

Tentative

CM150TL-12NF

Pre.	M.Koura	Rev	B	H.Hanada, M.Koura
Apr.	T.Furuie 27-Nov.-'03			T.Furuie 20-May-'84

HIGH POWER SWITCHING USE

Notice : This is not a final specification. Some parametric limits are subject to change.

CM150TL-12NF	
●I _c	150A
●V _{CES}	600V
●Insulated Type	
●6-elements in a pack	

APPLICATION

AC drive inverters & Servo controls,etc

ABSOLUTE MAXIMUM RATINGS (T_j = 25 °C)

Symbol	Item	Conditions	Ratings	Units
V _{CES}	Collector-emitter voltage	G-E Short	600	V
V _{GES}	Gate-emitter voltage	C-E Short	±20	
I _c	Collector current	DC, T _c =93°C *1	150	A
I _{CM}		Pulse (2)	300	
I _E (1)	Emitter current		150	
I _{EM} (1)		Pulse (2)	300	
P _c (3)	Maximum collector dissipation	T _c = 25 °C	730	W
T _j	Junction temperature		-40~+150	°C
T _{stg}	Storage temperature		-40~+125	
V _{iso}	Isolation voltage	Main terminal to base plate,AC 1 min.	2500	V
—	Torque strength	Main terminal M5	2.5~3.5	N·m
—	Torque strength	Mounting holes M5	2.5~3.5	
—	Weight	Typical value	350	g

ELECTRICAL CHARACTERISTICS (T_j = 25 °C)

Symbol	Item	Conditions	Min.	Typ.	Max.	Units	
I _{CES}	Collector cutoff current	V _{CE} =V _{CES} , V _{GE} = 0V	—	—	1	mA	
V _{GE(th)}	Gate-emitter threshold voltage	I _C =15mA, V _{CE} = 10V	6	7	8	V	B
I _{GES}	Gate leakage current	V _{GE} =V _{GES} , V _{CE} = 0V	—	—	0.5	μA	
V _{CE(sat)}	Collector to emitter saturation voltage	T _j = 25 °C I _C =150A	—	1.7	2.2	V	
		T _j = 125 °C V _{GE} = 15V	—	1.7	—		
C _{ies}	Input capacitance	V _{CE} = 10V V _{GE} = 0V	—	—	23	nF	
C _{oes}	Output capacitance						
C _{res}	Reverse transfer capacitance						
Q _G	Total gate charge	V _{CC} =300V, I _C =150A, V _{GE} =15V	—	600	—	nC	
td(on)	Turn-on delay time	V _{CC} =300V, I _C =150A V _{GE1} =V _{GE2} =15V R _G =4.2Ω, Inductive load switching operation I _E =150A	—	—	120	ns	A
t _r	Turn-on rise time						
td(off)	Turn-off delay time						
t _f	Turn-off fall time						
t _{rr} ①	Reverse recovery time						
Q _{rr} ①	Reverse recovery charge	—	2.5	—	μC	A	
V _{EC} ①	Emitter-collector voltage	I _E =150A, V _{GE} = 0V	—	—	2.8	V	B
R _{th(j-c)Q}	Thermal resistance	IGBT part (1/6 module) *1	—	—	0.17	°C/W	
R _{th(j-c)R}	Thermal resistance	FWDi part (1/6 module) *1			0.31		
R _{th(c-f)}	Contact thermal resistance	Case to fin, Thermal compound Applied (1/6 module) *2	—	0.085	—		
R _G	External gate resistance		4.2	—	42	Ω	

*1: T_c measured point is just under the chips.

If you use this value, R_{th(f-a)} should be measured just under the chips.

*2: Typical value is measured by using Shin-etsu Silicone "G-746".

