

TENTATIVE

Pre.	N.Honda	Rev	A	S.Uchida
Apr.	M.Tabata 4-Aug-'98			M.Tabata 4-Aug-'98

CM200TU-5F
HIGH POWER SWITCHING USE

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

CM200TU-5F

- Ic.....200A
- V_{CEs}.....250V
- Insulated Type
- 6-elements in a pack

OUTLINE DRAWING

Dimensions in mm

CIRCUIT DIAGRAM

APPLICATION

Inverters for battery power source

ABSOLUTE MAXIMUM RATINGS (T_j = 25 °C)

Symbol	Item	Conditions	Ratings	Unit
V _{CEs}	Collector-emitter voltage	G-E Short	250	V
V _{GES}	Gate-emitter voltage	C-E Short	±20	V
I _c	Collector current	T _c = 25 °C	200	A
I _{CM}		Pulse ②	400	
I _E ①	Emitter current	T _c = 25 °C	200	A
I _{EM} ①		Pulse ②	400	
P _c ③	Maximum collector dissipation	T _c = 25 °C	600	W
T _j	Junction temperature		-40~+150	°C
T _{stg}	Storage temperature		-40~+125	°C
Viso	Isolation voltage	Charged part to base plate.AC 1 min.	2500	V
—	Torque strength	Main Terminal M 5	2.5 ~ 3.5	N·m
—	Torque strength	Mounting M 5	2.5 ~ 3.5	N·m
—	Weight	Typical value	680	g

ELECTRICAL CHARACTERISTICS (T_j = 25 °C)

Symbol	Item	Conditions	Min.	Typ.	Max.	Unit
I _{ces}	Collector cutoff current	V _{CE} =V _{CEs} , V _{GE} = 0V	—	—	1	mA
V _{GE(th)}	Gate-emitter threshold voltage	I _C =20 mA, V _{CE} = 10V	3.0	4.0	5.0	V
I _{ges}	Gate leakage current	V _{GE} =V _{CEs} , V _{CE} = 0V	—	—	0.5	μA
V _{CE(sat)}	Collector to emitter saturation voltage	T _j = 25 °C I _C =200A	—	1.2	1.7	V
		T _j = 125 °C V _{GE} = 10V	—	1.1	—	
C _{ies}	Input capacitance	V _{CE} = 10V	—	—	66	nF
C _{oes}	Output capacitance	V _{GE} = 0V	—	—	3.0	
C _{res}	Reverse transfer capacitance		—	—	2.8	
Q _g	Total gate charge	V _{CC} =100V, I _C = 200A V _{GE} = 10V	—	—	—	nC
t _{d(on)}	Turn-on delay time	V _{CC} =100V, I _C = 200A	—	—	700	ns
t _r	Turn-on rise time	V _{GE1} =V _{GE2} =10V	—	—	1800	
t _{d(off)}	Turn-off delay time	R _C =13Ω, Resistive load	—	—	700	
t _f	Turn-off fall time	switching operation	—	—	500	
V _{ec} ①	Emitter-collector voltage	I _E = 200 A, V _{GS} = 0V	—	—	2.0	V
t _{rr} ①	Reverse recovery time	I _E = 200 A	—	—	300	ns
Q _{rr} ①	Reverse recovery charge	di _c /dt=400 A/μs	—	—	—	μC
R _{th(j-c)Q}	Thermal resistance*1	IGBT part(1/6 module)	—	—	0.21	°C/W
R _{th(j-c)R}		FWDi part(1/6 module)	—	—	0.47	
R _{th(c-f)}	Contact thermal resistance	Case to fin, Conductive grease applied*2(1/6 module)	—	0.09	—	

① I_E, V_{ec}, t_{rr}, Q_{rr} & di_c/dt 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 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 negligible temperature rise.

*1: T_c measured point is shown in page "1-2".

*2: Typical value is measured by using Shin-etsu Silicone "G-746".