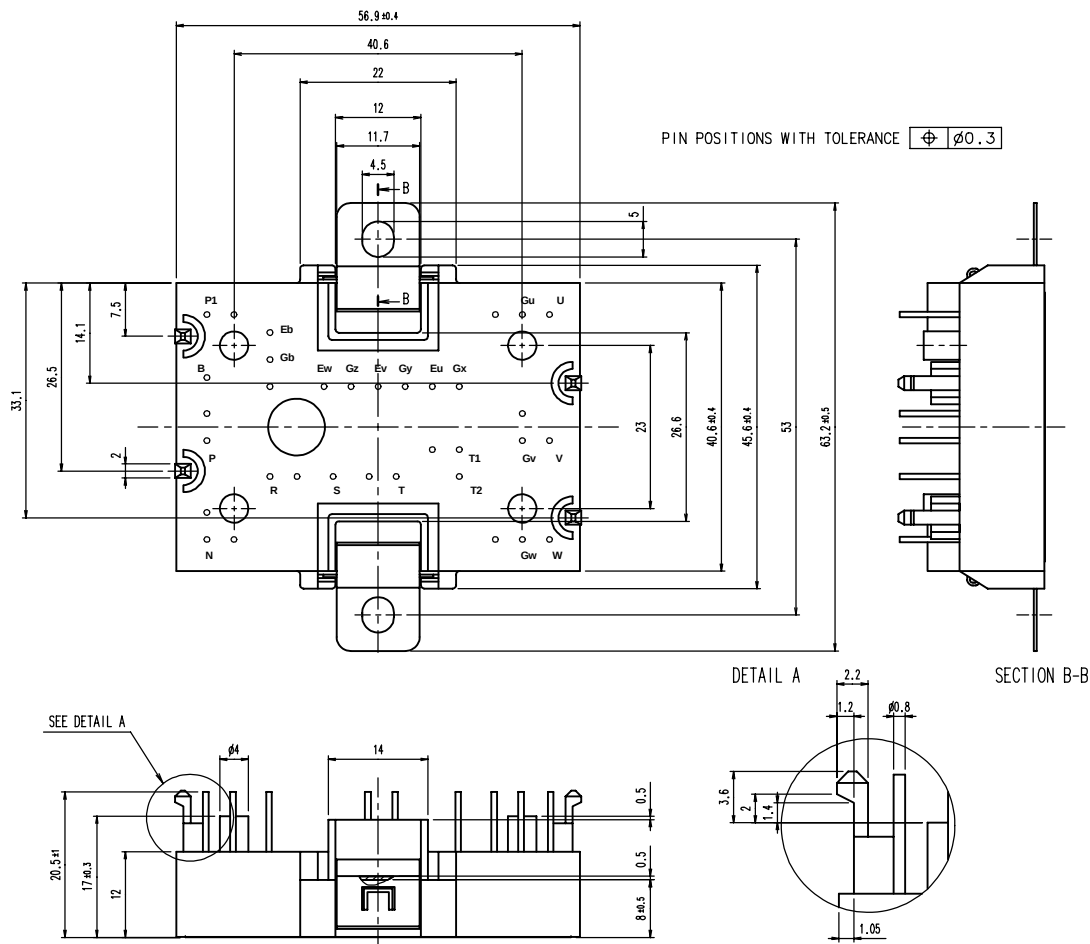


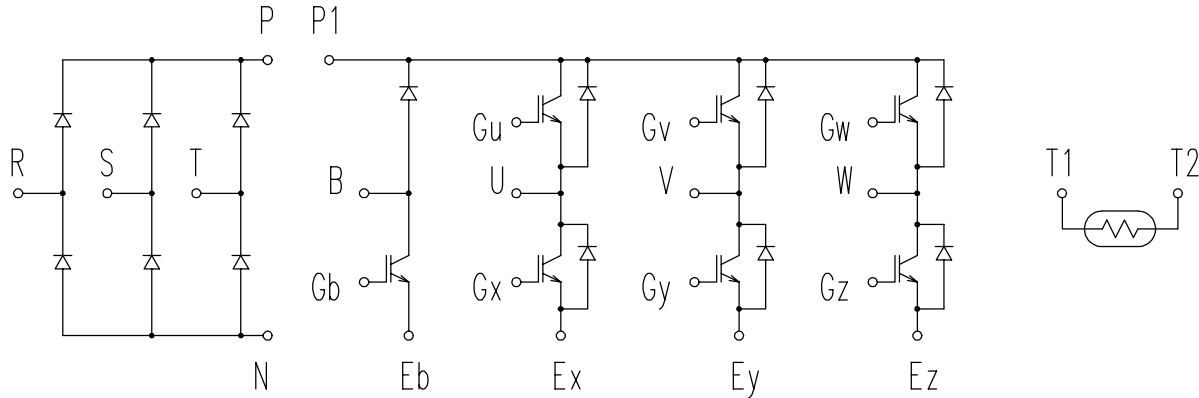
7MBR10UE120 Specification (Tentative)

1. Outline Drawing (Unit : mm)



Module only designed for mounting on PCB with 1.6~1.8mm thickness

2. Equivalent circuit



	DATE	NAME	APPROVED
DRAWN	Nov-26-'02	X. Sawada	
CHECKED	Nov-27-'02	O. Ikawa	T. Miyashita

REVISIONS

MA4LE

DWG.No.

