Tentative

CM600DY-24A BC

Pre.	Furuie,J.Yamada	Rev	C	H.Hanada.
Apr.	M.Tabata 28-Feb-'03			T. Furuie 08-Sep-03

HIGH POWER SWITCHING USE

CM600DY-24A

- Ic ····· 600A
- V_{CES} ····· 1200V
- Insulated Type
- 2-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	1200	V	
V_{GES}	Gate-emitter voltage	C-E Short	±20	V	
I_C	Collector current	DC, Tc=80 °C *1	600	A	B
I_{CM}		Pulse ②	1200		
I_E ①	Emitter current		600	A	
I_{EM} ①		Pulse ②	1200		
Pc ③	Maximum collector dissipation	Tc= 25 °C *1	3670	W	B
Tj	Junction temperature		−40~+150	°C	
Tstg	Storage temperature		−40~+125	°C	
Viso	Isolation voltage	Main terminal to base plate,AC 1 min.	2500	V	
—	Torque strength	Main terminal M6	3.5 ~ 4.5	N·m	
—	Torque strength	Mounting holes M6	3.5 ~ 4.5	N·m	
—	Weight	Typical value	580	g	

ELECTRICAL CHARACTERISTICS (T_j = 25 °C)

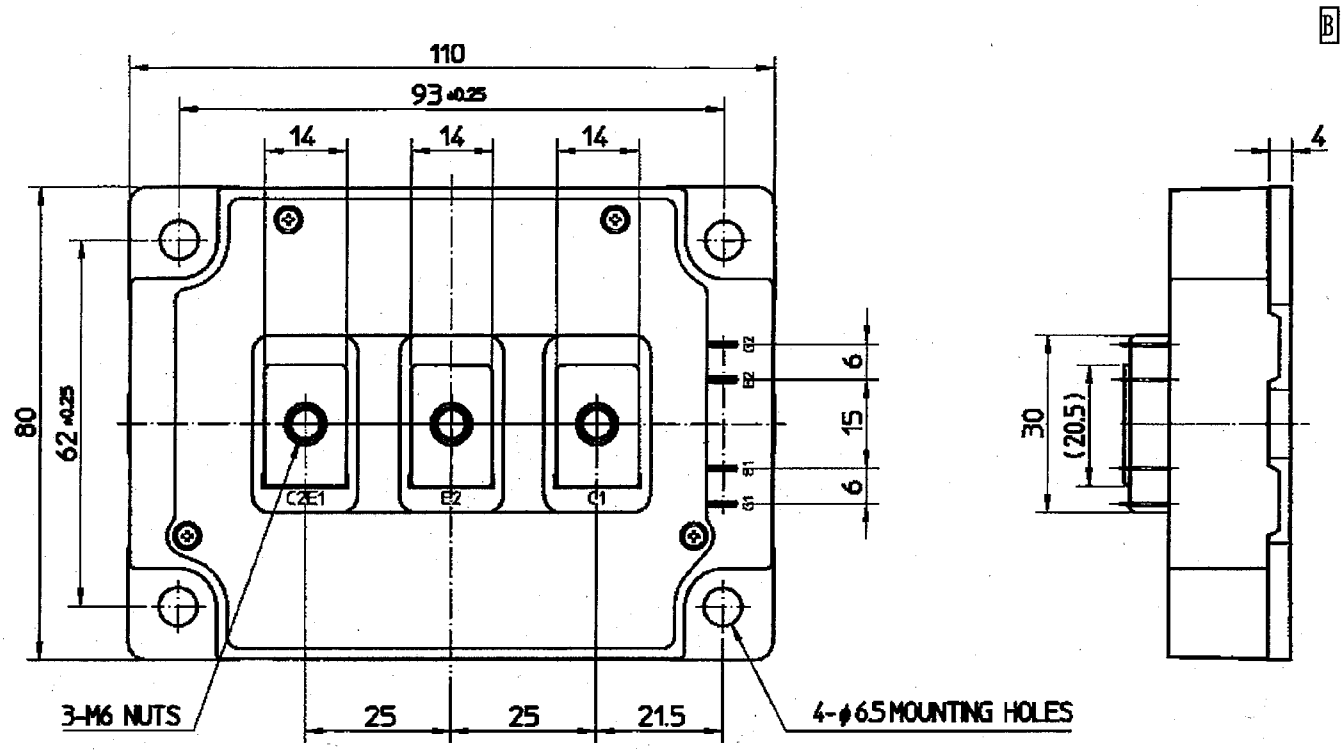
Symbol	Item	Conditions	Min.	Typ.	Max.	Units
I_{CES}	Collector cutoff current	$V_{CE}=V_{CES}, V_{GE}$= 0V	–	–	1	mA
$V_{GE(th)}$	Gate-emitter threshold voltage	I_C=60mA, V_{CE}= 10V	6	7	8	V
I_{GES}	Gate leakage current	$V_{GE}=V_{GES}$, V_{CE}= 0V	–	–	0.5	μA
$V_{CE(sat)}$	Collector to emitter saturation voltage	T_j= 25 °C, I_C = 600A	–	2.1	3.0	V
		T_j= 125 °C, V_{GE}= 15V	–	2.4	–	
Cies	Input capacitance	V_{CE}= 10V, V_{GE}= 0V	–	–	94	nF
Coes	Output capacitance		–	–	8	
Cres	Reverse transfer capacitance		–	–	1.8	
Q_G	Total gate charge	V_{CC}=600V, Ic=600A, V_{GE}=15V	–	2700	–	nC
td(on)	Turn-on delay time	V_{CC}=600V, Ic=600A, $V_{GE1}=V_{GE2}$=15V, R_G=0.52Ω, Inductive load switching operation	–	–	660	ns
tr	Turn-on rise time		–	–	190	
td(off)	Turn-off delay time		–	–	700	
tf	Turn-off fall time		–	–	350	
trr ①	Reverse recovery time	I_E=600A	–	–	250	ns
Qrr ①	Reverse recovery charge		–	19	–	μC
V_{EC} ①	Emitter-collector voltage	I_E=600A, V_{GE}= 0V	–	–	3.8	V
Rth(j-c)Q	Thermal resistance	IGBT part (1/2 module) *1	–	–	0.034	°C/W
Rth(j-c)R		FWDi part(1/2 module) *1	–	–	0.062	
Rth(c-f)	Contact thermal resistance	Case to fin, Thermal compound Applied (1/2module) *2	–	0.018	–	
RG	External gate resistance		0.52	–	7.8	Ω

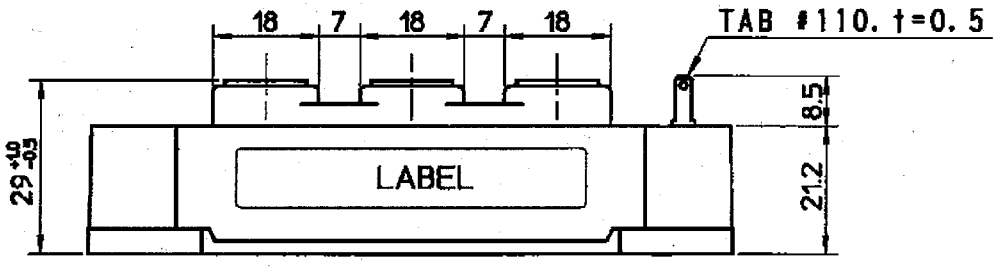
*1: Tc, Tf measured point is just under the chips.
*2: Typical value is measured by using Shin-etsu Silicone "G-746".

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





CIRCUIT DIAGRAM