

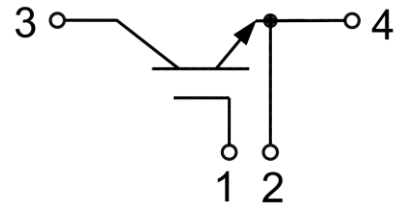


GT100SG120B5H

IGBT Module

Features:

- Field Stop Trench Gate IGBT
- Short Circuit Rated > 10 μ s
- Low Saturation Voltage
- Low Switching Loss
- 100% RBSOA Tested (2 $\times$ I_C)
- Low Stray Inductance
- Lead Free, Compliant with RoHS Requirement



Applications:

- Industrial Inverters
- Servo Applications

IGBT, Inverter

Maximum Rated Values (T_C=25°C unless otherwise specified)

V _{CES}	Collector-Emitter Blocking Voltage		1200	V
V _{GES}	Gate-Emitter Voltage		±20	V
I _C	Continuous Collector Current	T _C =100°C	100	A
		T _C =25°C	200	A
I _{CM}	Peak Collector Current Repetitive	t _p =1ms	200	A
P _D	Maximum Power Dissipation (IGBT)	T _C =25°C T _{Jmax} =175°C	704	W



Electrical Characteristics of IGBT ($T_C=25^{\circ}\text{C}$ unless otherwise specified)

Static Characteristics

Symbol	Description	Conditions	Min.	Typ.	Max.	Units
$V_{GE(th)}$	Gate-Emitter Threshold Voltage	$I_C=2.4\text{mA}$, $V_{CE}=V_{GE}$	5.0	5.7	6.6	V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=100\text{A}$, $V_{GE}=15\text{V}$	$T_J=25^{\circ}\text{C}$	1.65	1.90	V
			$T_J=125^{\circ}\text{C}$	2.00		V
			$T_J=150^{\circ}\text{C}$	2.10		V
I_{CES}	Collector-Emitter Leakage Current	$V_{GE}=0\text{V}$, $V_{CE}=V_{CES}$, $T_J=25^{\circ}\text{C}$			1	mA
I_{GES}	Gate-Emitter Leakage Current	$V_{GE}=\pm 20\text{V}$, $V_{CE}=0\text{V}$, $T_J=25^{\circ}\text{C}$			± 200	nA
C_{ies}	Input Capacitance	$V_{CE}=25\text{V}$, $V_{GE}=0\text{V}$, $f=100\text{kHz}$		11.46		nF
C_{oes}	Output Capacitance			1.52		nF
C_{res}	Reveres Transfer Capacitance			0.74		nF

Switching Characteristics

t _{d(on)}	Turn-on Delay Time	V _{CC} =600V, I _C =100A, R _{Gon} =1Ω, V _{GE} =±15V, Inductive Load	T _J =25℃		152		ns
			T _J =125℃		168		
			T _J =150℃		172		
t _r	Rise Time		T _J =25℃		32		ns
			T _J =125℃		40		
			T _J =150℃		42		
t _{d(off)}	Turn-off Delay Time	V _{CC} =600V, I _C =100A, R _{Goff} =1Ω, V _{GE} =±15V, Inductive Load	T _J =25℃		302		ns
			T _J =125℃		348		
			T _J =150℃		352		
t _f	Fall Time		T _J =25℃		158		ns
			T _J =125℃		250		
			T _J =150℃		250		
E _{on}	Turn-on Switching Loss	V _{CC} =600V, I _C =100A, R _{Gon} =1Ω, V _{GE} =±15V, di/dt=2061A/μs(T _J =150℃), Inductive Load	T _J =25℃		2.70		mJ
			T _J =125℃		4.70		
			T _J =150℃		5.64		



E _{off}	Turn-off Switching Loss	V _{CC} =600V, I _C =100A, R _{Goff} =1Ω, V _{GE} =±15V, du/dt=5171V/μs(T _J =150°C), Inductive Load	T _J =25°C		7.83		mJ
			T _J =125°C		10.18		
			T _J =150°C		10.81		
Q _g	Total Gate Charge	V _{GE} =+15V...-15V	T _J =25°C		2912		nC
R _{G(int)}	Internal Gate Resistor		T _J =25°C		5.5		Ω
SCSOA	V _{CC} =600V, V _{GE} =±15V, R _{Gon} =1Ω, R _{Goff} =1Ω, T _J =25°C			10			μs
R _{θJC}	Thermal Resistance: Junction-To-Case (per IGBT)					0.213	°C/W

