Littelfuse
Expertise Applied | Answers Delivered

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

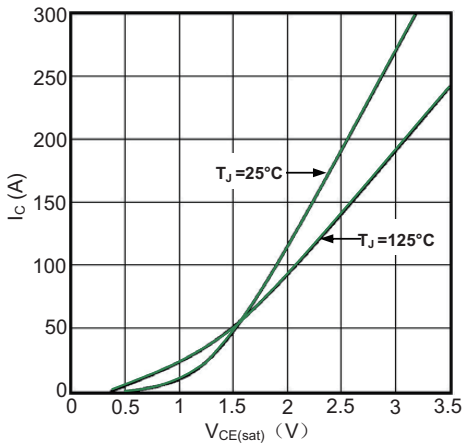


Figure 2: Typical Transfer characteristics

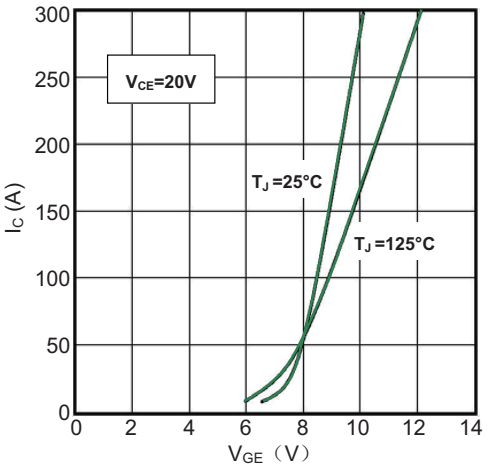


Figure 3: Switching Energy vs. Collector Current

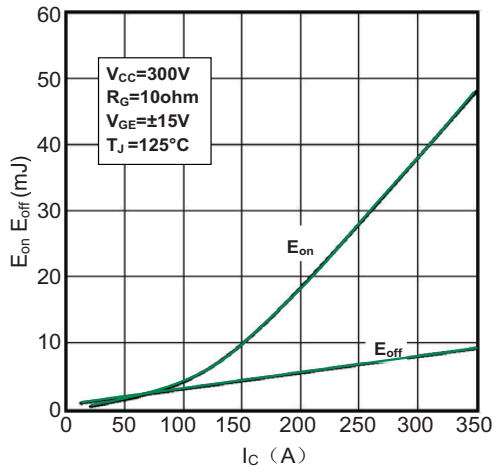


Figure 4: Switching Energy vs. Gate Resistor

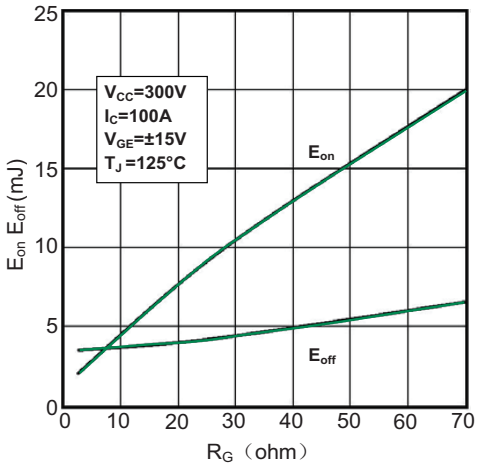


Figure 5: Switching Times vs. Collector Current

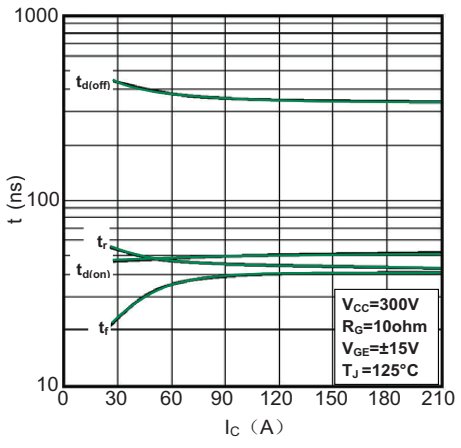


