

1MBI1200U4C-120

IGBT Modules

IGBT MODULE (U series) 1200V / 1200A / 1 in one package

■ Features

High speed switching Voltage drive Low Inductance module structure

Applications

Inverter for Motor Drive AC and DC Servo Drive Amplifier Uninterruptible Power Supply Industrial machines, such as Welding machines



■ Maximum Ratings and Characteristics

● Absolute Maximum Ratings (at Tc=25°C unless otherwise specified)

Items	Symbols	Conditions		Maximum ratings	Units	
Collector-Emitter voltage	Vces			1200	V	
Gate-Emitter voltage	V _{GES}			±20	V	
Collector current	Ic	Continuous	Tc=25°C	1600		
			Tc=80°C	1200		
	Ic pulse	1ms	Tc=25°C	3200	^	
			Tc=80°C	2400	Α	
	-lc			1200		
	-lc pulse	1ms		2400		
Collector power dissipation	Pc	1 device		7350	W	
Junction temperature	Tj			150	°C	
Storage temperature	Tstg			-40 to +125	°C	
Isolation voltage Between terminal and copper base (*1)	Viso	AC: 1min.		2500	VAC	
Screw torque	Mounting (*2))		5.75	N·m	
	Main Terminals (*2)			10		
	Sense Terminals (*2)			2.5		

Note *1: All terminals should be connected together when isolation test will be done.

Note *2: Recommendable value : Mounting : 4.25-5.75 N·m (M6), Main Terminal : 8-10 N·m (M8), Sense Terminal : 1.7-2.5 N·m (M4)

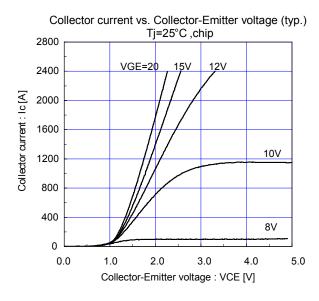
● Electrical characteristics (at Tj= 25°C unless otherwise specified)

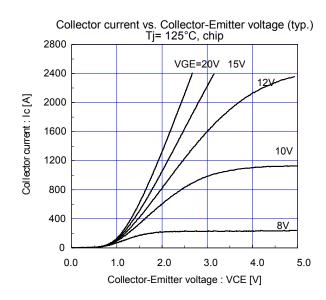
Home	Cympholo	Canditions	N		Characteristics		
Items	Symbols	Symbols Conditions		min.	typ.	max.	Units
Zero gate voltage collector current	Ices	V _{GE} = 0V, V _{CE} = 1200V		-	-	1.0	mA
Gate-Emitter leakage current	Iges	$V_{CE} = 0V$, $V_{GE} = \pm 20V$		-	-	2400	nA
Gate-Emitter threshold voltage	V _{GE (th)}	V _{CE} = 20V, I _C = 1200mA		5.5	6.5	7.5	V
Collector-Emitter saturation voltage	V _{CE} (sat)) V _{GE} = 15V	Tj=25°C	-	2.08	2.25	V
	(main terminal)		Tj=125°C		2.28	-	
	V _{CE} (sat)	Ic = 1200A	Tj=25°C	-	1.90	2.05	V
	(chip)		Tj=125°C		2.10	-	1
Input capacitance	Cies	V _{GE} = 0V, V _{CE} = 10V, f = 1MHz		-	135	-	nF
Turn-on time	ton	$V_{CC} = 600V, I_{C} = 1200A$ $V_{GE} = \pm 15V, Tj = 125^{\circ}C$ $R_{con} = 2\Omega, R_{coff} = 1\Omega$		-	0.90	-	μs
	tr			-	0.50	-	
Turn-off time	toff			-	0.80	-	
	tf	- Tagon — 232, Tagon — 132	-	0.20	-		
Forward on voltage	V _F		Tj=25°C	-	1.83	2.00	V
	(main terminal)	V _{GE} = 0V I _F = 1200A	Tj=125°C	-	1.93	-	
	V _F		Tj=25°C	-	1.65	1.80	
	(chip)		Tj=125°C	-	1.75	-	
Reverse recovery time	trr	I _F = 1200A		-	0.35	-	μs
Lead resistance, terminal-chip	R lead			-	0.15	-	mΩ

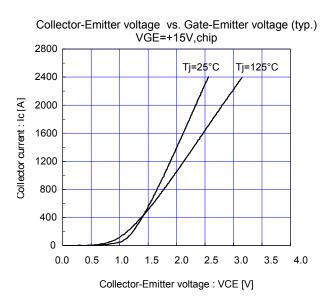
Thermal resistance characteristics

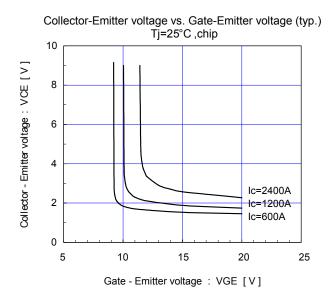
Items	Symbols	Conditions	Characteristics			Units	
		Conditions	min.	typ.	max.	UIIIIS	
Thermal resistance (1device)	Rth(j-c)	IGBT	-	-	0.017		
		FWD	-	-	0.030	°C/W	
Contact thermal resistance (1device)	Rth(c-f)	with Thermal Compound (*3)	- 0.006 -		-		

