Tentative

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CM100DY-24A

HIGH POWER SWITCHING USE

CM100DY-24A

- Ic ····· 100A
- 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=84 °C *1	100	A
I_{CM}		Pulse ②	200	
I_E ①	Emitter current		100	A
I_{EM} ①		Pulse ②	200	
Pc ③	Maximum collector dissipation	Tc= 25 °C *1	672	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 M5	2.5 ∼ 3.5	N·m
−	Torque strength	Mounting holes M6	3.5 ∼ 4.5	N·m
−	Weight	Typical value	310	g

ELECTRICAL CHARACTERISTICS (T_j = 25 °C)

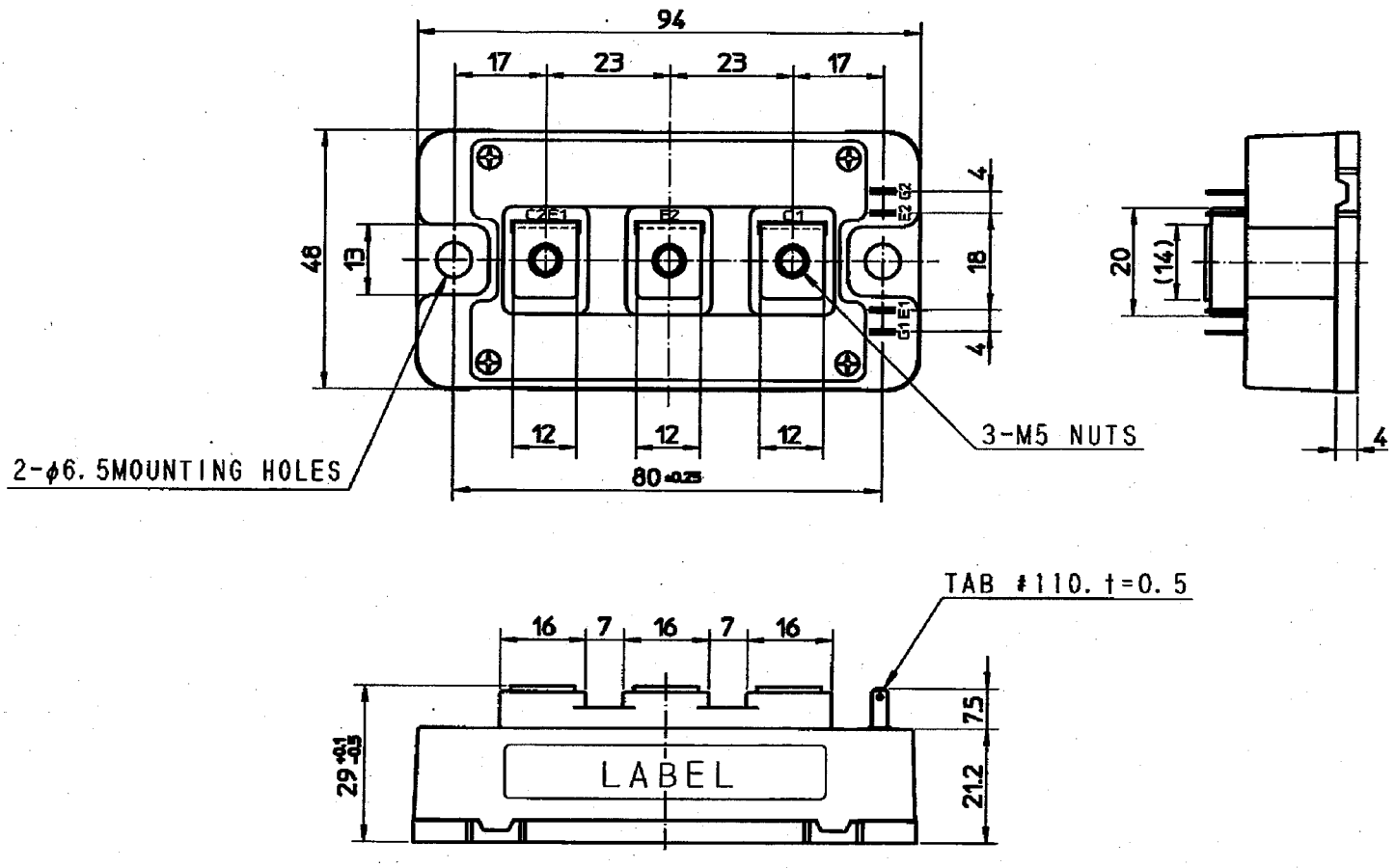
Symbol	Item	Conditions		Min.	Typ.	Max.	Units
I_{CES}	Collector cutoff current	V_{CE}=V_{CES},V_{GE}= 0V		—	—	1	mA
$V_{GE(th)}$	Gate-emitter threshold voltage	I_C=10mA,V_{CE}= 10V		6	7	8	V
I_{GES}	Gate leakage current	V_{GE}=V_{GES} ,V_{CE}= 0V		—	—	0.5	μA
$V_{CE(sat)}$	Collector to emitter saturation voltage	T_j= 25 °C	I_C = 100A	—	2.1	3.0	V
		T_j= 125 °C	V_{GE}= 15V	—	2.4	—	
Cies	Input capacitance	V_{CE}= 10V		—	—	17.5	nF
Coes	Output capacitance	V_{GE}= 0V		—	—	1.5	
Cres	Reverse transfer capacitance			—	—	0.34	
Q_G	Total gate charge	V_{CC}=600V,Ic=100A,V_{GE}=15V		—	500	—	nC
td(on)	Turn-on delay time	V_{CC}=600V,Ic=100A		—	—	100	ns
tr	Turn-on rise time	V_{GE1}=V_{GE2}=15V		—	—	70	
td(off)	Turn-off delay time	R_G=3.1Ω,Inductive load		—	—	400	
tf	Turn-off fall time	switching operation		—	—	350	
trr ①	Reverse recovery time	I_E=100A		—	—	150	ns
Qrr ①	Reverse recovery charge			—	5.0	—	μC
V_{EC} ①	Emitter-collector voltage	I_E=100A,V_{GE}= 0V		—	—	3.8	V
Rth(j-c)Q	Thermal resistance	IGBT part (1/2 module) *1		—	—	0.186	°C/W
Rth(j-c)R		FWDi part(1/2 module) *1		—	—	0.34	
Rth(c-f)	Contact thermal resistance	Case to fin,Thermal compound Applied (1/2module) *1 *2		—	0.022	—	
RG	External gate resistance			3.1	—	42	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