

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 =30mA, V _{CE} = 10V	5	6	7.5	V	A
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 = 300A	—	1.7	2.2	V	
		T _j = 125 °C V _{GE} = 15V	—	1.7	—		
C _{ies}	Input capacitance	V _{CE} = 10V V _{GE} = 0V	—	—	45	nF	
C _{oes}	Output capacitance		—	—	5.5		
C _{res}	Reverse transfer capacitance		—	—	1.8		
Q _G	Total gate charge	V _{CC} =300V, I _C =300A, V _{GE} =15V	—	1200	—	nC	
td(on)	Turn-on delay time	V _{CC} =300V, I _C =300A V _{GE1} =V _{GE2} =15V R _G =2.1Ω, Inductive load switching operation I _E =300A	—	—	120	ns	
tr	Turn-on rise time		—	—	120		
td(off)	Turn-off delay time		—	—	350		
tf	Turn-off fall time		—	—	300		
trr	① Reverse recovery time		—	—	150		
Q _{rr}	① Reverse recovery charge	—	5.5	—	μC	A	
V _{EC}	① Emitter-collector voltage	I _E =300A, V _{GE} = 0V	—	—	2.6	V	
R _{th(j-c)Q}	Thermal resistance	IGBT part (1/2 module) *1	—	—	0.16	°C/W	A
R _{th(j-c)R}		FWDi part(1/2 module) *1	—	—	0.25		A
R _{th(c-f)}	Contact thermal resistance	Case to fin, Thermal compound Applied (1/2module) *2	—	0.07	—		
R _{th(j-c')Q}	Thermal resistance	IGBT part (1/2 module) *3	—	—	0.093		B
R _G	External gate resistance		2.1	—	21	Ω	

*1: T_c measured point is shown in page OUTLINE DRAWING.

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

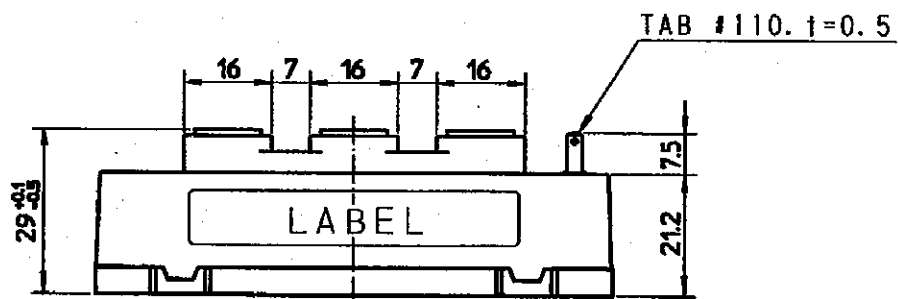
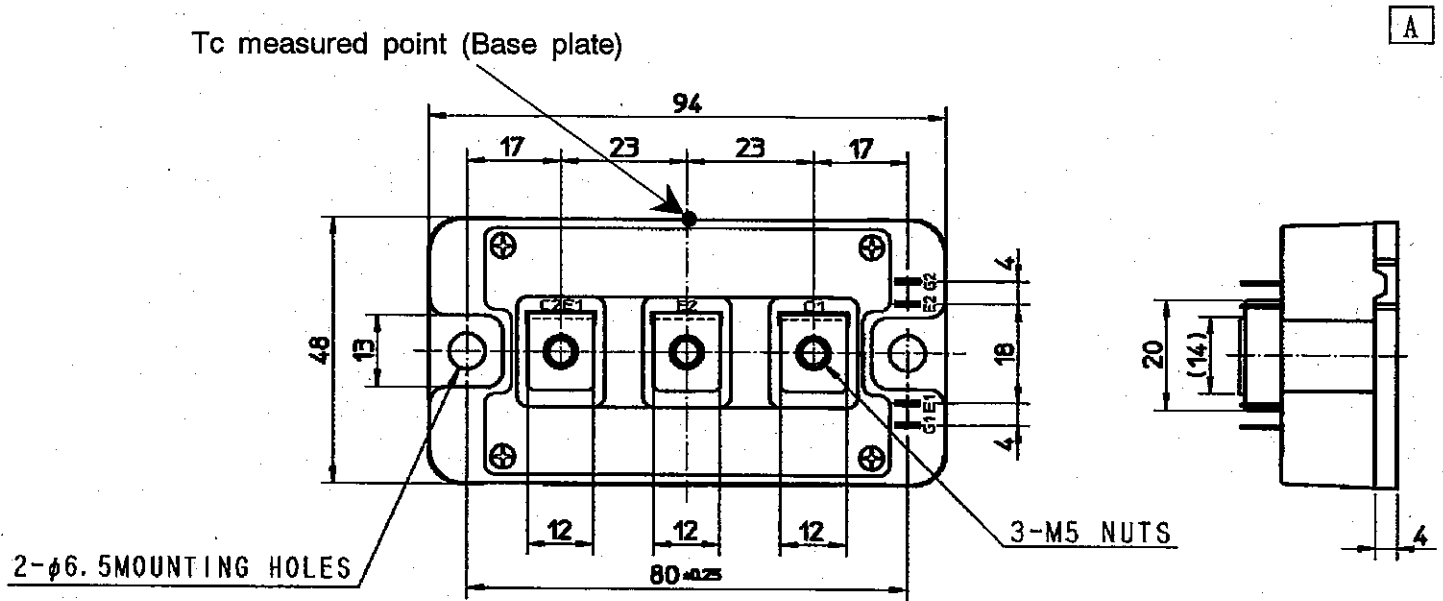
*3: T_c' measured point is just under the chips.

If you use this value, R_{th(f-a)} should be measured just under the chips.

- ① I_E, V_{EC}, trr, Q_{rr} & die/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 negligle temperature rise.

OUTLINE DRAWING

Dimensions in mm



CIRCUIT DIAGRAM

