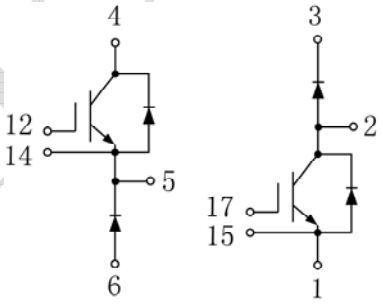
SILVERMICRO

GT100CH120T2H

IGBT Module

Preliminary Data



Features：

- Short Circuit Rated 10μs
- Low Saturation Voltage: VCE (sat) = 1.90V @ IC = 100A , TC=25℃
- Low Switching Loss
- 100% RBSOA Tested（2×Ic）
- Low Stray Inductance
- Lead Free, Compliant with RoHS Requirement

Applications：

- Industrial Motor Drive
- UPS、SMPS
- Servo Drive、Switched Reluctance Drive

IGBT, Brake-Chopper

Maximum Rated Values (T_C=25℃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 = 80℃,	100	A
		T_C = 25℃	170	A
I_{CM}	Peak Collector Current Repetitive	T_J = 175℃	200	A
t_{SC}	Short Circuit Withstand Time		>10	μs
P_D	Maximum Power Dissipation (IGBT)	T_C = 25℃ T_{Jmax}=175℃	640	W

Electrical Characteristics of IGBT (T_C=25℃Unless otherwise specified)

Static characteristics

Symbol	Description	Conditions		Min	Typ	Max	Unit
$V_{GE(th)}$	Gate-Emitter Threshold Voltage	I_C = 1mA, V_{CE} = V_{GE}		5.0	5.5	6.0	V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C = 100A, V_{GE} = 15V	T_J = 25℃		1.90	2.20	V
			T_J = 125℃		2.20		V
I_{CES}	Collector-Emitter Leakage Current	V_{GE} = 0V, V_{CE} = V_{CES}, T_J = 25℃				1	mA
I_{GES}	Gate-Emitter Leakage Current	V_{GE} = ±20V, V_{CE} = 0V, T_J = 25℃				200	nA
C_{ies}	Input Capacitance	V_{CE} = 25V, V_{GE} = 0V , f =1MHz			12.78		nF
C_{oes}	Output capacitance				0.46		nF
C_{res}	Reveres transfer capacitance				0.32		nF

Switching Characteristics

$t_{d(on)}$	Turn-on Delay Time	V_{CC} = 600V,I_C = 100A, R_G = 15Ω,V_{GE} = ±15V, Inductive Load	T_J = 25℃		245		ns
			T_J = 125℃		225		
t_r	Rise Time		T_J = 25℃		145		ns
			T_J = 125℃		145		
$t_{d(off)}$	Turn-off Delay Time		T_J = 25℃		420		ns
			T_J = 125℃		450		
t_f	Fall Time		T_J = 25℃		170		ns
			T_J = 125℃		230		
E_{on}	Turn-on Switching Loss		T_J = 25℃		9.1		mJ
			T_J = 125℃		11.7		
E_{off}	Turn-off Switching Loss		T_J = 25℃		5.5		mJ
			T_J = 125℃		7.9		
Q_g	Total Gate Charge		T_J = 25℃		945		nC
RBSOA	RBSOA	I_C=200A,V_{CC}=1050V,Vp=1200V, Rg = 15Ω, V_{GE}=+15V to 0V, T_J =150°C		Trapezoid			
SCSOA	SCSOA	V_{CC} = 600V, V_{GE} = 15V, T_J = 150℃		10			μs
$R_{\theta JC}$	IGBT Thermal Resistance: Junction-To-Case				0.233		℃/W

Diode, Reverse

Maximum Rated Values (T_C=25℃Unless otherwise specified)

V_{RRM}	Repetitive peak reverse voltage	1200	V
I_F	Diode Continuous Forward Current	100	A
I_{FM}	Peak FWD Current Repetitive	200	A

Electrical Characteristics of FWD (T_C=25℃Unless otherwise specified)

