MITSUBISHI TRANSISTOR MODULES

QM800HA-2HB

HIGH POWER SWITCHING USE
INSULATED TYPE

QM800HA-2HB

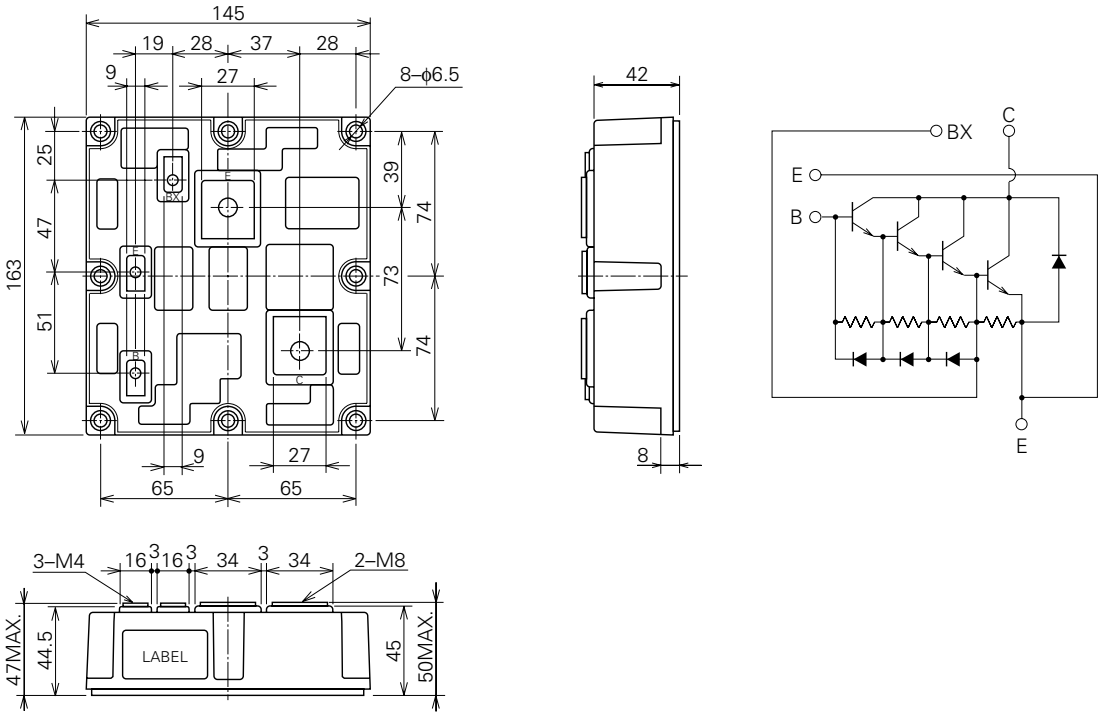
- **I_C** Collector current **800A**
- **V_{CEX}** Collector-emitter voltage **1000V**
- **h_{FE}** DC current gain **750**
- **Insulated Type**
- **UL Recognized**
  Yellow Card No. E80276 (N)
  File No. E80271

APPLICATION

AC motor controllers, UPS, CVCF, DC motor controllers, NC equipment, Welders

OUTLINE DRAWING & CIRCUIT DIAGRAM

Dimensions in mm



MITSUBISHI ELECTRIC

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

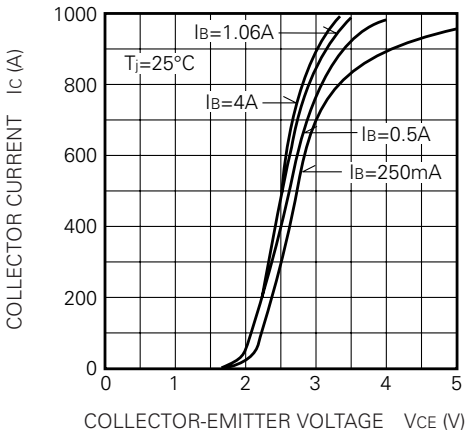
Symbol	Parameter	Conditions	Ratings	Unit
$V_{CEX\ (SUS)}$	Collector-emitter voltage	I_C=1A, V_{EB}=2V	1000	V
V_{CEX}	Collector-emitter voltage	V_{EB}=2V	1000	V
V_{CBO}	Collector-base voltage	Emitter open	1000	V
V_{EBO}	Emitter-base voltage	Collector open	7	V
I_C	Collector current	DC	800	A
$-I_C$	Collector reverse current	DC (forward diode current)	800	A
P_C	Collector dissipation	T_C=25°C	5300	W
I_B	Base current	DC	40	A
$-I_{CSM}$	Surge collector reverse current (forward diode current)	Peak value of one cycle of 60Hz (half wave)	8000	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 M8	8.83~10.8	N·m
			90~110	kg·cm
		Mounting screw M6	1.96~2.94	N·m
			20~30	kg·cm
		B(E) terminal screw M4	0.98~1.47	N·m
			12~18	kg·cm
		BX terminal screw M4	0.98~1.47	N·m
			12~18	kg·cm
—	Weight	Typical value	2100	g