Figure 6: Switching Times vs. Gate Resistor

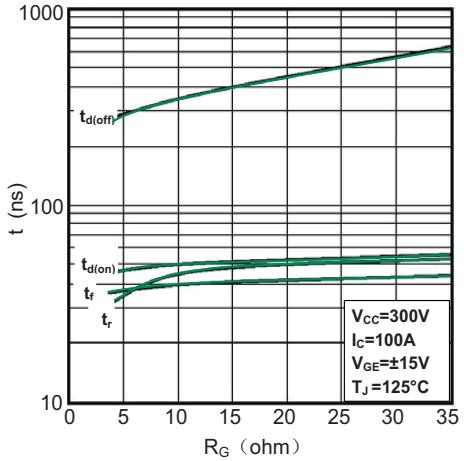


Figure 7: Gate Charge characteristics

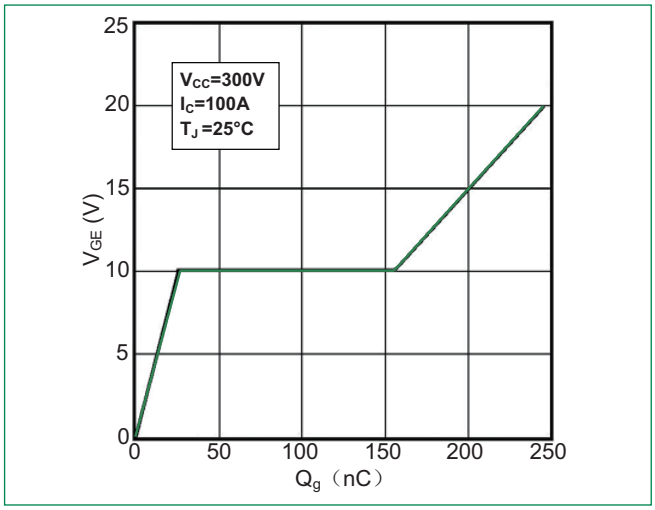


Figure 8: Typical Capacitances vs. V_{CE}

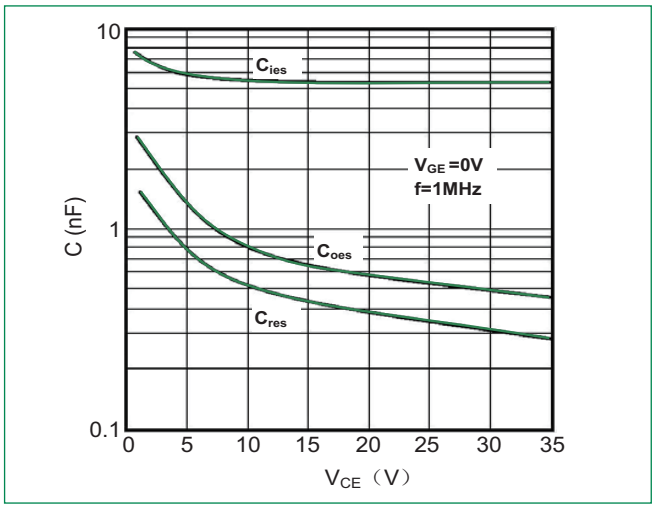


Figure 9: Reverse Biased Safe Operating Area

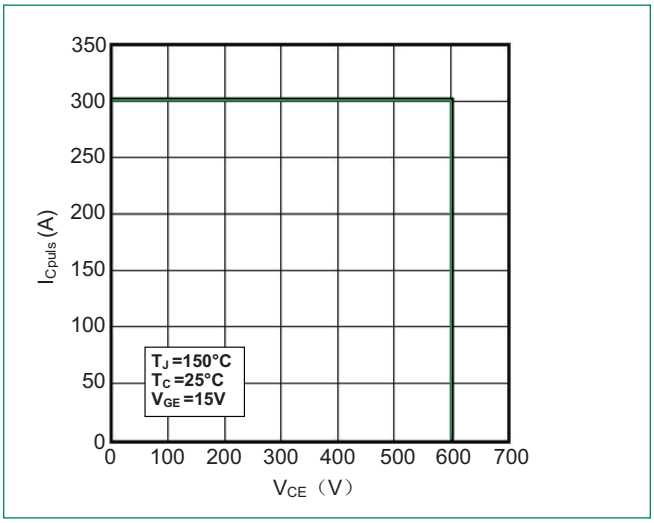


Figure 10: Short Circuit Safe Operating Area

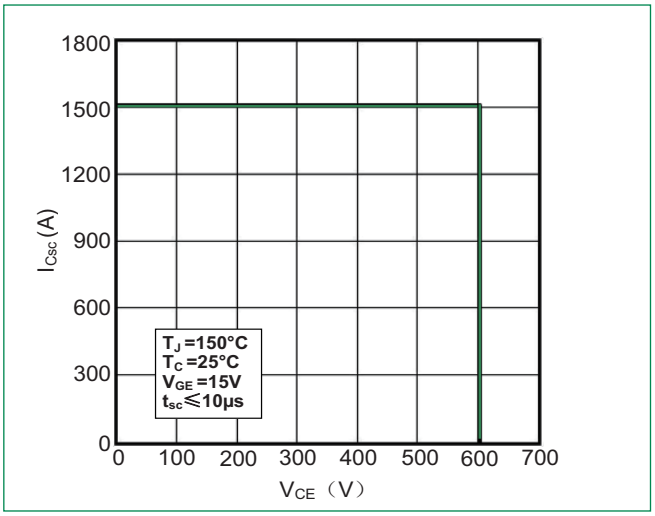


Figure 11: Rated Current vs. T_C

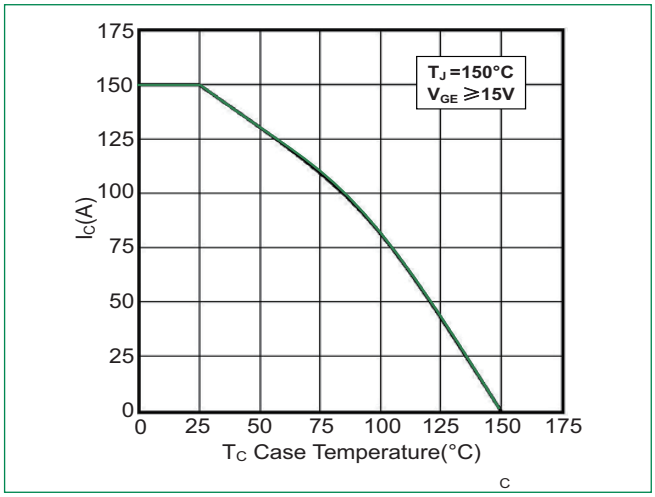


