

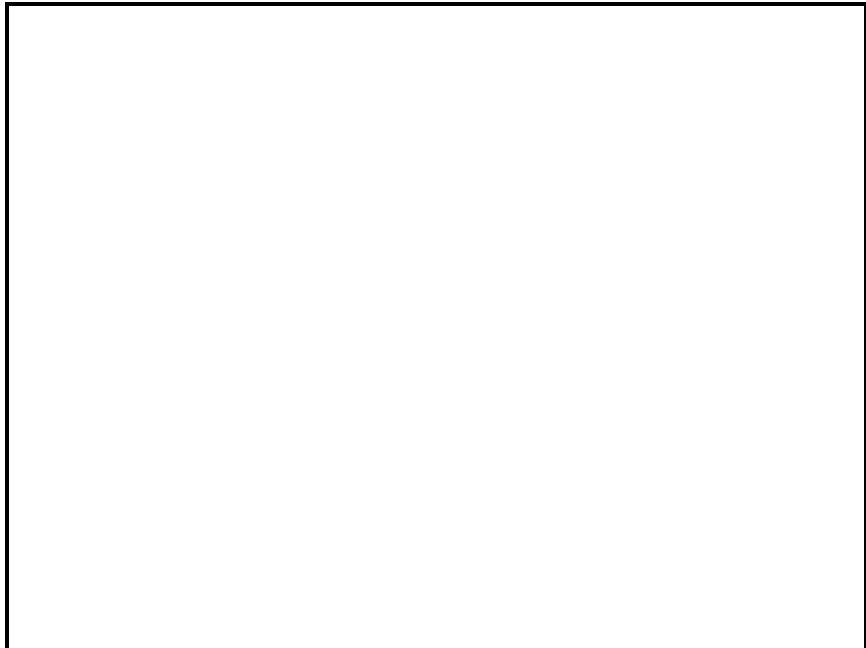
**CM75DY-24NF**

Pre.	M.Koura	Rev	B	M.Ando, M.Koura, J.Yamada
Apr.	T.Furuie 09-Dec-'03			Y.Nagashima 11-Mar-'08

HIGH POWER SWITCHING USE

CM75DY-24NF

- $I_C$  ..... 75A
- $V_{CES}$  ..... 1200V
- Insulated Type
- 2-elements in a pack



APPLICATION

AC drive inverters & Servo controls, etc

ABSOLUTE MAXIMUM RATINGS ( $T_j=25^\circ\text{C}$ )

Symbol	Item	Conditions	Ratings	Units
$V_{CES}$	Collector-emitter voltage	G-E Short	1200	V
$V_{GES}$	Gate-emitter voltage	C-E Short	$\pm 20$	V
$I_C$	Collector current	DC, $T_c=107^\circ\text{C}^{*1}$	75	A
$I_{CM}$		Pulse ②	150	
$I_E$ ①	Emitter current		75	A
$I_{EM}$ ①		Pulse ②	150	
$P_c$ ③	Maximum collector dissipation	$T_c=25^\circ\text{C}^{*1}$	430	W
$T_j$	Junction temperature		-40 ~ +150	$^\circ\text{C}$
$T_{stg}$	Storage temperature		-40 ~ +125	$^\circ\text{C}$
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

B

ELECTRICAL CHARACTERISTICS ( $T_j = 25^\circ\text{C}$ )

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	$I_C=7.5mA, V_{CE}= 10V$	6	7	8	V	
$I_{GES}$	Gate leakage current	$V_{GE}=V_{GES}, V_{CE}= 0V$	-	-	0.5	$\mu\text{A}$	
$V_{CE(sat)}$	Collector to emitter saturation voltage	$I_C=75A$	$T_j= 25^\circ\text{C}$	-	1.8	2.5	V
		$V_{GE}=15V$	$T_j= 125^\circ\text{C}$	-	2.0	-	
$C_{ies}$	Input capacitance	$V_{GE}=0V, V_{CE}=10V$	-	-	17.5	nF	
$C_{oes}$	Output capacitance		-	-	1.5		
$C_{res}$	Reverse transfer capacitance		-	-	0.34		
$Q_G$	Total gate charge	$V_{CC}=600V, I_C=75A, V_{GE}=15V$	-	500	-	nC	
$t_{d(on)}$	Turn-on delay time	$V_{CC}=600V, I_C=75A$	-	-	120	ns	
$t_r$	Turn-on rise time	$V_{GE1}=V_{GE2}=15V, R_G=4.2\Omega$	-	-	100		
$t_{d(off)}$	Turn-off delay time	Inductive load switching operation	-	-	450		
$t_f$	Turn-off fall time		-	-	350		
$t_{rr}$ ①	Reverse recovery time	$I_E=75A$	-	-	150	ns	
$Q_{rr}$ ①	Reverse recovery charge		-	5.0	-	$\mu\text{C}$	
$V_{EC}$ ①	Emitter-collector voltage	$I_E=75A, V_{GE}=0V$	-	-	3.2	V	
$R_{th(j-c)Q}$	Thermal resistance	IGBT part (1/2 module)	-	-	0.29	$^\circ\text{C/W}$	
$R_{th(j-c)R}$		FWDi part (1/2 module)	-	-	0.47		
$R_{th(c-f)}$	Contact thermal resistance	Case to fin, Thermal compound Applied (1/2 module) *1 *2	-	0.07	-		
$R_{th(j'-c')Q}$	Thermal resistance	*1	-	-	0.20		
$R_G$	External gate resistance		4.2	-	42	$\Omega$	

