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Power Module
600V 100A IGBT Module

MG06100S-BR1MM

RoHS

Features

- Ultra Low Loss
- High Ruggedness
- High Short Circuit Capability
- Positive Temperature Coefficient
- With Fast Free-Wheeling Diodes

Applications

- Inverter
- Converter
- Welder
- SMPS and UPS
- Induction Heating

Agency Approvals

AGENCY	AGENCY FILE NUMBER
	E71639

Module Characteristics (T_c = 25°C, unless otherwise specified)

Symbol	Parameters	Test Conditions	Min	Typ	Max	Unit
R_{thJC}	Junction-to-Case Thermal Resistance	Per IGBT			0.2	K/W
R_{thJCD}		Per Inverse Diode			0.5	K/W
Torque	Module-to-Sink	Recommended (M6)	3		5	N·m
Torque	Module Electrodes	Recommended (M5)	2.5		5	N·m
Weight				150		g

Absolute Maximum Ratings (T_c = 25°C, unless otherwise specified)

Symbol	Parameters	Test Conditions	Values	Unit
IGBT				
V_{CES}	Collector - Emitter Voltage		600	V
V_{GES}	Gate - Emitter Voltage		±20	V
I_C	DC Collector Current	T_C=25°C	150	A
		T_C=80°C	105	A
I_{Cpuls}	Pulsed Collector Current	T_C=25°C, t_p=1ms	300	A
		T_C=80°C, t_p=1ms	210	
P_{tot}	Power Dissipation Per IGBT		625	W
T_J	Junction Temperature Range		-40 to +150	°C
T_{STG}	Storage Temperature Range		-40 to +125	°C
V_{isol}	Insulation Test Voltage	AC, t=1min	3000	V
Diode				
V_{RRM}	Repetitive Reverse Voltage		600	V
$I_{F(AV)}$	Average Forward Current	T_C=25°C	125	A
		T_C=80°C	85	A
$I_{F(RMS)}$	RMS Forward Current		122	A
I_{FSM}	Non-Repetitive Surge Forward Current	T_J =45°C, t=10ms, Sine	500	A
		T_J =45°C, t=8.3ms, Sine	545	

Life Support Note:

Not Intended for Use in Life Support or Life Saving Applications

The products shown herein are not designed for use in life sustaining or life saving applications unless otherwise expressly indicated.

Electrical and Thermal Specifications (T_C = 25°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