Symbol	Description	Conditions		Min	Typ	Max	Unit
V_{FM}	Forward Voltage	I_F = 100A , V_{GE} = 0V	T_J = 25℃		2.20	2.40	V
			T_J = 125℃		2.40		
I_{rr}	Peak Reverse Recovery Current	I_F = 100A, di/dt =660A/μs, V_{rr} = 600V, V_{GE} = -15V	T_J = 25℃		40		A
			T_J = 125℃		55		
Q_{rr}	Reverse Recovery Charge		T_J = 25℃		4.7		μC
			T_J = 125℃		10.6		
E_{rec}	Reverse Recovery Energy		T_J = 25℃		1.5		mJ
			T_J = 125℃		3.9		
$R_{\theta JC}$	Diode Thermal Resistance: Junction-To-Case				0.454		℃/W

Diode, Brake-Chopper

Maximum Rated Values (T_C=25℃Unless otherwise specified)

V_{RRM}	Repetitive peak reverse voltage	1200	V
I_F	Diode Continuous Forward Current	100	A
I_{FM}	Peak FWD Current Repetitive	200	A

Electrical Characteristics of FWD (T_C=25℃Unless otherwise specified)

Symbol	Description	Conditions		Min	Typ	Max	Unit
V_{FM}	Forward Voltage	I_F = 100A , V_{GE} = 0V	T_J = 25℃		1.80	2.00	V
			T_J = 125℃		2.00		
$R_{\theta JC}$	Diode Thermal Resistance: Junction-To-Case				0.287		℃/W

Module

Symbol	Description		Min	Typ	Max	Unit
V_{iso}	Isolation Voltage(All Terminals Shorted)	f = 50Hz, 1minute	2500			V
T_J	Maximum Junction Temperature				175	℃
T_{JOP}	Maximum Operating Junction Temperature Range		-40 +150			℃
T_{stg}	Storage Temperature		-40 +125			℃
$R_{\theta CS}$	Case-To-Sink (Conductive Grease Applied)			0.03		℃/W
M	Power Terminals Screw:M5		3.0		5.0	N·m
M	Mounting Screw:M6		4.0		6.0	N·m
G	Weight			280		g

