Preliminary

CM1000DU-34N

Pre.	J.Yamada	Rev	D	M. Kouno
Apr.	M.Yamamoto Dec.14 '01			T. Fumio 20-Oct-03

HIGH POWER SWITCHING US

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

CM1000DU-34NF

- Ic ····· 1000A
- V_{CES} ····· 1700V
- Insulated Type
- 2-elements in a pack

APPLICATION

General purpose inverters & Servo controls,etc

ABSOLUTE MAXIMUM RATINGS (T_j = 25 °C)

Symbol	Item	Conditions	Ratings	Units
V_{CES}	Collector-emitter voltage	G-E Short	1700	V
V_{GES}	Gate-emitter voltage	C-E Short	±20	V
I_C	Collector current	Tc'=104 °C	1000	A
I_{CM}		Pulse ②	2000	
I_E ①	Emitter current	Tc=25°C	1000	A
I_{EM} ①		Pulse ②	2000	
Pc ③	Maximum collector dissipation	Tc=25°C	3900	W
Tj	Junction temperature		−40~+150	°C
Tstg	Storage temperature*3		−40~+125	°C
Viso	Isolation voltage	Main terminal to base plate,AC 1 min.	3500	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	1400	g

捷多邦，专业PCB打样工厂，24小时加急出货

查询CM1000DU-34NF供应商

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=100mA, V_{CE}= 10V	6	7	8	V
I_{GES}	Gate leakage current	V_{GE}=V_{GES}, V_{CE}= 0V	–	–	5	μA
$V_{CE(sat)}$ (chip)	Collector to emitter saturation voltage(without lead resistance)	T_j= 25 °C, I_C = 1000A	–	2.2	2.8	V
		T_j= 125 °C, V_{GE}= 15V ④	–	2.45	–	
R(lead)	Module lead resistance	I_C = 1000A, terminal-chip	–	0.286	–	mΩ
Cies	Input capacitance	V_{CE}= 10V, V_{GE}= 0V	–	–	220	nF
Coes	Output capacitance		–	–	25	
Cres	Reverse transfer capacitance		–	–	4.7	
Q_G	Total gate charge	V_{CC}=1000V, Ic=1000A, V_{GE}=15V	–	6000	–	nC
td(on)	Turn-on delay time	V_{CC}=1000V, Ic=1000A, V_{GE1}=V_{GE2}=15V, R_G=0.47Ω, Inductive load switching operation	–	–	600	ns
tr	Turn-on rise time		–	–	150	
td(off)	Turn-off delay time		–	–	900	
tf	Turn-off fall time		–	–	200	
trr	Reverse recovery time	I_E=1000A	–	–	450	ns
Qrr	Reverse recovery charge		–	90	–	μC
V_{EC} ①	Emitter-collector voltage (without lead resistance)	I_E=1000A, V_{GE}= 0V	–	2.3	3	V
Rth(j-c)Q	Thermal resistance*3	IGBT part (1/2module)	–	–	0.032	°C/W
Rth(j-c)R		FWDi part (1/2module)	–	–	0.053	
Rth(c-f)	Contact thermal resistance*2	Case to fin, Thermal compound Applied (1/2module)	–	0.016	–	
Rth(j-c')Q	Thermal resistance*1	Tc measured point is just under the chips(IGBT part)	–	–	0.014	°C/W
Rth(j-c')R		Tc measured point is just under the chips(FWDi part)	–	–	0.023	
RG	External gate resistance		0.47	–	4.7	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".
*3: Tc measured point is shown in page "3-3".
*4: The operation temperature is restrained by the permission temperature of female connector.

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.

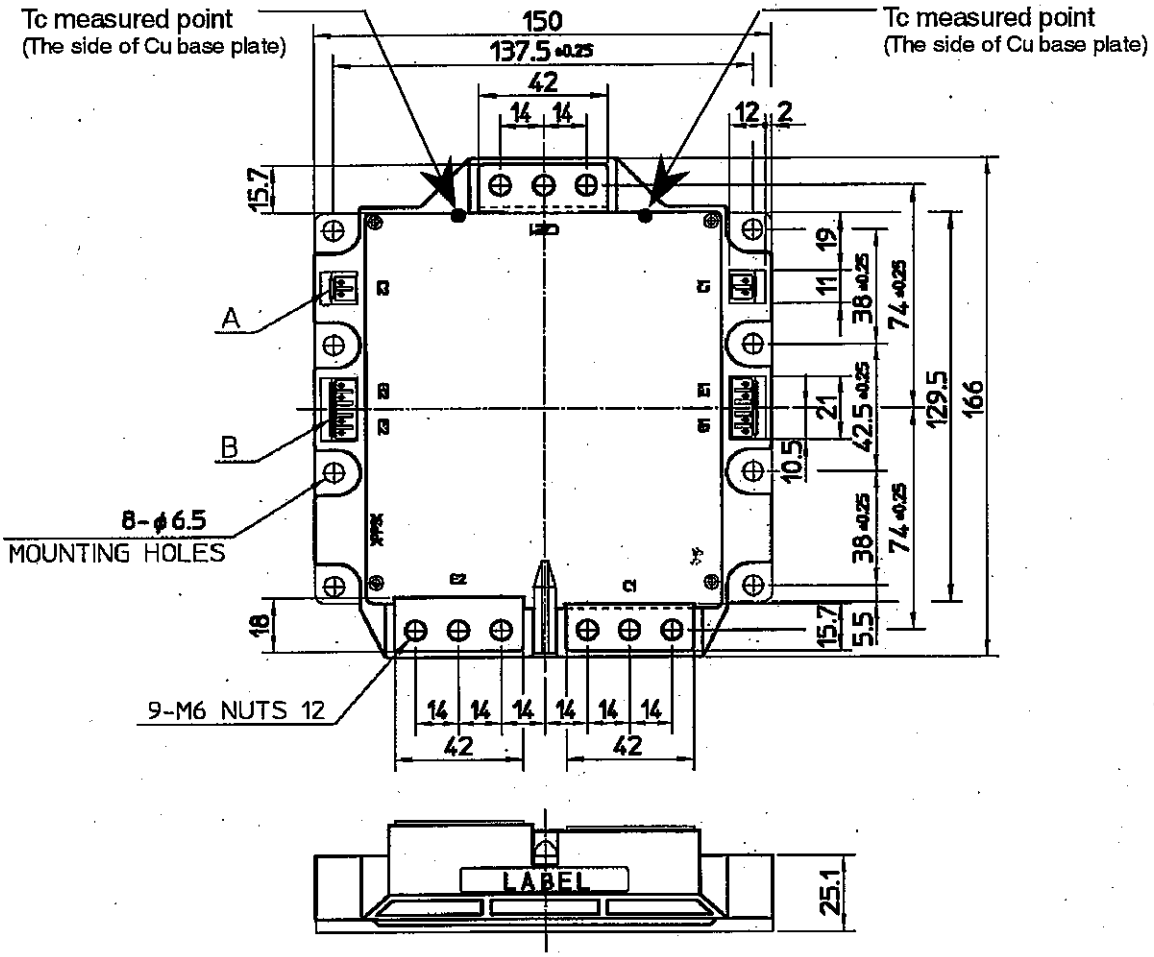
③ Junction temperature (T_j) should not increase beyond 150°C.

④ Pulse width and repetition rate should be such as to cause neglible temperature rise.

OUTLINE DRAWING

Dimensions in mm

A,B HOUSING Type
(J.S.T.Mfg.Co.Ltd)
A : VHR-2N
B : VHR-5N



CIRCUIT DIAGRAM