Tentative

CM600HA-24A

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Apr.	T.Furuie 07-Oct-'03			T. Furuie 04-Nov-'03

HIGH POWER SWITCHING USE

CM600HA-24A

- Ic ····· 600A
- V_{CES} ····· 1200V
- Insulated Type
- 1-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
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
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	1.96 ∼ 2.94	N·m
—	Torque strength	Mounting holes M6	1.96 ∼ 2.94	N·m
—	Torque strength	G(E) terminal M4	0.98 ∼ 1.47	N·m
—	Weight	Typical value	400	g

A

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		–	–	105	nF	A
Coes	Output capacitance	V_{GE}= 0V		–	–	9		A
Cres	Reverse transfer capacitance			–	–	2.0		A
Q_G	Total gate charge	V_{CC}=600V, Ic=600A, V_{GE}=15V		–	3000	–	nC	A
td(on)	Turn-on delay time	V_{CC}=600V, Ic=600A		–	–	660	ns	
tr	Turn-on rise time	$V_{GE1}=V_{GE2}$=15V		–	–	190		
td(off)	Turn-off delay time	R_G=0.52Ω, Inductive load		–	–	700		
tf	Turn-off fall time	switching operation		–	–	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		–	–	0.034	°C/W	A
Rth(j-c)R		FWDi part *1		–	–	0.051		
Rth(c-f)	Contact thermal resistance	Case to fin, Thermal compound Applied *2		–	0.02	–		
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).

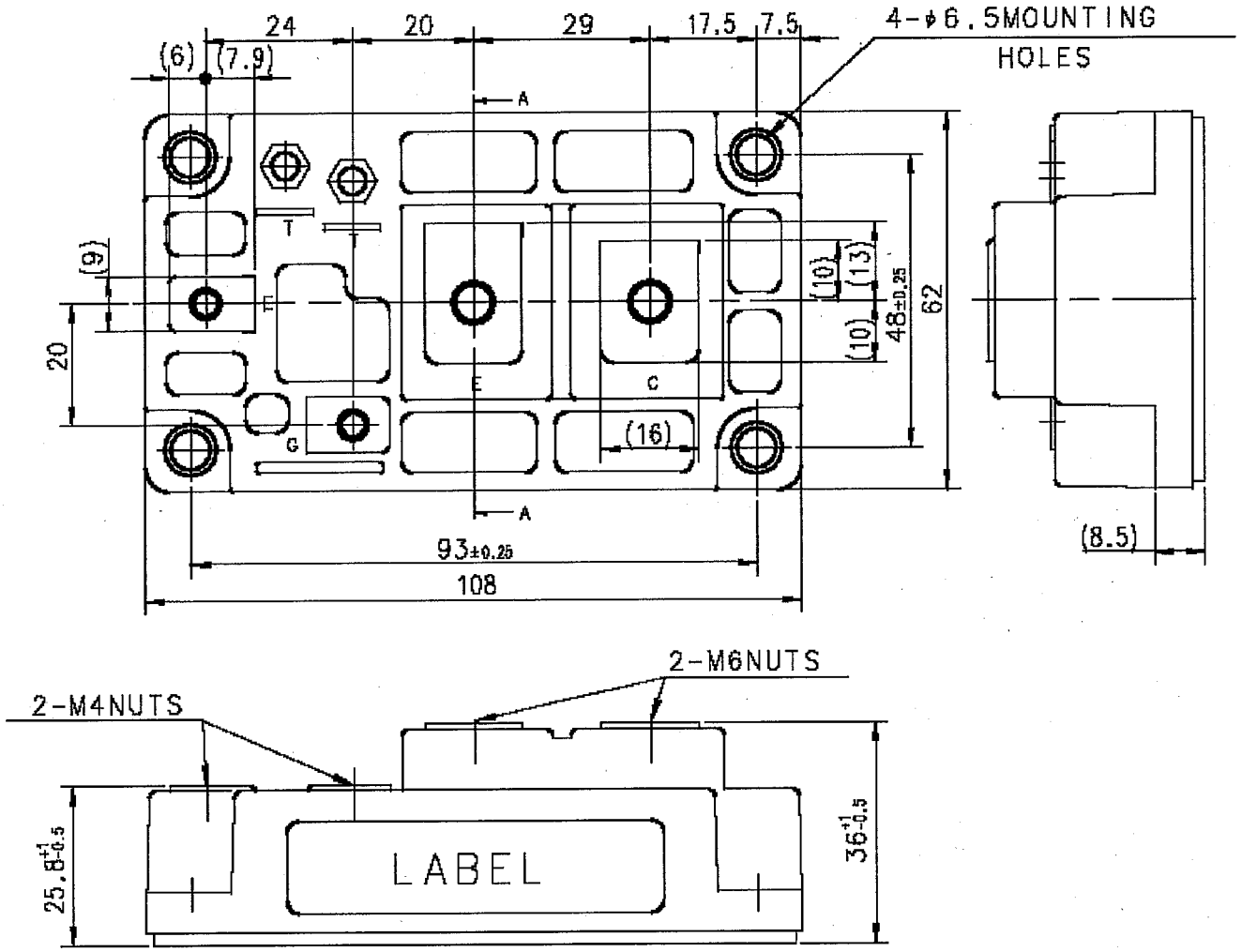
② Pulse width and repetition rate should be such that the device junction temp.(T_j) dose not exceed Tjmax rating.

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