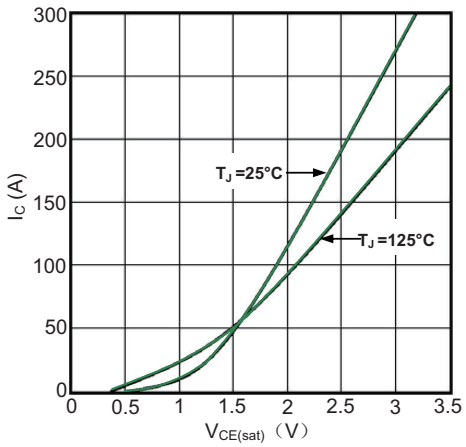


Figure 2: Typical Transfer characteristics

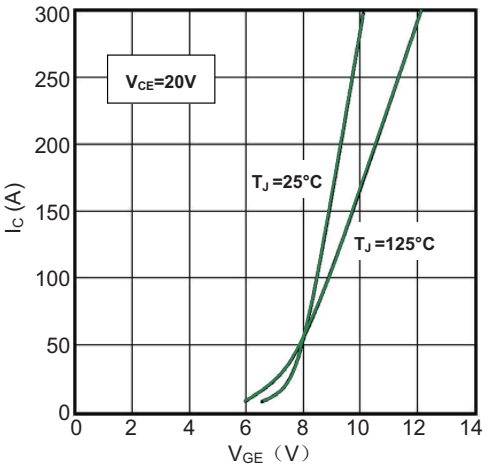


Figure 3: Switching Energy vs. Collector Current

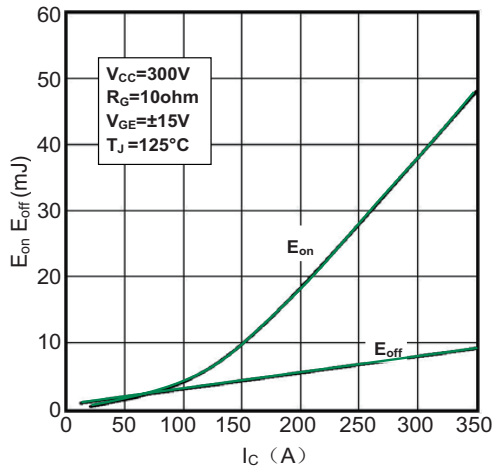


Figure 4: Switching Energy vs. Gate Resistor

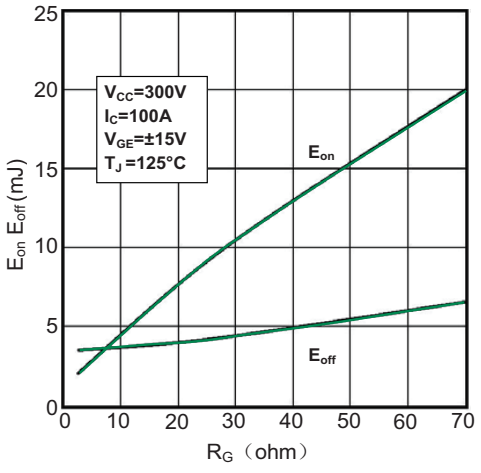


Figure 5: Switching Times vs. Collector Current

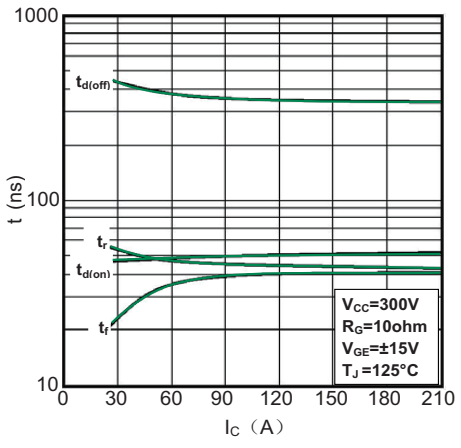


Figure 6: Switching Times vs. Gate Resistor