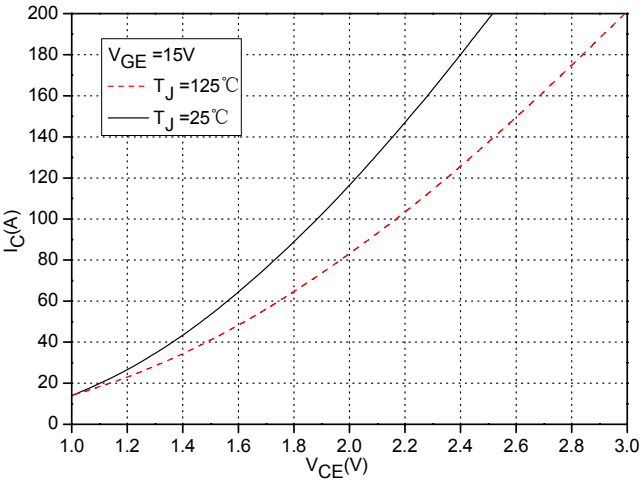


Fig.1Typical Saturation Voltage Characteristics

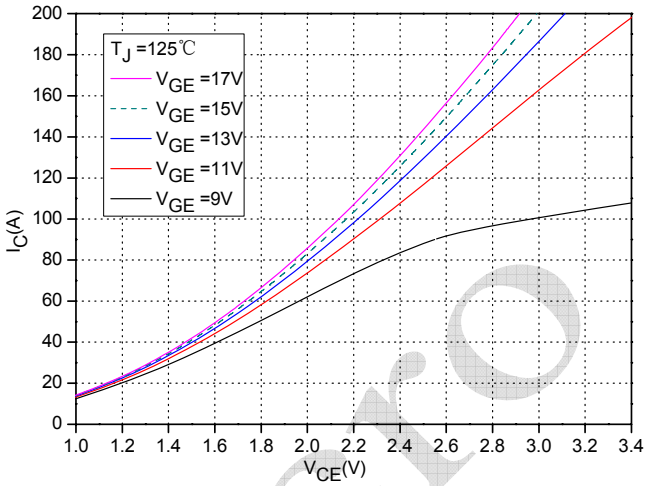


Fig.2 Typical Output Characteristics

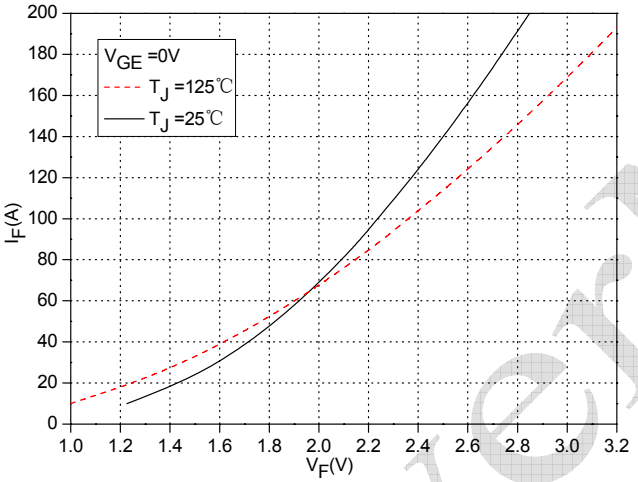


Fig.3 Forward Characteristics of FWD (Reverse)