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

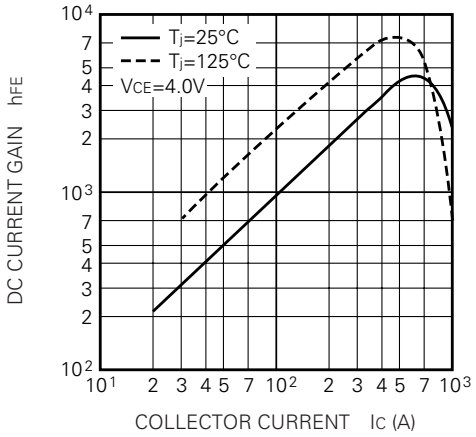
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
I_{CEX}	Collector cutoff current	V_{CE}=1000V, V_{EB}=2V	—	—	8.0	mA
I_{CBO}	Collector cutoff current	V_{CB}=1000V, Emitter open	—	—	8.0	mA
I_{EBO}	Emitter cutoff current	V_{EB}=7V, Collector open	—	—	600	mA
$V_{CE\ (sat)}$	Collector-emitter saturation voltage	I_C=800A, I_B=1.06A	—	—	4.0	V
$V_{BE\ (sat)}$	Base-emitter saturation voltage		—	—	4.2	V
$-V_{CEO}$	Collector-emitter reverse voltage	I_C=–800A (diode forward voltage)	—	—	1.8	V
h_{FE}	DC current gain	I_C=800A, V_{CE}=4.0V	750	—	—	—
t_{on}	Switching time	V_{CC}=600V, I_C=800A, I_{B1}=1.6A, $-I_{B2}$=16.0A	—	—	2.5	µs
t_s			—	—	20	µs
t_f			—	—	5.0	µs
$R_{th\ (j-c)\ Q}$	Thermal resistance (junction to case)	Transistor part	—	—	0.023	°C/W
$R_{th\ (j-c)\ R}$		Diode part	—	—	0.12	°C/W
$R_{th\ (c-f)}$	Contact thermal resistance (case to fin)	Conductive grease applied	—	—	0.01	°C/W

PERFORMANCE CURVES

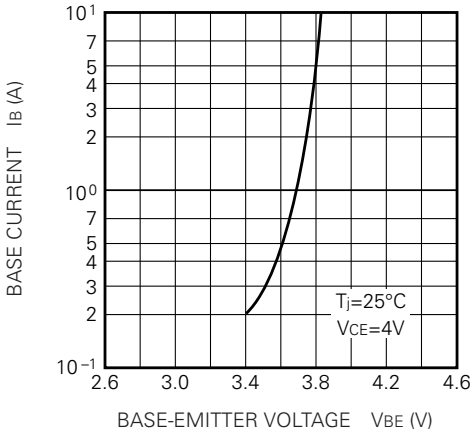
COMMON EMITTER OUTPUT CHARACTERISTICS (TYPICAL)



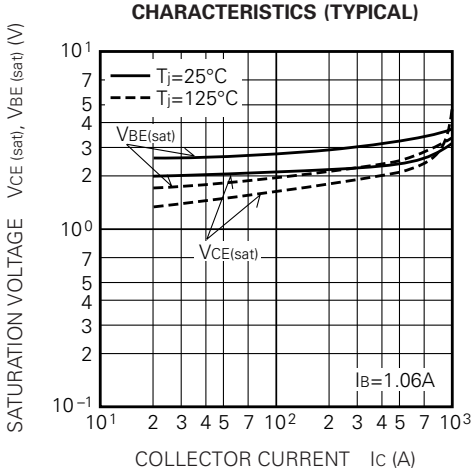
DC CURRENT GAIN VS. COLLECTOR CURRENT (TYPICAL)



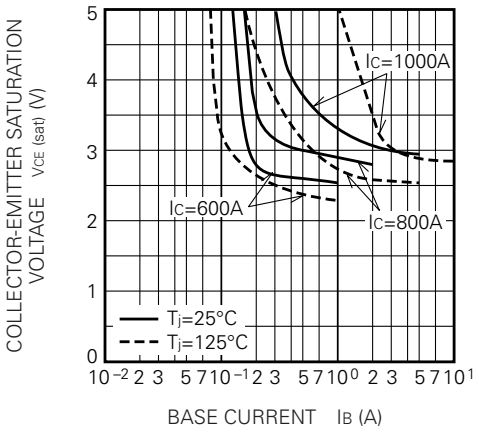
COMMON EMITTER INPUT CHARACTERISTIC (TYPICAL)



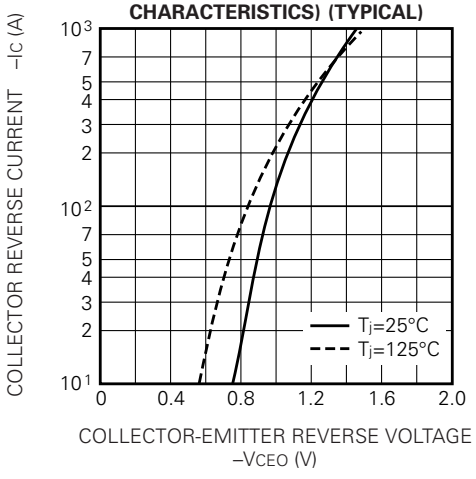
SATURATION VOLTAGE CHARACTERISTICS (TYPICAL)



COLLECTOR-EMITTER SATURATION VOLTAGE (TYPICAL)



REVERSE COLLECTOR CURRENT VS. COLLECTOR-EMITTER REVERSE VOLTAGE (DIODE FORWARD CHARACTERISTICS) (TYPICAL)



REVERSE BIAS SAFE OPERATING AREA