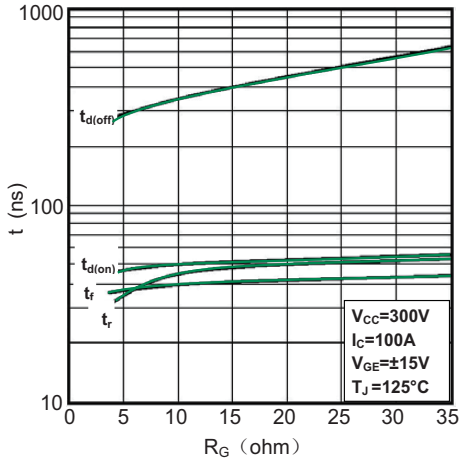


Figure 7: Gate Charge characteristics

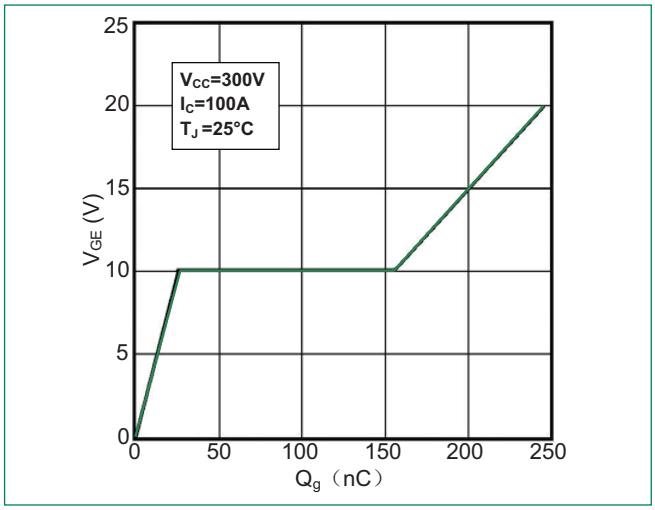


Figure 8: Typical Capacitances vs. V_{CE}

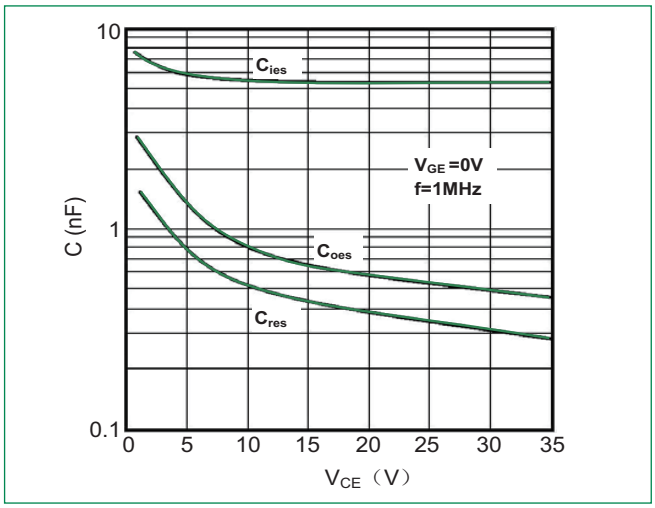


Figure 9: Reverse Biased Safe Operating Area

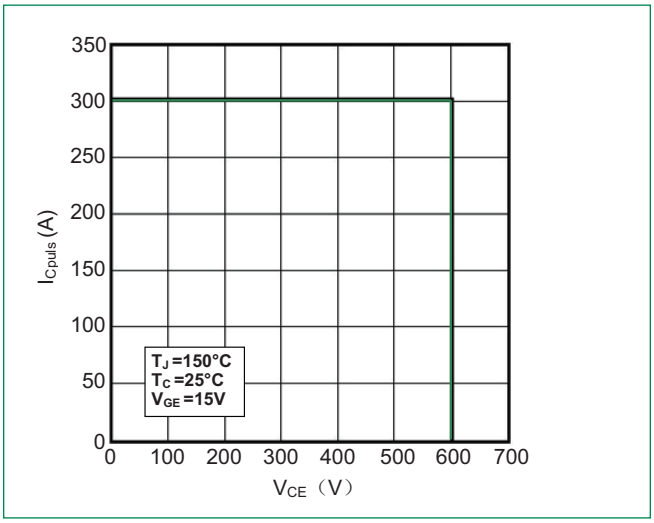


Figure 10: Short Circuit Safe Operating Area

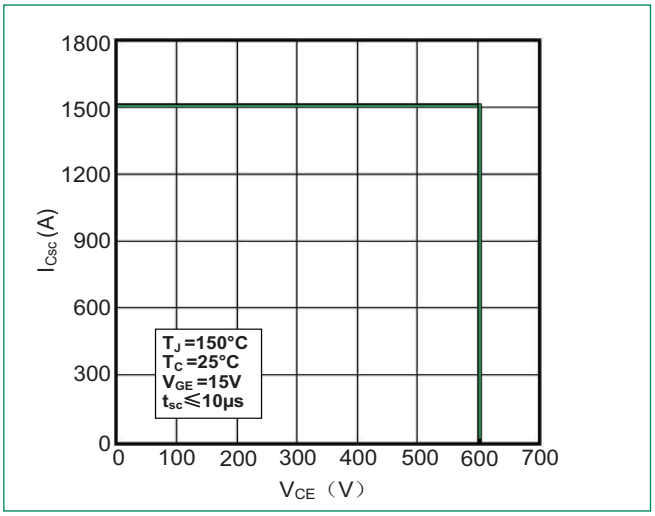


Figure 11: Rated Current vs. T_C

