

MITSUBISHI TRANSISTOR MODULES

QM50DY-2HB

MEDIUM POWER SWITCHING USE
INSULATED TYPE

QM50DY-2HB



- **IC** Collector current **50A**
- **V_{CEX}** Collector-emitter voltage **1000V**
- **h_{FE}** DC current gain **750**
- **Insulated Type**
- **UL Recognized**

Yellow Card No. E80276 (N)

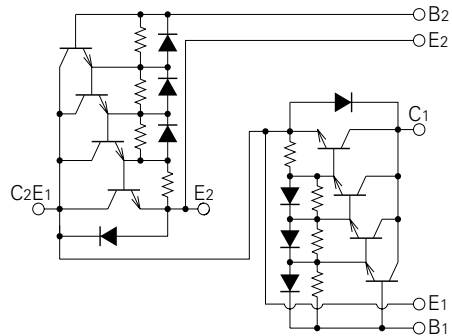
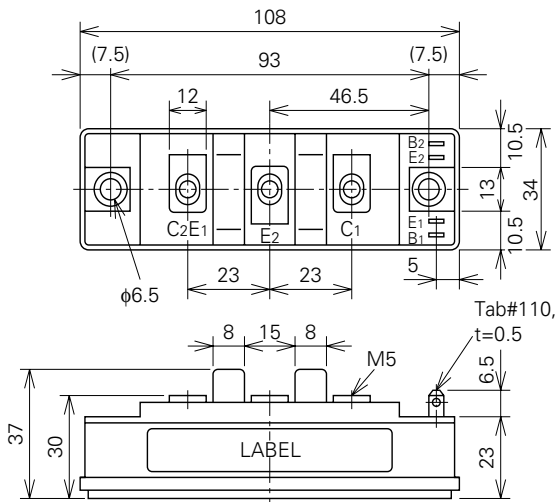
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APPLICATION

Inverters, Servo drives, UPS, DC motor controllers, NC equipment, Welders

OUTLINE DRAWING & CIRCUIT DIAGRAM

Dimensions in mm



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ABSOLUTE MAXIMUM RATINGS (T_j=25°C, unless otherwise noted)

Symbol	Parameter	Conditions	Ratings	Unit
V _{CEX (SUS)}	Collector-emitter voltage	I _C =1A, V _{EB} =2V	1000	V
V _{CEX}	Collector-emitter voltage	V _{EB} =2V	1000	V
V _{CBO}	Collector-base voltage	Emitter open	1000	V
V _{EBO}	Emitter-base voltage	Collector open	7	V
I _C	Collector current	DC	50	A
-I _C	Collector reverse current	DC (forward diode current)	50	A
P _C	Collector dissipation	T _C =25°C	400	W
I _B	Base current	DC	3	A
-I _{CSM}	Surge collector reverse current (forward diode current)	Peak value of one cycle of 60Hz (half wave)	50	A
T _j	Junction temperature		-40~+150	°C
T _{stg}	Storage temperature		-40~+125	°C
V _{iso}	Isolation voltage	Charged part to case, AC for 1 minute	2500	V
—	Mounting torque	Main terminal screw M5	1.47~1.96	N·m
			15~20	kg·cm
		Mounting screw M6	1.96~2.94	N·m
			20~30	kg·cm
—	Weight	Typical value	250	g

ELECTRICAL CHARACTERISTICS (T_j=25°C, unless otherwise noted)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
I _{CEX}	Collector cutoff current	V _{CE} =1000V, V _{EB} =2V	—	—	2.0	mA
I _{CBO}	Collector cutoff current	V _{CB} =1000V, Emitter open	—	—	2.0	mA
I _{EBO}	Emitter cutoff current	V _{EB} =7V	—	—	50	mA
V _{CE (sat)}	Collector-emitter saturation voltage	I _C =50A, I _B =67mA	—	—	4.0	V
V _{BE (sat)}	Base-emitter saturation voltage		—	—	4.0	V
-V _{CEO}	Collector-emitter reverse voltage	-I _C =50A (diode forward voltage)	—	—	1.8	V
h _{FE}	DC current gain	I _C =50A, V _{CE} =4V	750	—	—	—
t _{on}	Switching time	V _{CC} =600V, I _C =50A, I _{B1} =100mA, I _{B2} =-1.0A	—	—	2.5	μs
t _s			—	—	15	μs
t _f			—	—	3.0	μs
R _{th (j-c) Q}	Thermal resistance (junction to case)	Transistor part (per 1/2 module)	—	—	0.31	°C/W
R _{th (j-c) R}		Diode part (per 1/2 module)	—	—	1.2	°C/W
R _{th (c-f)}	Contact thermal resistance (case to fin)	Conductive grease applied (per 1/2 module)	—	—	0.13	°C/W