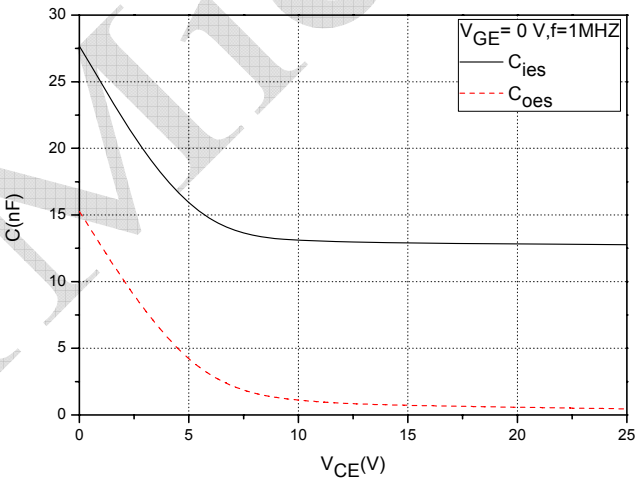


Fig.4 Capacitance Characteristics

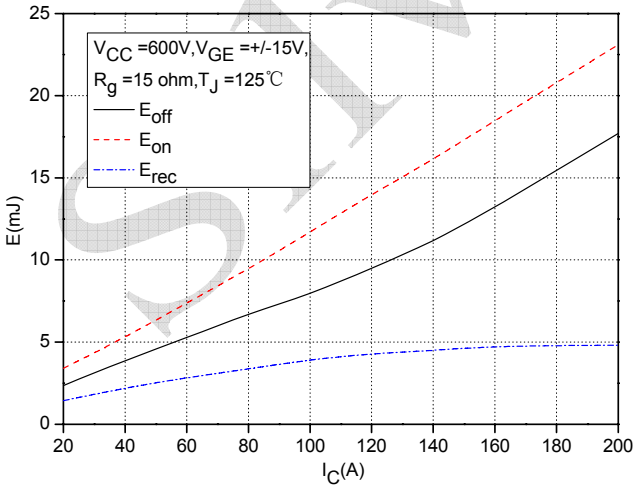


Fig.5 Typical Switching Loss vs. Collector Current

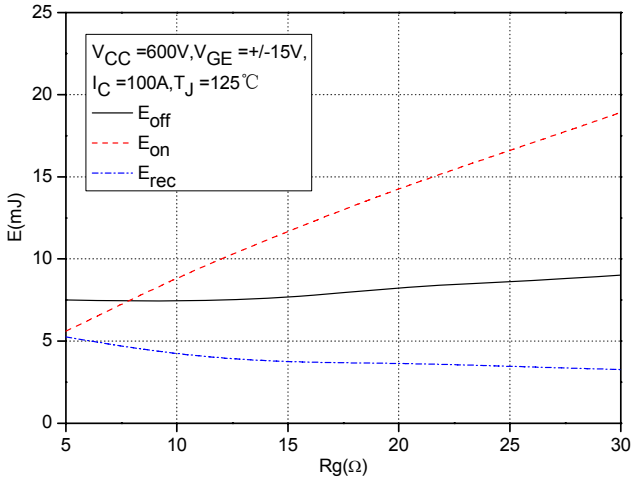


Fig.6 Typical Switching Loss vs. Gate Resistance

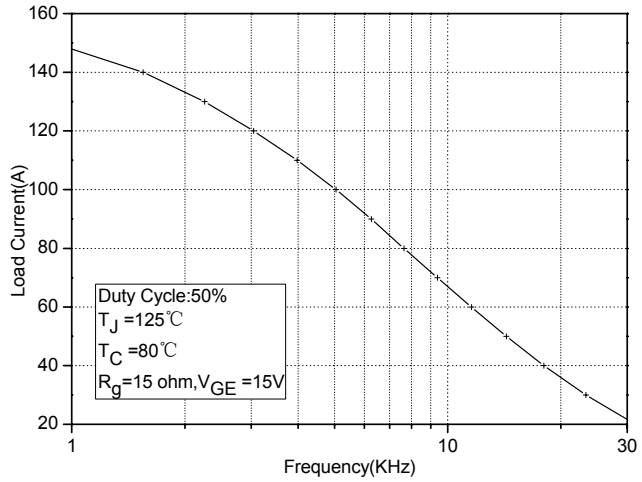


Fig.7 Typical Load Current vs. Frequency

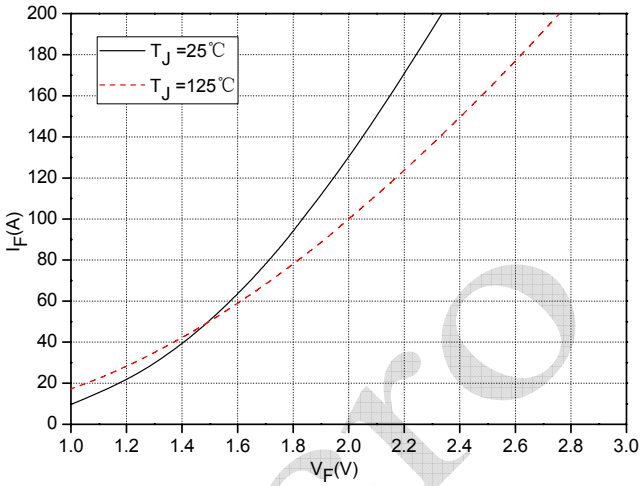


Fig.8 Forward Characteristics of Diode (Brake-Chopper)

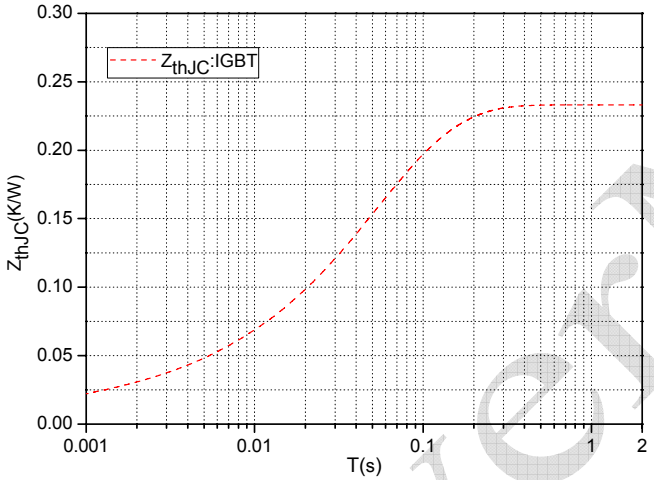


Fig.9 Transient thermal impedance (IGBT)