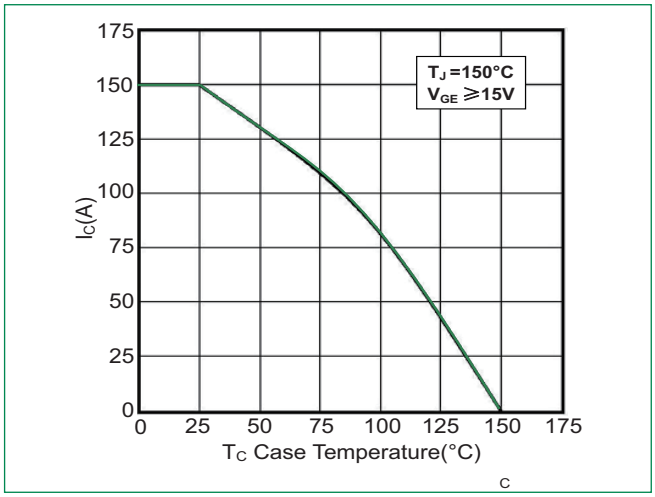


Figure 12: Diode Forward Characteristics

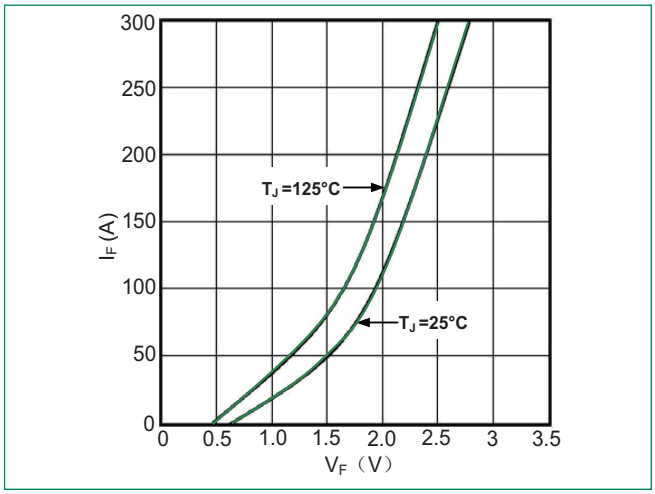


Figure 13: Transient Thermal Impedance of IGBT

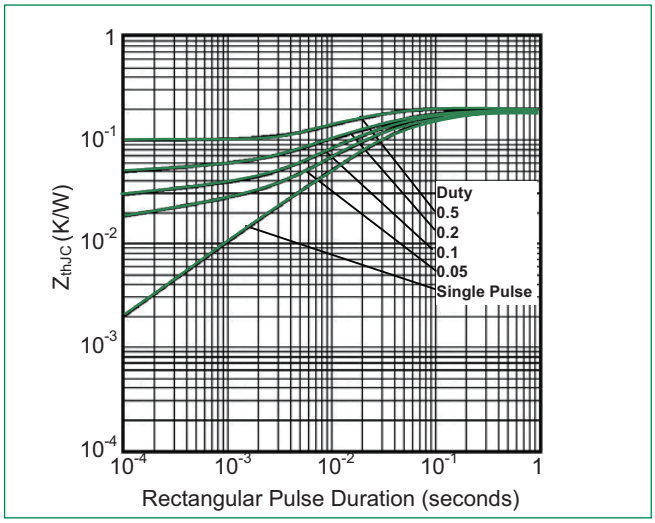
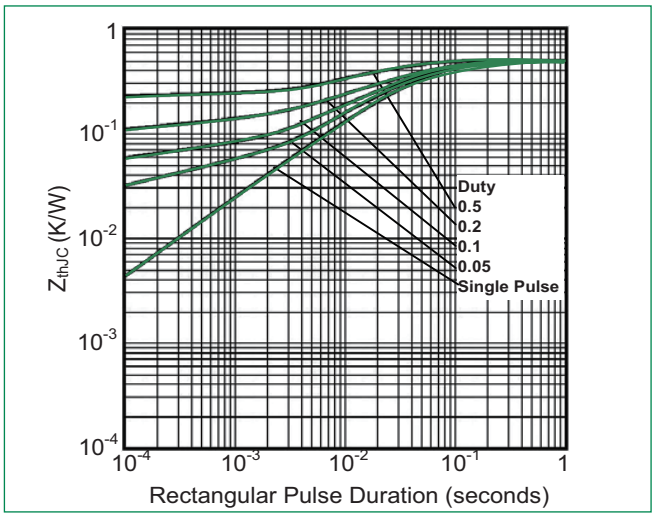
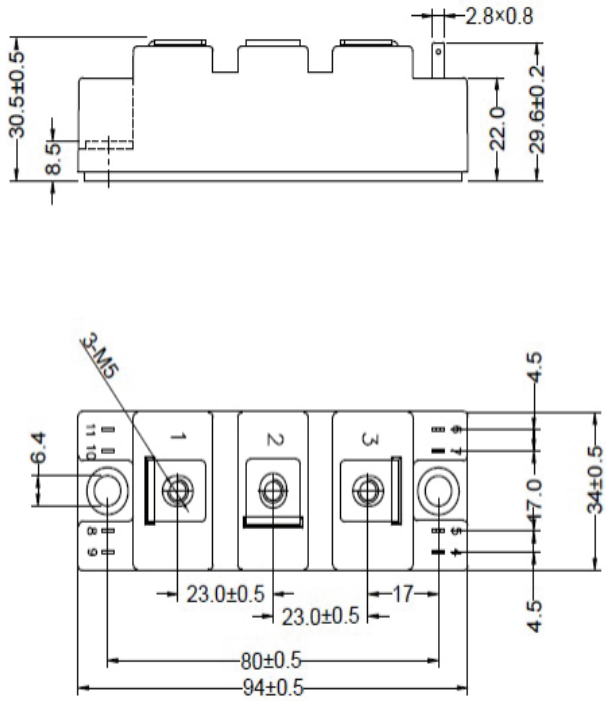


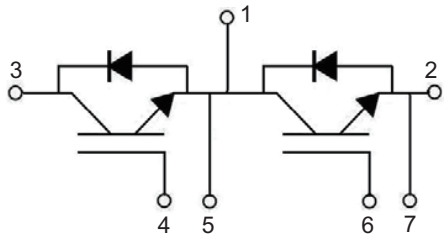
Figure 14: Transient Thermal Impedance of Diode



Dimensions-Package S



Circuit Diagram

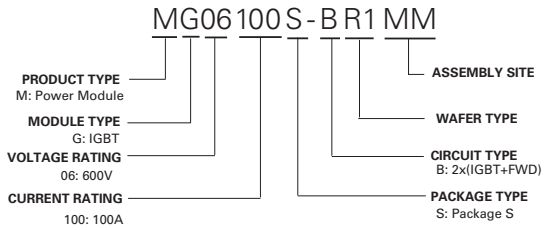


Power Module
600V 100A IGBT Module

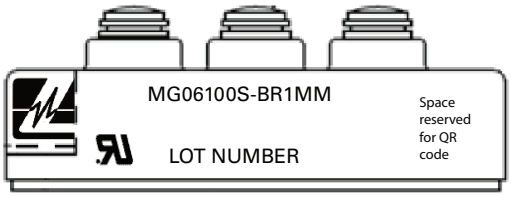
Packing Options

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

Part Numbering System



Part Marking System



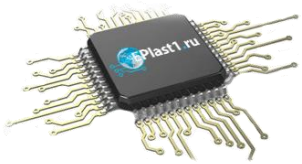
Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits,General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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