Module

Symbol	Description	Conditions	Min.	Typ.	Max.	Units
V _{iso}	Isolation Voltage (All Terminals Shorted)	f=50Hz, 30s	4500			V
T _J	Maximum Junction Temperature				175	°C
T _{JOP}	Maximum Operating Junction Temperature Range		-40		+150	°C
T _{stg}	Storage Temperature		-40		+150	°C
CTI	Comparative Tracking Index		200			
R _{θCS}	Case-To-Sink Thermally (Conductive Grease Applied)				0.06	°C/W
T	Power Terminals Screw:M4		1.1		1.5	N·m
T	Mounting Screw:M4		1.1		1.5	N·m
G	Weight			30		g



Ordering Information Table

Device code	G	T	100	SG	120	B5	H
	①	②	③	④	⑤	⑥	⑦

- ① - IGBT Module
- ② - Trench, Low Switching Losses IGBT
- ③ - Rated Current (100=100A)
- ④ - Circuit Configuration (Single)
- ⑤ - Rated Voltage (120=1200V)
- ⑥ - Package Type
- ⑦ - Test Level (Pass the Important Reliability Test-Industrial Grade)

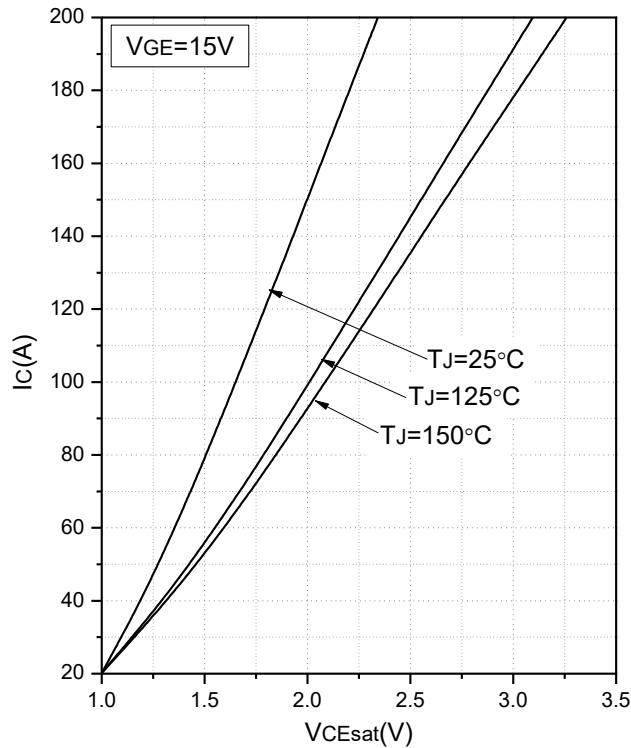


