
t _r	Rise Time		T _J =25°C		45	ns	
			T _J =125°C		45	ns	
t _{d(off)}	Turn - off Delay Time		T _J =25°C		320	ns	
			T _J =125°C		350	ns	
t _f	Fall Time		T _J =25°C		35	ns	
			T _J =125°C		40	ns	
E _{on}	Turn - on Energy		T _J =25°C		3.5	mJ	
			T _J =125°C		4.5	mJ	
E _{off}	Turn - off Energy		T _J =25°C		2.5	mJ	
			T _J =125°C		3.5	mJ	
Diode							
V _F	Forward Voltage	I _F =100A , V _{GE} =0V, T _J =25°C		1.9	2.2	V	
		I _F =100A , V _{GE} =0V, T _J =125°C		1.7	2.0	V	
t _{rr}	Reverse Recovery Time	I _F =100A , V _R =400V di _F /dt=-1000A/μs T _J =125°C		50		ns	
I _{RRM}	Max. Reverse Recovery Current			45		A	
Q _{rr}	Reverse Recovery Charge			1.5		μC	

Figure 1: Typical Output Characteristics

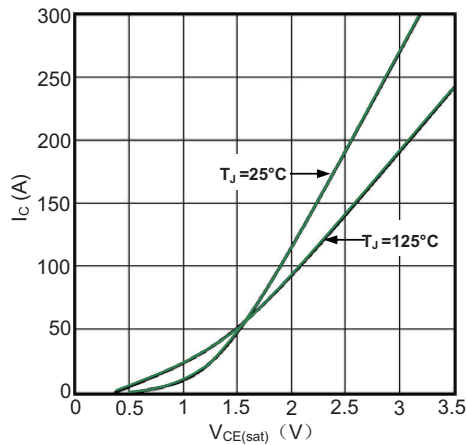


Figure 2: Typical Transfer characteristics

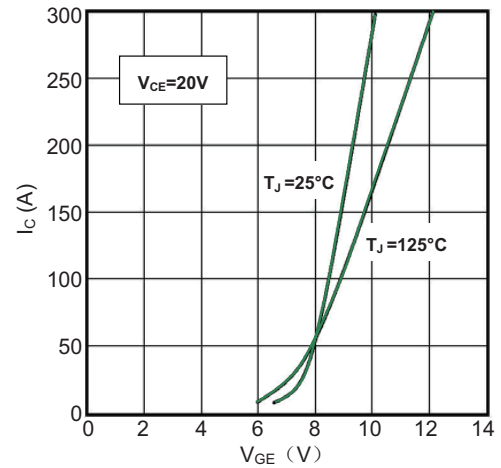


Figure 3: Switching Energy vs. Collector Current

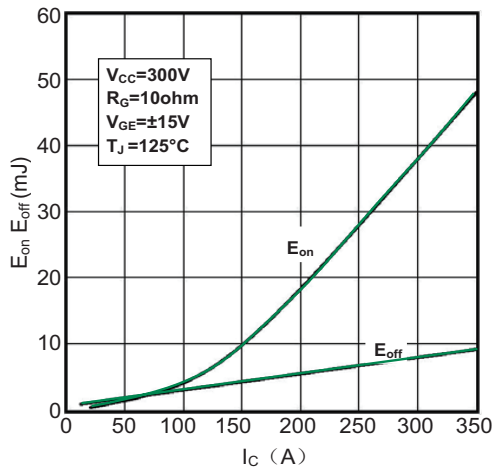


Figure 4: Switching Energy vs. Gate Resistor

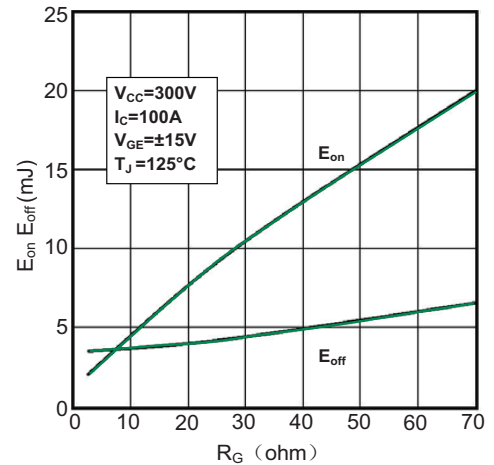


Figure 5: Switching Times vs. Collector Current