MT6M04457

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

Items			Symbols	Conditions		Maximum Ratings	Units
Inverter	Collector-Emitter voltage		VCES			1200	V
	Gate-Emitter voltage		VGES			±20	V
	Collector current	Ic	Continuous	Tc=TBD	10	A	
				Tc=25°C	20		
		Icp	1ms	Tc=TBD	20	A	
				Tc=25°C	40		
		-Ic	Continuous	Tc=TBD	10	A	
Collector Power Dissipation		Pc	1 device		107	W	
Brake	Collector-Emitter voltage		VCES			1200	V
	Gate-Emitter voltage		VGES			±20	V
	Collector current	Ic	Continuous	Tc=TBD	10	A	
				Tc=25°C	20		
		Icp	1ms	Tc=TBD	20	A	
				Tc=25°C	40		
		Collector Power Dissipation		Pc	1 device		107
Converter	Average Output Current		Io	50Hz/60Hz sine wave		10	A
	Surge Current (Non-Repetitive)		IFSM	Tj=150°C,10ms		105	A
	I ² t (Non-Repetitive)		I ² t	half sine wave		55	A ² s
Junction temperature			Tj			150	°C
Storage temperature			Tstg			-40~ +125	°C
Isolation voltage	between terminal and copper base ^(*1)		Viso	AC : 1min.		2500	V
	between thermistor and others ^(*2)					2500	V
Mounting Screw Torque				M4		1.3 ~ 1.7	N.m

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

(*2) Terminal T1 and T2 should be connected together. And another terminals should be connected together and shorted to copper base.

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

Items	Symbols	Conditions	Characteristics			Units
			min.	typ.	Max.	
Inverter	Zero gate voltage Collector current	ICES	VGE = 0 V, VCE = 1200 V	-	-	0.02 mA
	Gate-Emitter leakage current	IGES	VCE = 0 V, VGE = +20 V	-	-	200 nA
	Gate-Emitter threshold voltage	VGE(th)	VCE = 20 V, Ic = 10 mA	TBD	6.5	TBD V
	Collector-Emitter saturation voltage	VCE(sat)	VGE = 15 V, chip	-	2.03	TBD V
			Ic = 10 A terminal	-	2.08	TBD
	Input capacitance	Cies	VGE = 0 V, VCE = 10 V f = 1 MHz	-	870	- pF
	Turn-on time	ton	Vcc= 600 V	-	TBD	1.2
		tr	Ic = 10 A	-	TBD	0.6
		tr ₍₀₎	VGE = ±15 V	-	TBD	-
	Turn-off time	toff	RG = TBD W	-	TBD	1.0
		tf		-	TBD	0.30
Brake	Zero gate voltage Collector current	ICES	VGE = 0 V, VCE = 1200 V	-	-	0.02 mA
	Gate-Emitter leakage current	IGES	VCE = 0 V, VGE = +20 V	-	-	200 nA
	Gate-Emitter threshold voltage	VGE(th)	VCE = 20 V, Ic = 10 mA	TBD	6.5	TBD V
	Collector-Emitter saturation voltage	VCE(sat)	VGE = 15 V, chip	-	2.03	TBD V
			Ic = 10 A terminal	-	2.08	TBD
	Input capacitance	Cies	VGE = 0 V, VCE = 10 V f = 1 MHz	-	870	- pF
	Turn-on time	ton	Vcc= 600 V	-	TBD	1.2
		tr	Ic = 10 A	-	TBD	0.6
		toff	VGE = ±15 V	-	TBD	1.0
	Turn-off time	tf	RG = TBD W	-	TBD	0.30
Converter	Reverse recovery time	trr	IF = 10 A	-	-	350 ns
	Reverse current	IRRM	VR = 1200 V	-	-	0.02 mA
	Forward on voltage	VFM	IF = 10 A chip	-	1.1	- V
			terminal	-	1.2	1.5
	Reverse current	IRRM	VR = 1600 V	-	-	1.0 mA
Thermistor	Resistance	R	T = 25°C	-	5000	- W
			T = 100°C	465	495	520
	B value	B	T = 25/50°C	3305	3375	3450 K

5. Thermal resistance characteristics

Items	Symbols	Conditions	Characteristics			Units
			min.	typ.	Max.	
Thermal resistance (1 device)	Rth(j-c)	Inverter IGBT	-	1.05	TBD	°C/W
		Inverter FWD	-	1.72	TBD	
		Brake IGBT	-	1.05	TBD	
		Brake diode	-	1.72	TBD	
		Converter Diode	-	1.28	TBD	
Contact Thermal resistance	Rth(c-f)	with Thermal Compound (*)	-	0.05	-	°C/W

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

6. Indication on module

TBD

7. Applicable category

This specification is applied to Power Integrated Module named 7MBR10UE120.

8. Storage and transportation notes

- The module should be stored at a standard temperature of 5 to 35°C and humidity of 45 to 75% .
- Store modules in a place with few temperature changes in order to avoid condensation on the module surface.
- Avoid exposure to corrosive gases and dust.
- Avoid excessive external force on the module.
- Store modules with unprocessed terminals.
- Do not drop or otherwise shock the modules when transporting.

9. Definitions of switching time