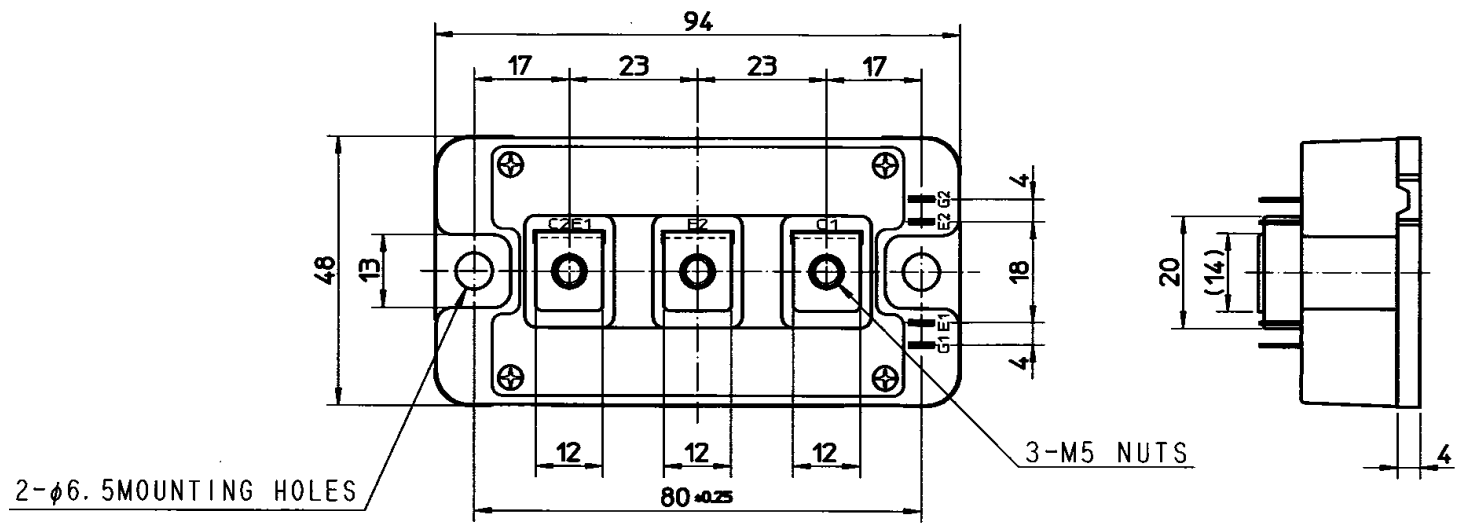
\*1:  $T_c, T_f$  measured point is just under the chips.

\*2: Typical value is measured by using Shin-Etsu Chemical Co.,Ltd "G-746".

- ①  $I_E, V_{EC}, t_{rr}$  &  $Q_{rr}$  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 temperature ( $T_j$ ) dose not exceed  $T_{jmax}$  rating.
- ③ Junction temperature ( $T_j$ ) should not increase beyond  $150^\circ\text{C}$ .
- ④ Pulse width and repetition rate should be such as to cause neglible temperature rise.

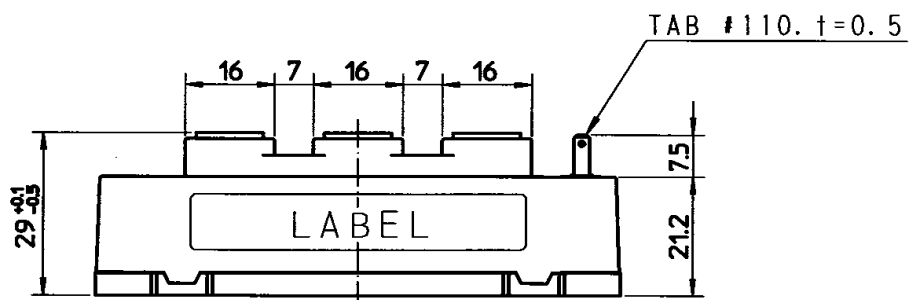
OUTLINE DRAWING

Dimensions in mm



2- $\phi$ 6.5 MOUNTING HOLES

3-M5 NUTS



Terminal screws are not attach.

CIRCUIT DIAGRAM

