

2MBI75UA-120



IGBT Module U-Series 1200V / 75A 2 in one-package

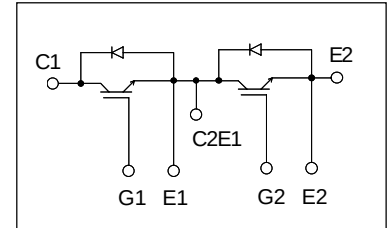
■ Features

- 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

■ Equivalent Circuit Schematic



■ Maximum ratings and characteristics

● Absolute maximum ratings (at Tc=25°C unless otherwise specified)

Item		Symbol	Conditions		Rating	Unit	
Collector-Emitter voltage		V _{CES}			1200	V	
Gate-Emitter voltaga		V _{GES}			±20	V	
Collector current		I _c	Continuous	T _c =25°C	100	A	
				T _c =80°C	75		
		I _{cp}	1ms	T _c =25°C	200		
				T _c =80°C	150		
		-I _c			75		
		-I _c pulse			150		
Collector Power Dissipation		P _c	1 device		400	W	
Junction temperature		T _j			+150	°C	
Storage temperature		T _{slg}			-40 to +125		
Isolation voltage	between terminal and copper base *1		V _{iso}	AC:1min.		2500	VAC
Screw Torque		Mounting *2				3.5	N·m
		Terminals *2				3.5	

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

*2 : Recommendable value : 2.5 to 3.5 N·m(M5)

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

Item	Symbols	Conditions		Characteristics			Unit
				Min.	Typ.	Max.	
Zero gate voltage collector current	I _{CES}	V _{GE} =0V, V _{CE} =1200V		—	—	1.0	mA
Gate-Emitter leakage current	I _{GES}	V _{CE} =0V, V _{GE} =±20V		—	—	200	nA
Gate-Emitter threshold voltage	V _{GE(th)}	V _{CE} =20V, I _C =75mA		4.5	6.5	8.5	V
Collector-Emitter saturation voltage	V _{CE(sat)} (terminal)	V _{GE} =15V, I _C =75A	T _J =25°C	—	1.9	2.25	V
			T _J =125°C	—	2.15	—	
	V _{CE(sat)} (chip)		T _J =25°C	—	1.75	2.10	
			T _J =125°C	—	2.00	—	
Input capacitance	C _{ies}	V _{CE} =10V, V _{GE} =0V, f=1MHz		—	8	—	nF
Turn-on time	t _{on}	V _{CC} =600V I _C =75A V _{GE} =±15V		—	0.36	1.20	μs
	t _r			—	0.21	0.60	
	t _{r(i)}			—	0.03	—	
Turn-off time	t _{off}	R _G =9.1 Ω		—	0.37	1.00	
	t _f			—	0.07	0.30	
Forward on voltage	V _F (terminal)	V _{GE} =0V I _F =75A	T _J =25°C	—	1.75	2.05	V
			T _J =125°C	—	1.85	—	
	V _F (chip)		T _J =25°C	—	1.60	1.90	
			T _J =125°C	—	1.70	—	
Reverse recovery time	t _{rr}	I _F =75A		—	—	0.35	μs
Lead resistance, terminal-chip*3	R lead			—	1.39	—	mΩ

*3:Biggest internal terminal resistance among arm.

● Thermal resistance characteristics

Items	Symbols	Conditions	Characteristics			Unit
			Min.	Typ.	Max.	
Thermal resistance	R _{th(j-c)}	IGBT	—	—	0.31	°C/W
	R _{th(j-c)}	FWD	—	—	0.48	°C/W
Contact Thermal resistance	R _{th(c-f)} *4	With thermal compound	—	0.05	—	°C/W

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