

2MBI1000VXB-170E-50

IGBT Modules

IGBT MODULE (V series) 1700V / 1000A / 2 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	
Inverter	Collector-Emitter voltage	V _{CE}	1700		V	
	Gate-Emitter voltage	V _{GE}	±20		V	
	Collector current	I _c	Continuous	T _c =25°C	1400	A
				T _c =100°C	1000	
		I _c pulse	1ms	2000		
		-I _c	1000			
		-I _c pulse	1ms	2000		
	Collector power dissipation	P _c	1 device	6250	W	
Junction temperature		T _j	175	°C		
Operating junction temperature (under switching conditions)		T _{jop}	150			
Case temperature		T _c	150			
Storage temperature		T _{stg}	-40 ~ +150			
Isolation voltage	between terminal and copper base (*1) between thermistor and others (*2)	V _{iso}	AC : 1min.	4000	VAC	
Screw torque (*3)	Mounting	-	M5	6.0	N m	
	Main Terminals	-	M8	10.0		
	Sense Terminals	-	M4	2.1		

Note *1: All terminals should be connected together during the test.

Note *2: Two thermistor terminals should be connected together, other terminals should be connected together and shorted to base plate during the test.

Note *3: Recommendable Value : Mounting 3.0 ~ 6.0 Nm (M5) Recommendable Value : Main Terminals 8.0 ~ 10.0 Nm (M8)
Recommendable Value : Sense Terminals 1.8 ~ 2.1 Nm (M4)

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

Items		Symbols	Conditions	Characteristics			Units	
				min.	typ.	max.		
Inverter	Zero gate voltage collector current	I _{CES}	V _{GE} = 0V, V _{CE} = 1700V		-	-	6.0	mA
	Gate-Emitter leakage current	I _{GES}	V _{CE} = 0V, V _{GE} = ±20V		-	-	1200	nA
	Gate-Emitter threshold voltage	V _{GE (th)}	V _{CE} = 20V, I _c = 1000mA		6.0	6.5	7.0	V
	Collector-Emitter saturation voltage	V _{CE (sat)} (terminal) (*4)	V _{GE} = 15V I _c = 1000A	T _j =25°C	-	2.10	2.55	V
				T _j =125°C	-	2.50	-	
				T _j =150°C	-	2.55	-	
		V _{CE (sat)} (chip)		T _j =25°C	-	2.00	2.45	
				T _j =125°C	-	2.40	-	
				T _j =150°C	-	2.45	-	
	Internal gate resistance	R _{g(int)}			-	1.17	-	Ω
	Input capacitance	C _{ies}	V _{CE} = 10V, V _{GE} = 0V, f = 1MHz		-	94	-	nF
	Turn-on time	t _{on}	V _{CC} = 900V		-	1.25	-	μsec
		t _r	I _c = 1000A		-	0.5	-	
		t _{r (i)}	V _{GE} = ±15V		-	0.15	-	
	Turn-off time	t _{off}	R _G = +1.2/-1.8Ω		-	1.55	-	μsec
		t _f	L _s =60nH		-	0.15	-	
Forward on voltage	V _F (terminal) (*4)	V _{GE} = 0V I _F = 1000A	T _j =25°C	-	1.95	2.40	V	
			T _j =125°C	-	2.20	-		
			T _j =150°C	-	2.15	-		
	V _F (chip)		T _j =25°C	-	1.85	2.30		
			T _j =125°C	-	2.10	-		
			T _j =150°C	-	2.05	-		
Reverse recovery time	t _{rr}	I _F = 1000A		-	0.24	-	μsec	
Thermistor	Resistance	R	T=25°C	-	5000	-	Ω	
			T=100°C	465	495	520		
	B value	B	T=25/50°C		3305	3375	3450	K