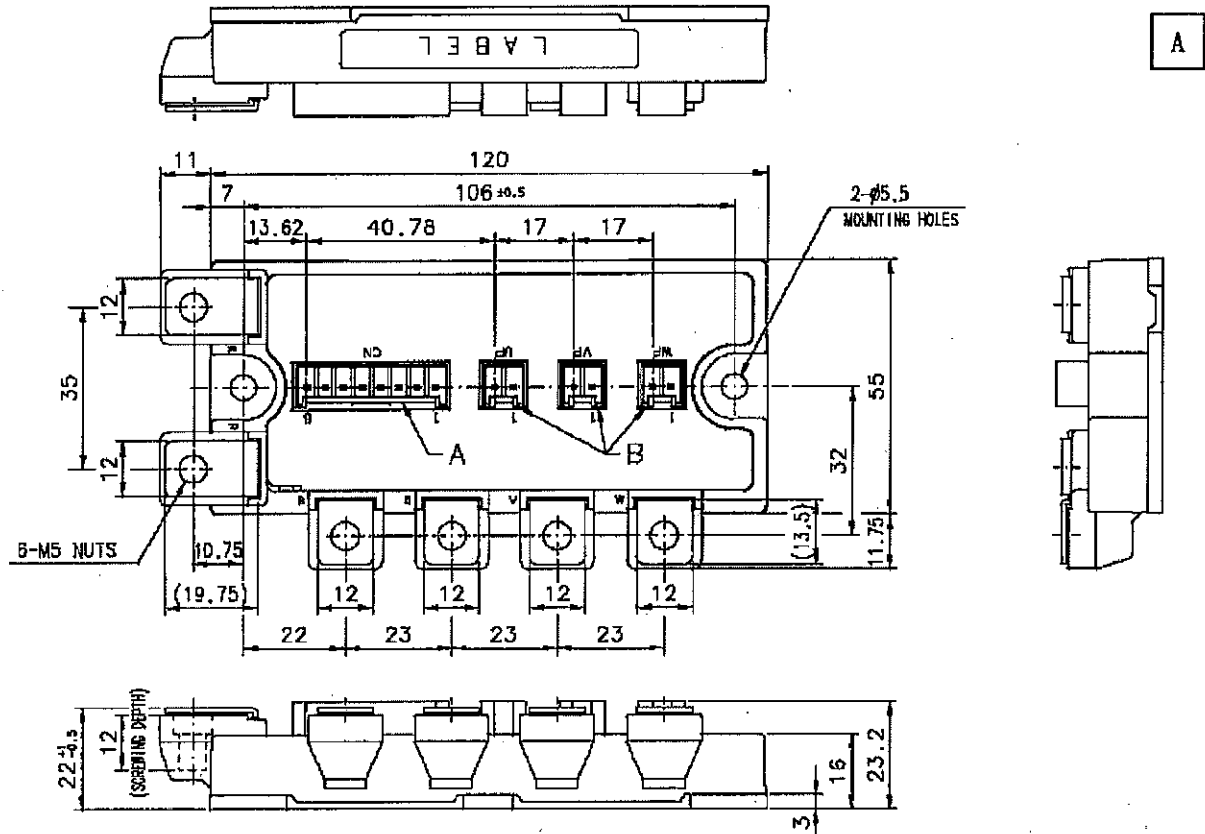
- ① I_E, V_{EC}, t_{rr}, Q_{rr} represent characteristics of the anti-parallel, emitter to collector free-wheel diode (FWD).
- ② Pulse width and repetition rate should be such that the device junction temp.(T_j) dose not exceed T_{jmax} rating.
- ③ Junction temperature (T_j) should not increase beyond 150°C.
- ④ Pulse width and repetition rate should be such as to cause negligble temperature rise.

APPLICATION NOTE

MITSUBISHI <IGBT MODULE> CM150TL-12NF HIGH POWER SWITCHING USE

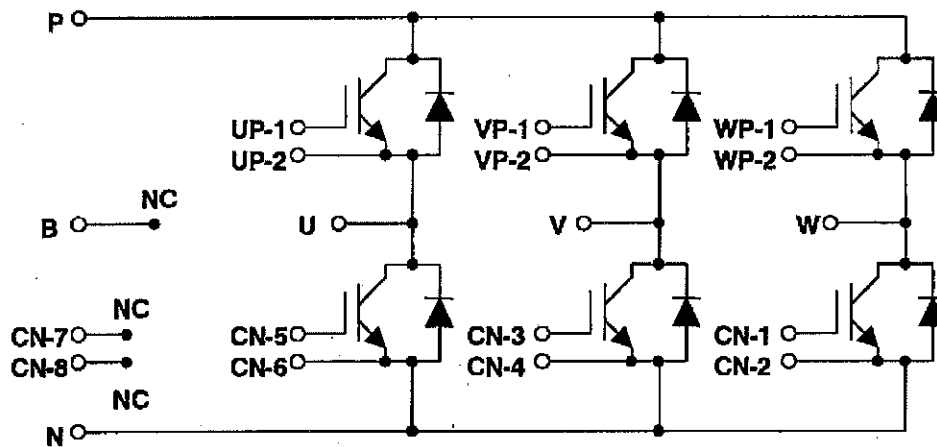
OUTLINE DRAWING

Dimensions in mm



Housing Type of A and B
(J.S.T.Mfg.Co.Ltd)
A= B8P-VH-FB-B, B= B2P-VH-FB-B

CIRCUIT DIAGRAM



CHIP LAYOUT DRAWING

Dimensions in mm