Figure 12: Diode Forward Characteristics

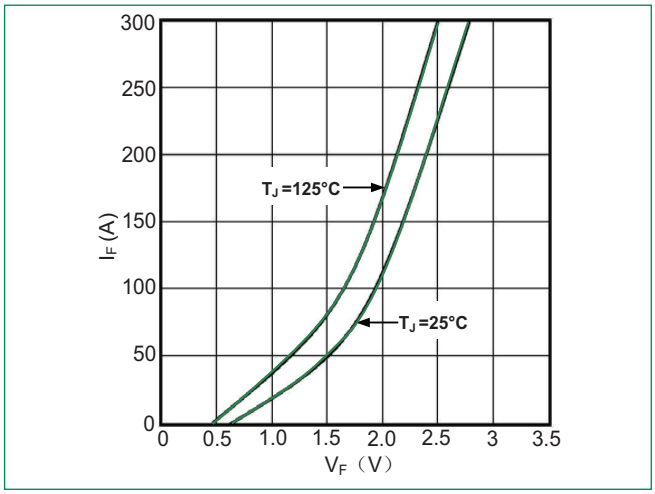


Figure 13: Transient Thermal Impedance of IGBT

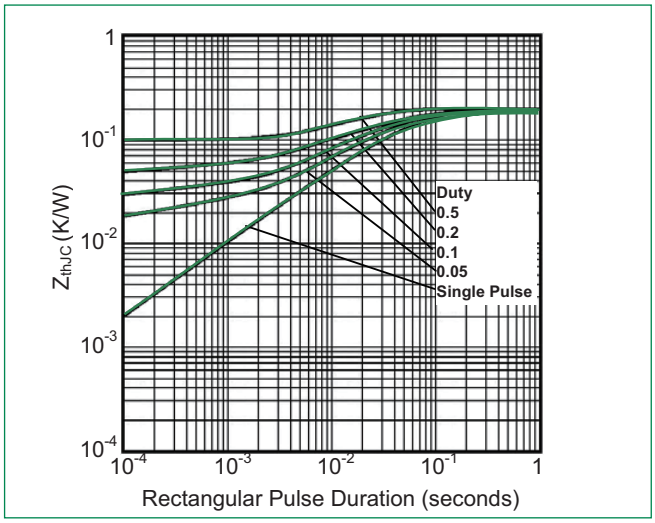
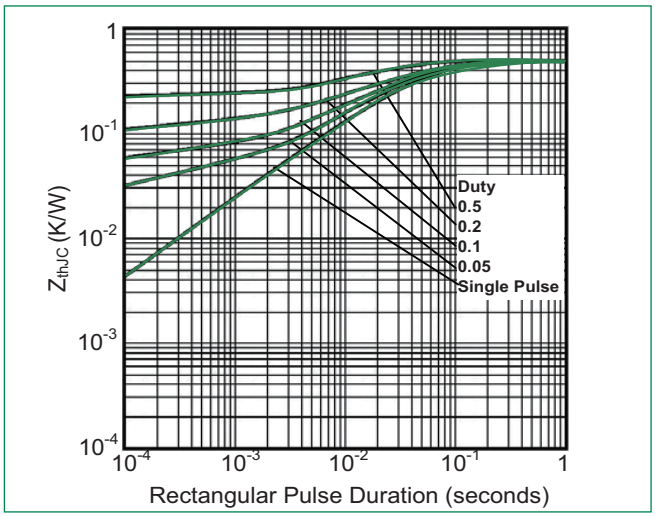
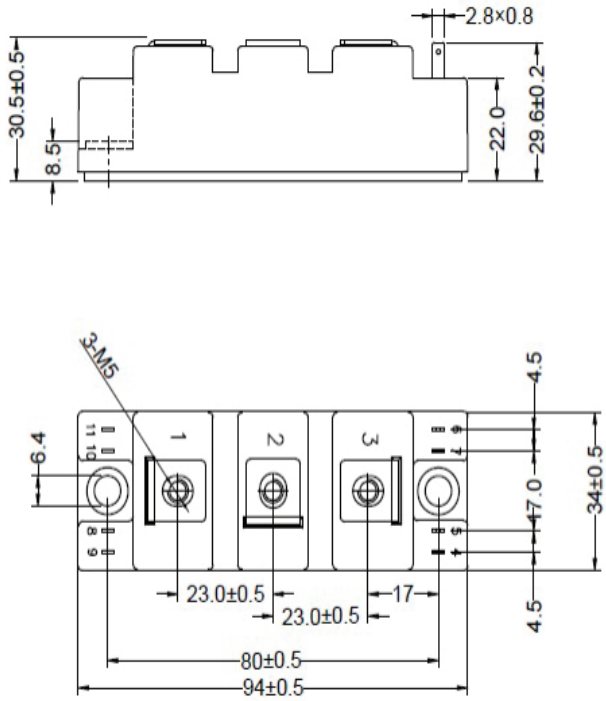


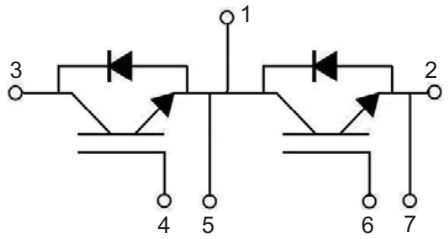
Figure 14: Transient Thermal Impedance of Diode



Dimensions-Package S



Circuit Diagram

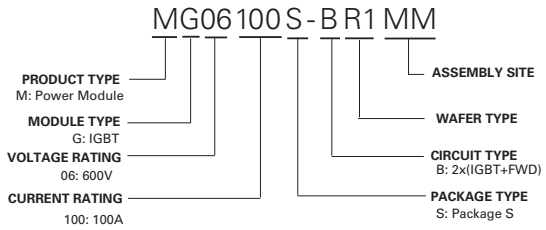


Power Module
600V 100A IGBT Module

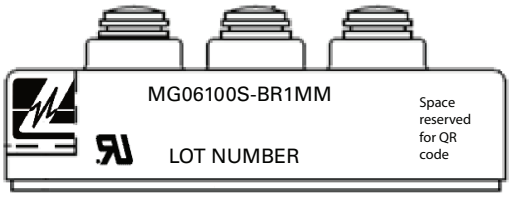
Packing Options

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

Part Numbering System



Part Marking System



Общество с ограниченной ответственностью «МосЧип» ИНН 7719860671 / КПП 771901001
Адрес: 105318, г.Москва, ул.Щербаковская д.3, офис 1107

Данный компонент на территории Российской Федерации

Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

http://moschip.ru/get-element

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:
moschip.ru
moschip.ru_4
moschip.ru_6
moschip.ru_9