Fig.1 Typical Saturation Voltage Characteristics

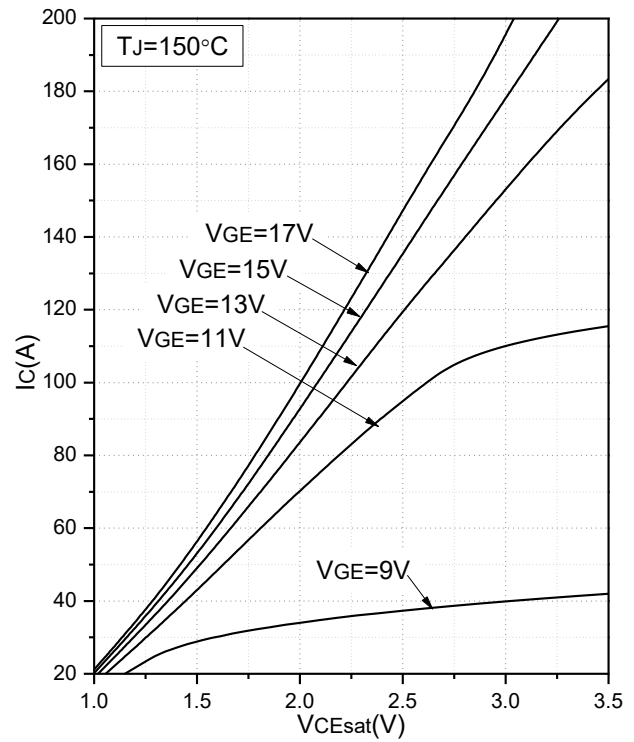


Fig.2 Typical Output Characteristics

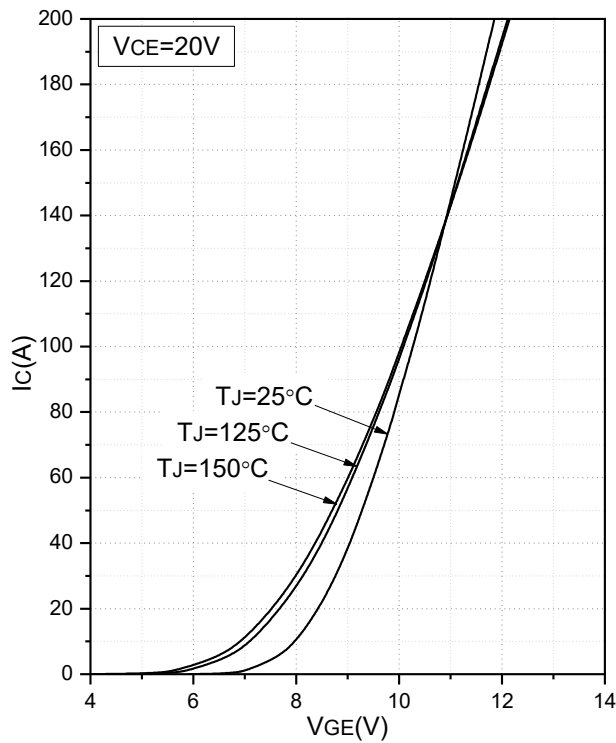


Fig.3 Transfer Characteristics

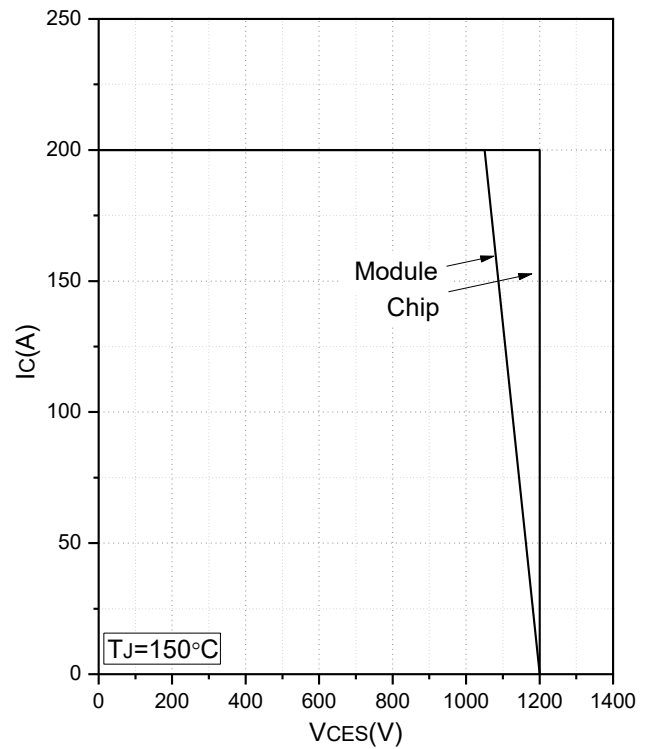
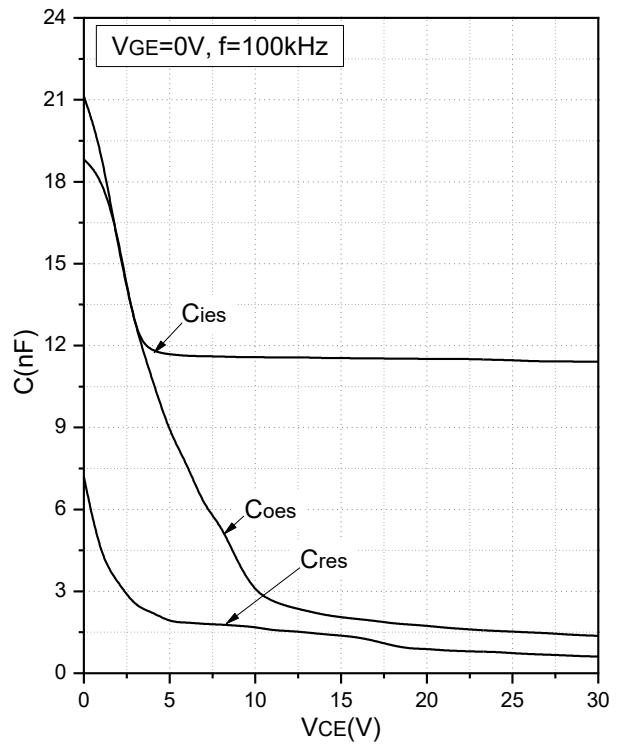
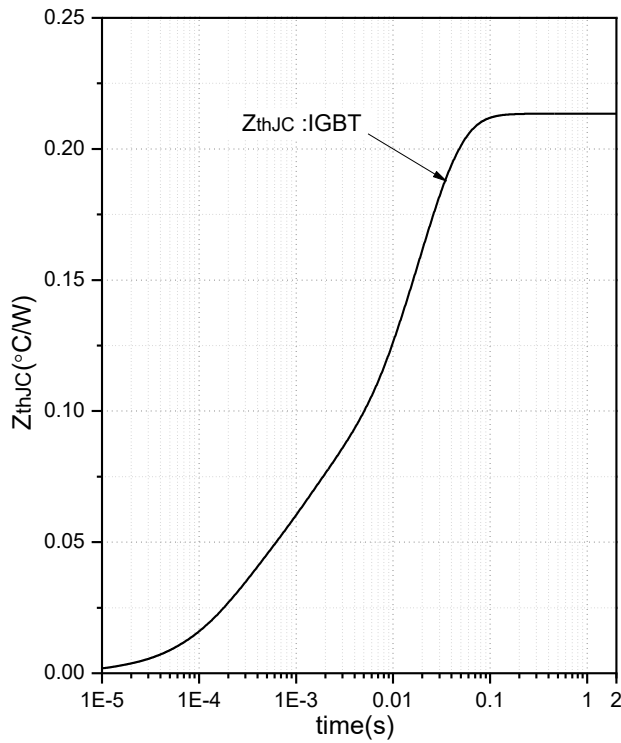
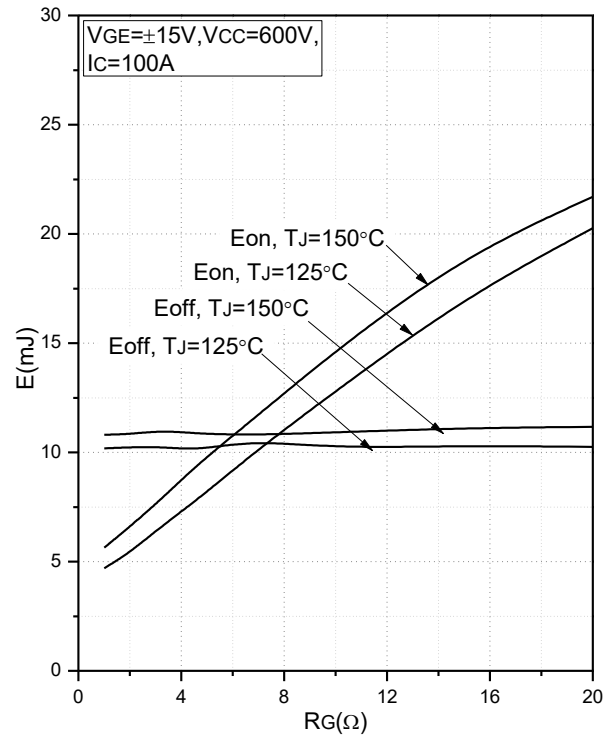
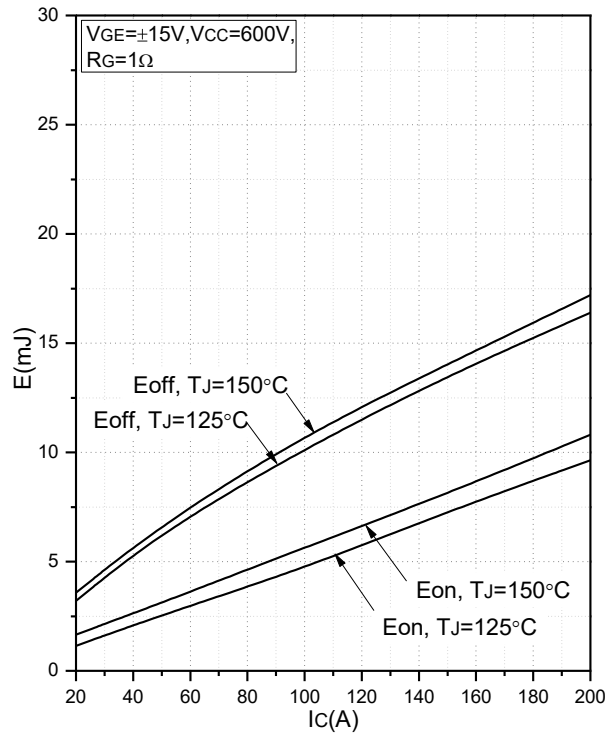
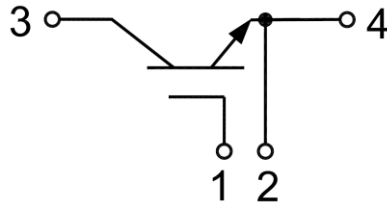