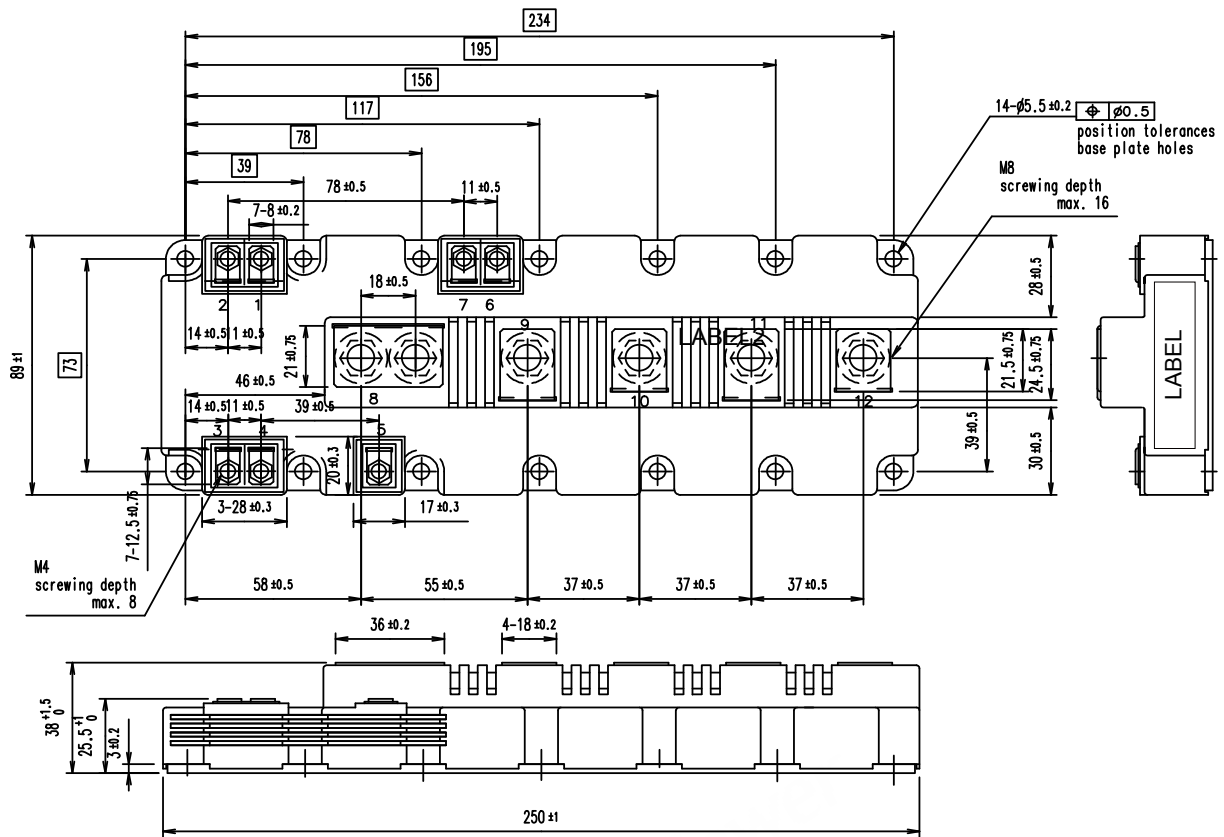
Note *4: Please refer to page 6, there is definition of on-state voltage at terminal.

● Thermal resistance characteristics

Items	Symbols	Conditions	Characteristics			Units
			min.	typ.	max.	
Thermal resistance (1device)	R _{th(j-c)}	Inverter IGBT	-	-	0.024	°C/W
		Inverter FWD	-	-	0.048	
Contact thermal resistance (1device) (*5)	R _{th(c-f)}	with Thermal Compound	-	0.0083	-	

Note *5: This is the value which is defined mounting on the additional cooling fin with thermal compound.

■ Outline Drawings (Unit: mm)



Weight:1250g(typ.)

■ Equivalent Circuit

