Tentative

CM200TL-12NF

Pre.	M.Koura	Rev	D	H.Hanada, J.Yamada
Apr.	T.Furuie 27-Nov.-'03			M.Takata 17-Jun.-'04

HIGH POWER SWITCHING USE

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

CM200TL-12NF
- Ic·····200A
- 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, Tc=88°C *1	200	A
I_{CM}		Pulse ②	400	
I_E ①	Emitter current		200	
I_{EM} ①		Pulse ②	400	
Pc ③	Maximum collector dissipation	Tc= 25 °C	890	W
Tj	Junction temperature		−40～+150	°C
Tstg	Storage temperature		−40～+125	
Viso	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	750	g

D

ELECTRICAL CHARACTERISTICS (T_j = 25 °C)

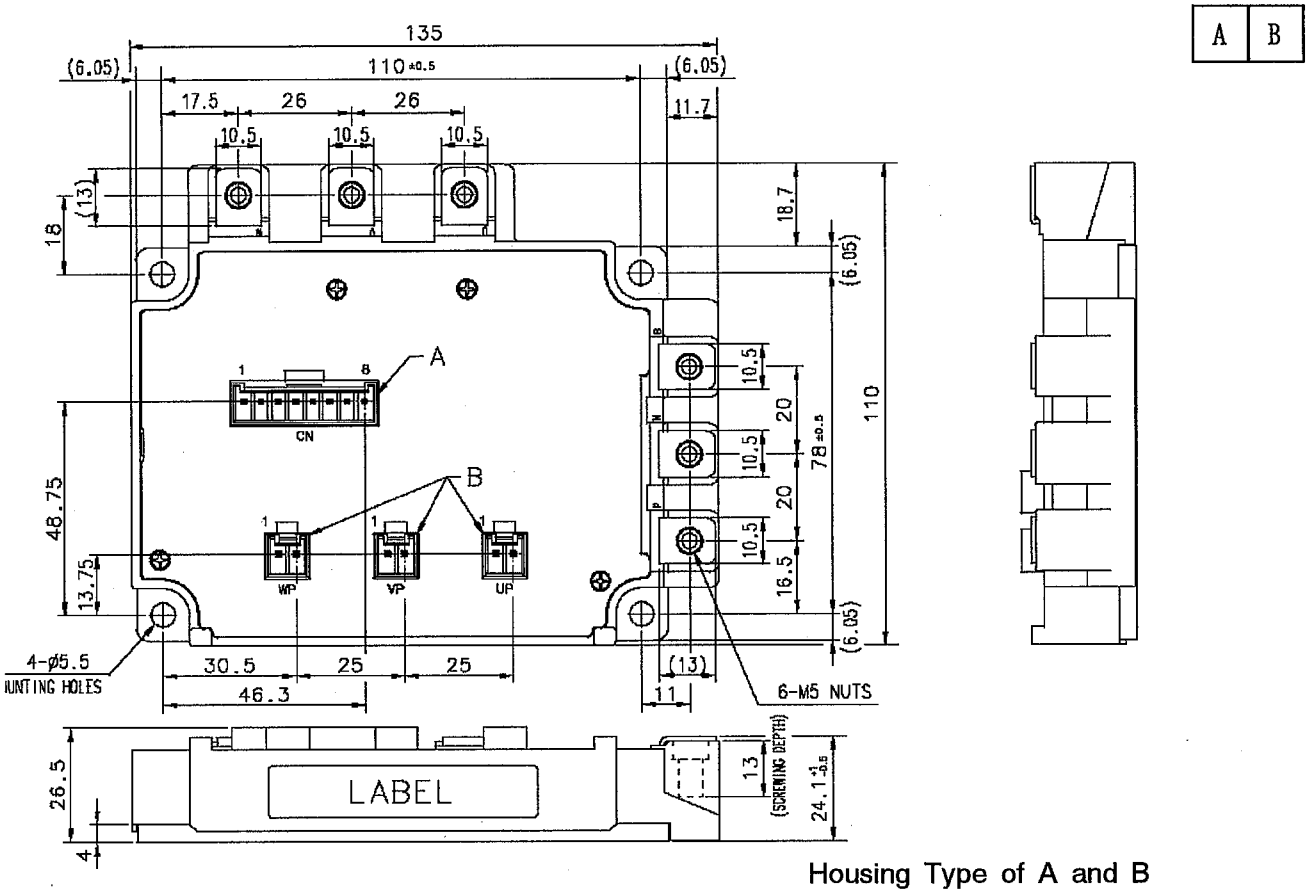
Symbol	Item	Conditions	Min.	Typ.	Max.	Units	
I_{CES}	Collector cutoff current	$V_{CE}=V_{CES}, V_{GE}$= 0V	—	—	1	mA	
$V_{GE(th)}$	Gate-emitter threshold voltage	I_C=20mA, V_{CE}= 10V	6	7	8	V	C
I_{GES}	Gate leakage current	$V_{GE}=V_{GES}$, V_{CE}= 0V	—	—	0.5	μA	
$V_{CE(sat)}$	Collector to emitter saturation voltage	I_C =200A, V_{GE}= 15V, T_j= 25 °C	—	1.7	2.2	V	
		I_C =200A, V_{GE}= 15V, T_j= 125 °C	—	1.7	—		
Cies	Input capacitance	V_{CE}= 10V, V_{GE}= 0V	—	—	30	nF	
Coes	Output capacitance		—	—	3.7		
Cres	Reverse transfer capacitance		—	—	1.2		
Q_G	Total gate charge	V_{CC}=300V, Ic=200A, V_{GE}=15V	—	800	—	nC	
td(on)	Turn-on delay time	V_{CC}=300V, Ic=200A, $V_{GE1}=V_{GE2}$=15V, R_G=3.1Ω, Inductive load switching operation, I_E=200A	—	—	120	ns	B
tr	Turn-on rise time		—	—	100		
td(off)	Turn-off delay time		—	—	300		
tf	Turn-off fall time		—	—	300		
trr ①	Reverse recovery time		—	—	150		B
Qrr ①	Reverse recovery charge		—	4.8	—	μC	
V_{EC} ①	Emitter-collector voltage	I_E=200A, V_{GE}= 0V	—	—	2.8	V	C
Rth(j-c)Q	Thermal resistance	IGBT part (1/6 module) *1	—	—	0.14	°C/W	
Rth(j-c)R	Thermal resistance	FWDi part (1/6 module) *1			0.22		
Rth(c-f)	Contact thermal resistance	Case to fin, Thermal compound Applied (1/6module) *2	—	0.051	—		C
RG	External gate resistance		3.1	—	31	Ω	