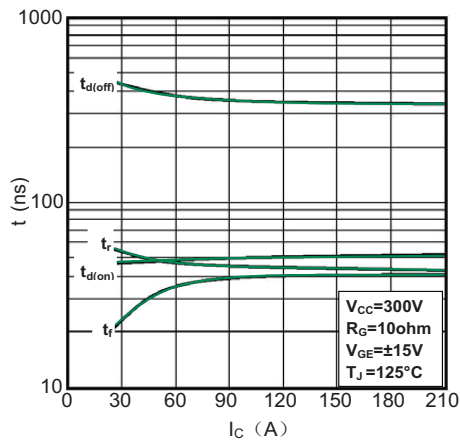


Figure 6: Switching Times vs. Gate Resistor

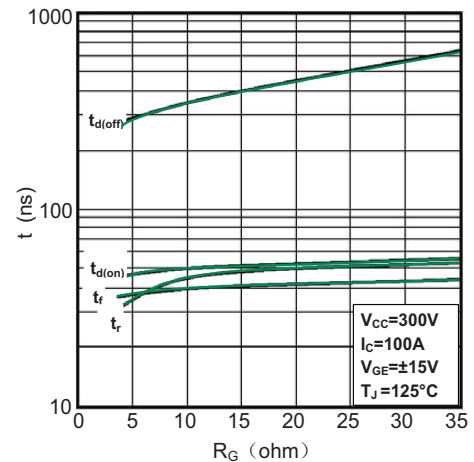


Figure 7: Gate Charge characteristics

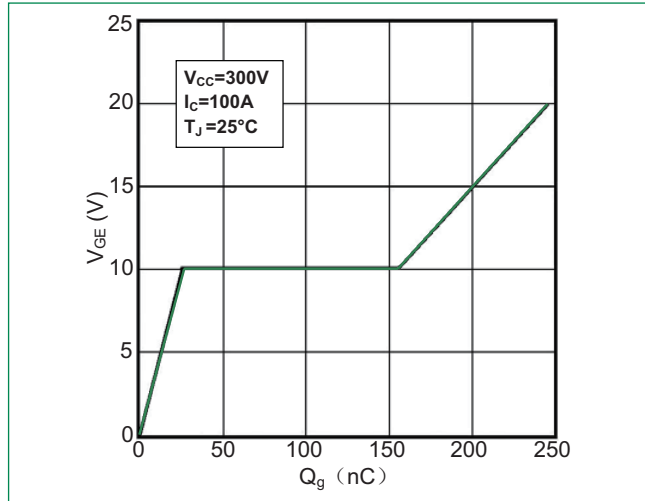


Figure 8: Typical Capacitances vs. V_{CE}

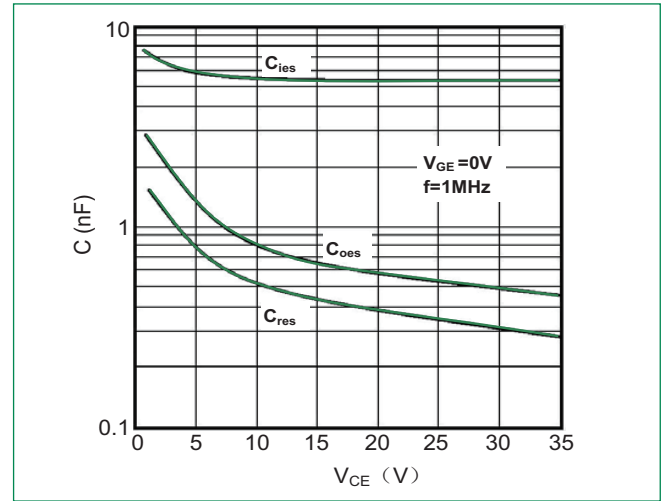


Figure 9: Reverse Biased Safe Operating Area

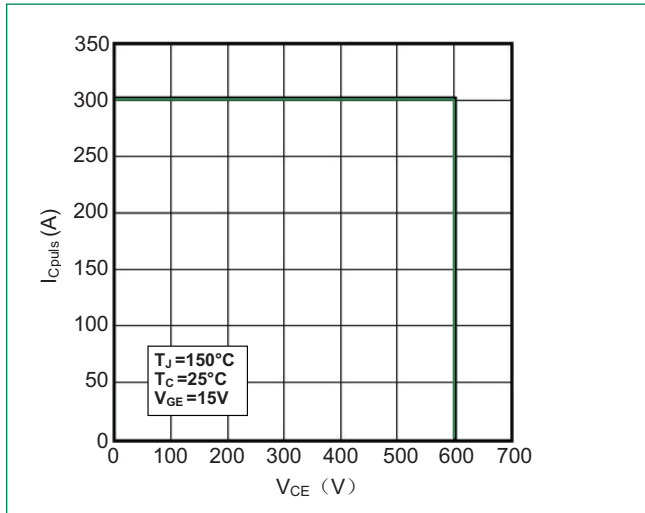


Figure 10: Short Circuit Safe Operating Area

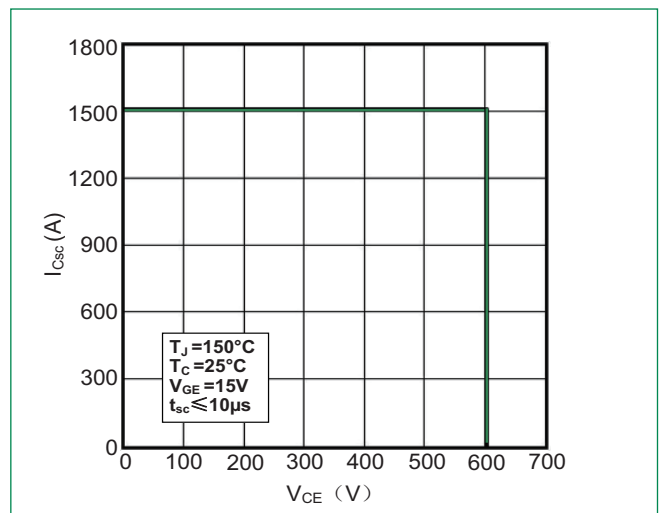


Figure 11: Rated Current vs. T_C