Fig.4 Reverse Bias Safe Operation Area (RBSOA)

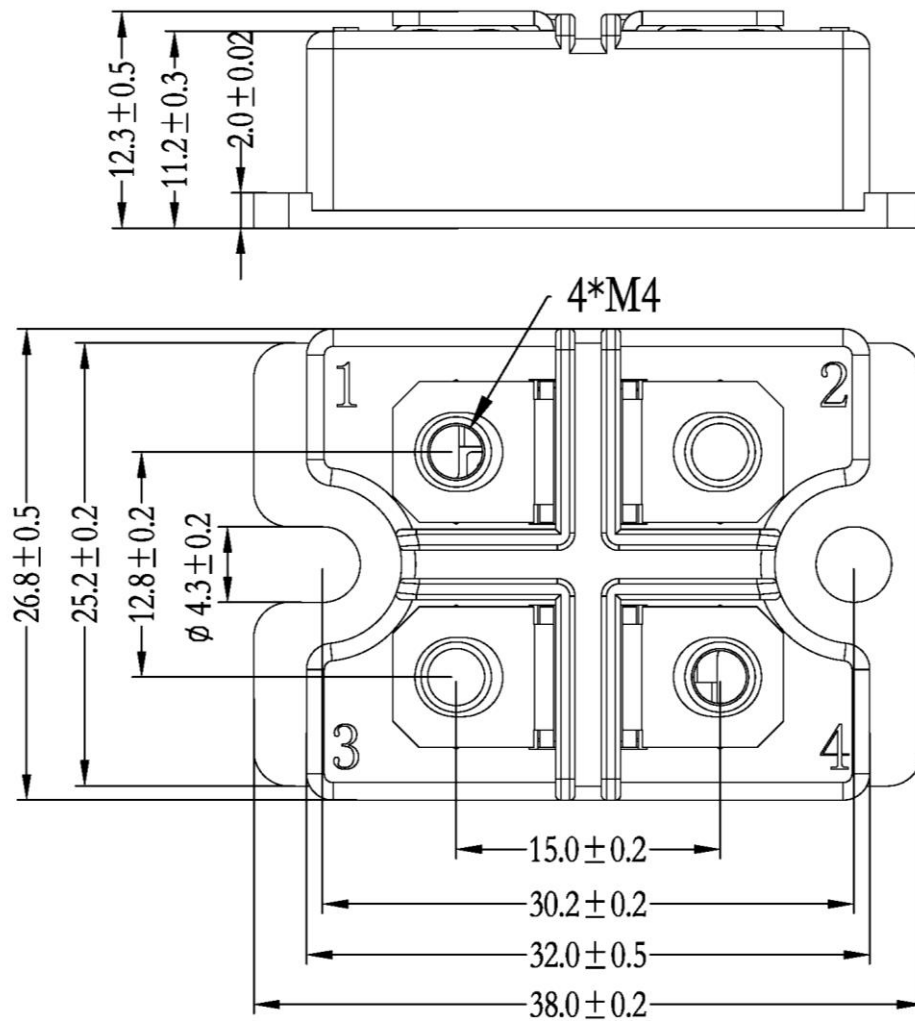




Internal Circuit:



Package Outline (Unit: mm):





Date	Revision	Notes
06/13/2024	A	Final Version

Announcement

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The released datasheet would be issued with “REV.” + “alphabet characters”.