*1: Tc measured point is just under the chips.
If you use this value , Rth(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},trr,Qrr represent characteristics of the anti-parallel,emitter to collector free-wheel diode (FWDi).
② Pulse width and repetition rate should be such that the device junction temp.(T_j) dose not exceed Tjmax rating.
③ Junction temperature (T_j) should not increase beyond 150°C.
④ Pulse width and repetition rate should be such as to cause neglible temperature rise.

OUTLINE DRAWING

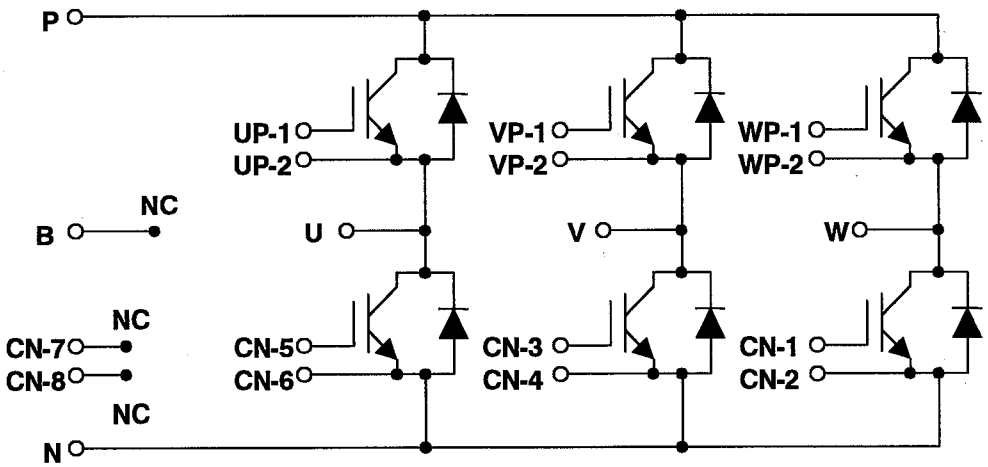
Dimensions in mm

A	B



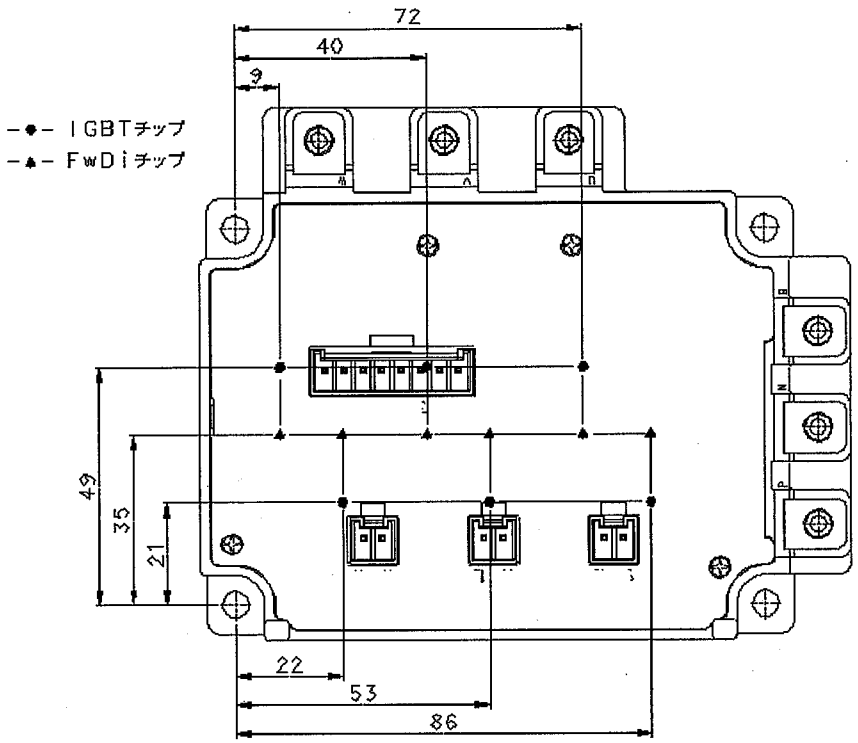
Housing Type of A and B
(J.S.T.Mfg.Co.Ltd)
A= B8P-VH-FB-B, B= B2P-VH-FB-B

CIRCUIT DIAGRAM



CHIP LAYOUT DRAWING

Dimensions in mm



A	B