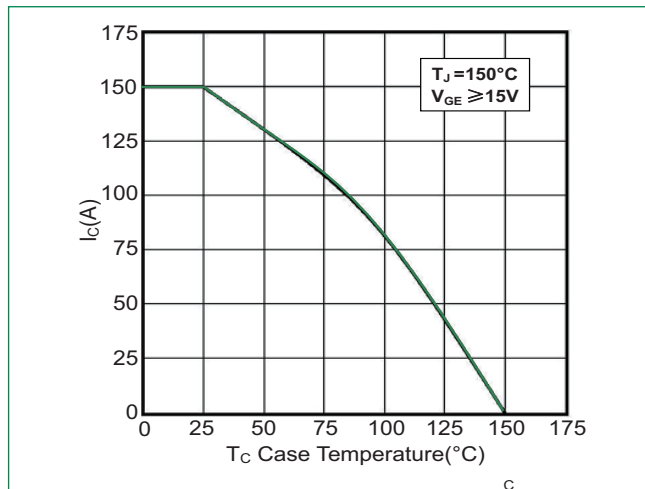


Figure 12: Diode Forward Characteristics

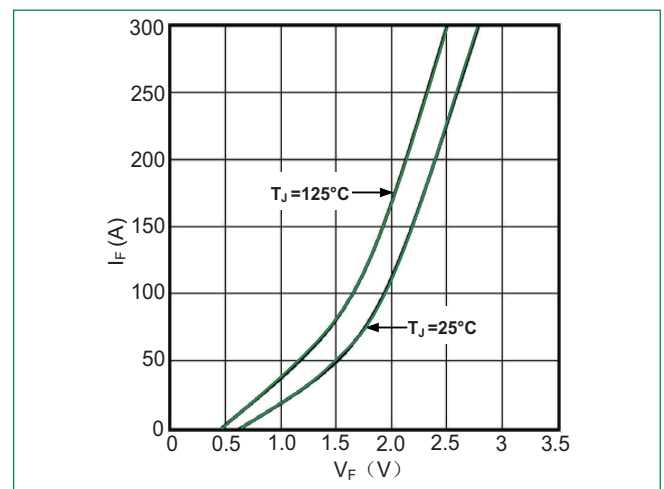
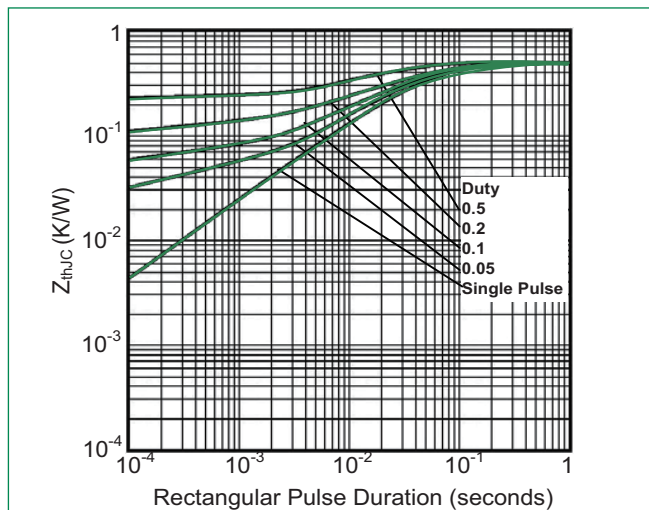
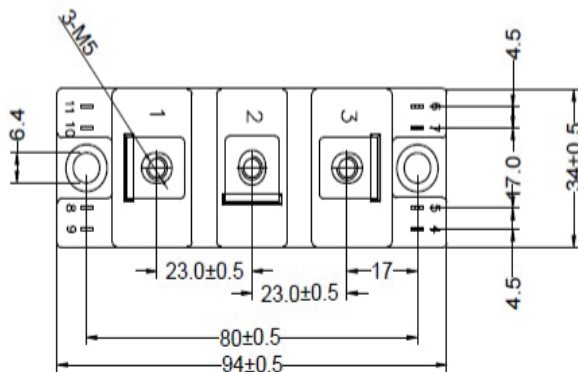
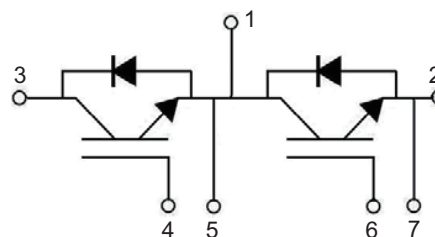


Figure 14: Transient Thermal Impedance of Diode



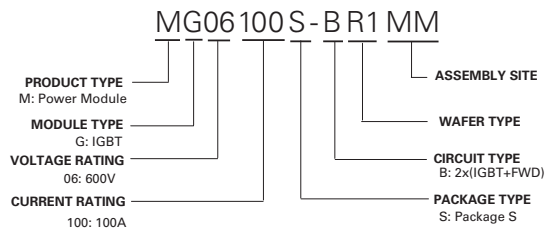
Circuit Diagram



Packing Options

Part Number	Marking	Weight	Packing Mode	M.O.Q
MG06100S-BR1MM	MG06100S-BR1MM	150g	Bulk Pack	100

Part Numbering System



Part Marking System