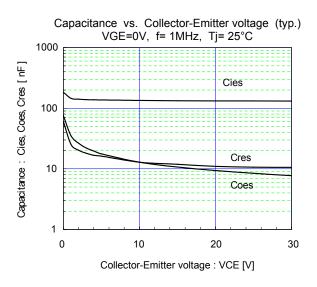
■ Characteristics (Representative)

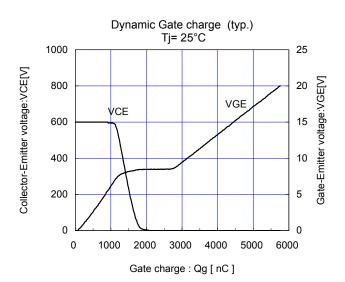


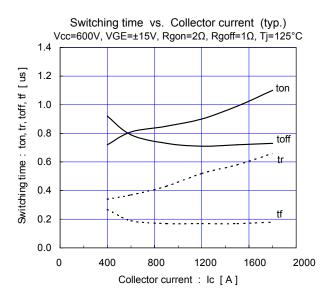


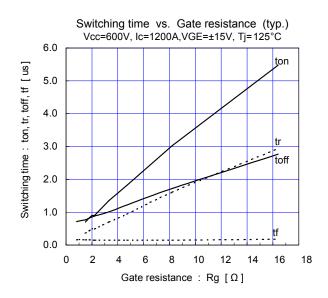


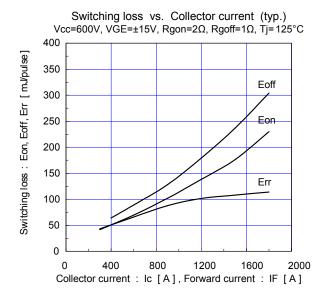


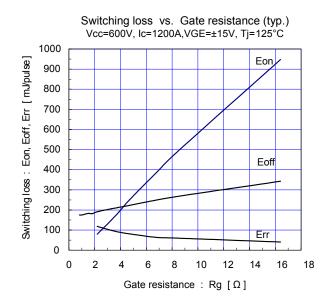


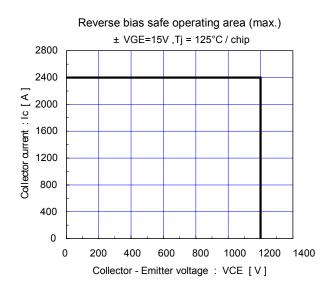


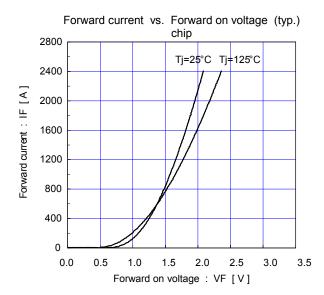


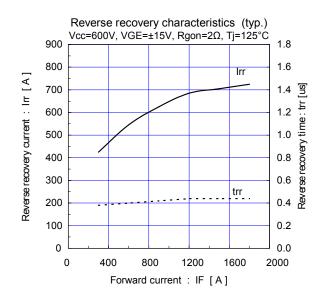


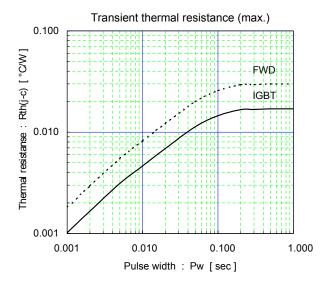




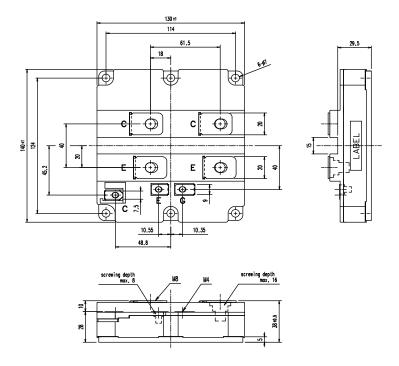




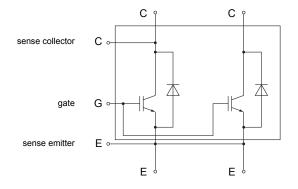




■ Outline Drawings, mm



■ Equivalent Circuit Schematic



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- Communications equipment (terminal devices)
- Measurement equipment

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- Audiovisual equipment
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- Personal equipment
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