

Tentative

CM200DY-34A

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HIGH POWER SWITCHING USE

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

<p>CM200DY-34A</p> <p>●I_C..... 200A ●V_{CES}.....1700V ●Insulated Type ●2-elements in a pack</p>	
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APPLICATION

General purpose inverters & Servo controls,etc

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

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	DC, $T_c = 109^\circ\text{C}^{*1}$ ②	200	A
I_{CM}		Pulse ②	400	
I_E ①	Emitter current	Operation ②	200	A
I_{EM} ①		Pulse ②	400	
P_C ③	Maximum collector dissipation	$T_c = 25^\circ\text{C}^{*1}$	1980	W
T_j	Junction temperature		$-40 \sim +150$	$^\circ\text{C}$
T_{stg}	Storage temperature		$-40 \sim +125$	$^\circ\text{C}$
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	400	g

ELECTRICAL CHARACTERISTICS ($T_j = 25^\circ\text{C}$, unless otherwise specified)

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	$I_C=20mA, V_{CE}= 10V$	5.5	7.0	8.5	V
I_{GES}	Gate leakage current	$\pm V_{GE}=V_{GES}, V_{CE}= 0V$	—	—	2.0	μA
$V_{CE(sat)}$	Collector to emitter saturation voltage	$T_j= 25^\circ\text{C}$ $I_C = 200A$	—	2.2	2.8	V
		$T_j= 125^\circ\text{C}$ $V_{GE}= 15V$	—	2.45	—	
C_{ies}	Input capacitance	$V_{CE}= 10V$	—	—	49.4	nF
C_{oes}	Output capacitance	$V_{GE}= 0V$	—	—	5.6	
C_{res}	Reverse transfer capacitance		—	—	1.06	
Q_G	Total gate charge	$V_{CC}=1000V, I_C=200A, V_{GE}=15V$	—	1330	—	nC
$t_{d(on)}$	Turn-on delay time	$V_{CC}= 1000V, I_C=200A$	—	—	550	ns
t_r	Turn-on rise time	$V_{GE1}=V_{GE2}=15V$	—	—	190	
$t_{d(off)}$	Turn-off delay time	$R_G=2.4\Omega$, Inductive load	—	—	750	
t_f	Turn-off fall time	switching operation	—	—	350	
t_{rr} ①	Reverse recovery time	$I_E=200A$	—	—	450	
Q_{rr} ①	Reverse recovery charge		—	20	—	μC
V_{EC} ①	Emitter-collector voltage	$I_E=200A, V_{GE}= 0V$	—	—	3.0	V
$R_{th(j-c)Q}$	Thermal resistance	IGBT part (1/2 module) ^{*1}	—	—	0.063	$^\circ\text{C/W}$
$R_{th(j-c)R}$		FWDi part(1/2 module) ^{*1}	—	—	0.11	
$R_{th(c-f)}$	Contact thermal resistance	Case to fin, Thermal compound Applied (1/2module) ^{*1} ^{*2}	—	—	—	
R_G	External gate resistance		2.4	—	24	Ω

*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 , I_{EM} , 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°C .
- ④ Pulse width and repetition rate should be such as to cause neglible temperature rise.