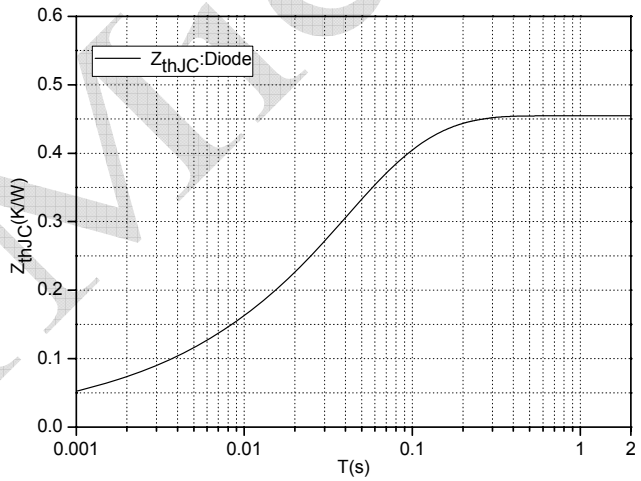


Fig.10 Transient thermal impedance (Diode)

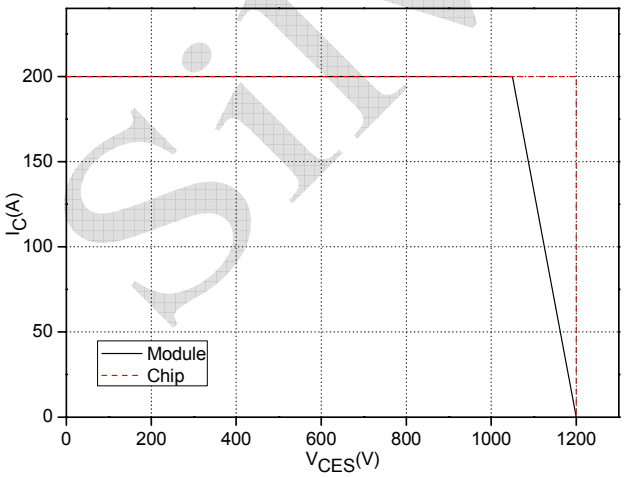
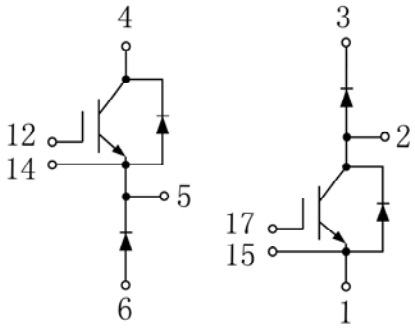
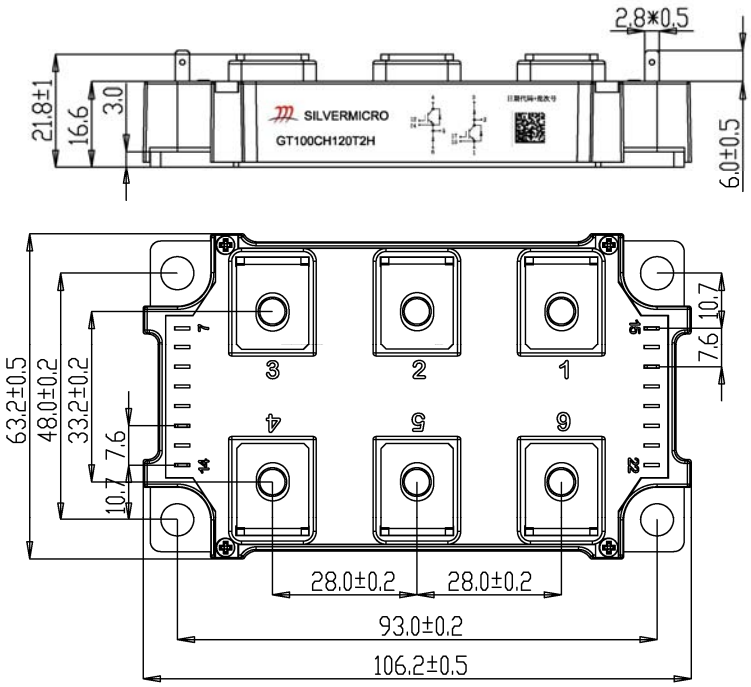


Fig.11Reverse Bias Safe Operation Area (RBSOA)

Internal Circuit:



Package Outline (Unit: mm):



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