

QM600HD-M

HIGH POWER SWITCHING USE
NON-INSULATED TYPE

QM600HD-M



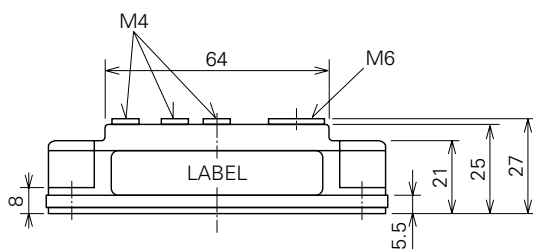
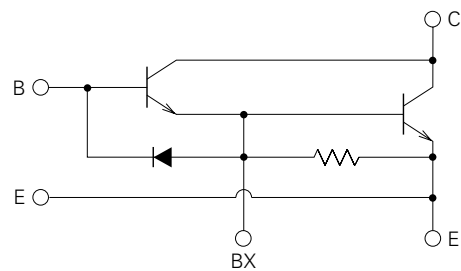
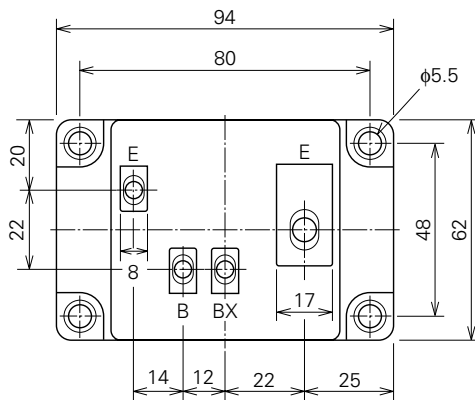
- **I_C** Collector current **600A**
- **V_{CEX}** Collector-emitter voltage **350V**
- **h_{FE}** DC current gain **500**
- **Non-Insulated Type**

APPLICATION

Robotics, Forklifts, Welders

OUTLINE DRAWING & CIRCUIT DIAGRAM

Dimensions in mm



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

Symbol	Parameter	Conditions	Ratings	Unit
VCEX (SUS)	Collector-emitter voltage	IC=1A, VEB=2V	350	V
VCEX	Collector-emitter voltage	VEB=2V	350	V
VCBO	Collector-base voltage	Emitter open	400	V
VEBO	Emitter-base voltage	Collector open	10	V
IC	Collector current	DC	600	A
-IC	Collector reverse current	DC (forward diode current)	—	A
PC	Collector dissipation	Tc=25°C	2080	W
IB	Base current	DC	15	A
-ICSM	Surge collector reverse current (forward diode current)	Peak value of one cycle of 60Hz (half wave)	—	A
Tj	Junction temperature		-40~+150	°C
Tstg	Storage temperature		-40~+125	°C
Viso	Isolation voltage	Charged part to case, AC for 1 minute	—	V
—	Mounting torque	Main terminal screw M6	1.96~2.94	N·m
			20~30	kg·cm
		Mounting screw M5	1.47~1.96	N·m
			15~20	kg·cm
		B(E) terminal screw M4	0.98~1.47	N·m
			10~15	kg·cm
—	Weight	BX terminal screw M4	0.98~1.47	N·m
			10~15	kg·cm
—	Weight	Typical value	420	g

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

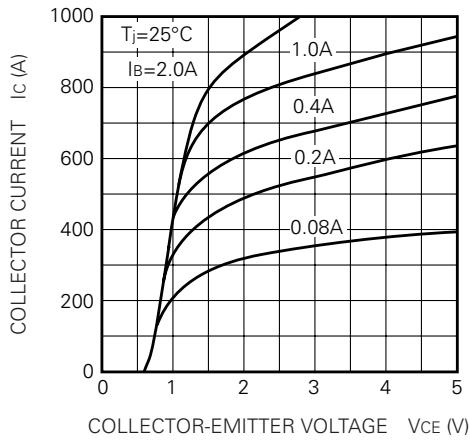
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
ICEX	Collector cutoff current	VCE=350V, VEB=2V	—	—	2.0	mA
ICBO	Collector cutoff current	VCB=400V, Emitter open	—	—	2.0	mA
IEBO	Emitter cutoff current	VEB=10V	—	—	800	mA
VCE (sat)	Collector-emitter saturation voltage	IC=600A, IB=1.2A	—	—	2.0	V
VBE (sat)	Base-emitter saturation voltage		—	—	2.5	V
-VCEO	Collector-emitter reverse voltage	-IC=600A (diode forward voltage)	—	—	—	V
hFE	DC current gain	IC=600A, VCE=2V	500	—	—	—
ton	Switching time	VCC=200V, IC=600A, IB1=2A, -IB2=4A	—	—	3.0	μs
ts			—	—	15	μs
tf			—	—	3.0	μs
Rth (j-c) Q	Thermal resistance (junction to case)	Transistor part	—	—	0.06	°C/W
Rth (j-c) R		Diode part	—	—	—	°C/W
Rth (c-f)	Contact thermal resistance (case to fin)	Conductive grease applied	—	—	0.05	°C/W

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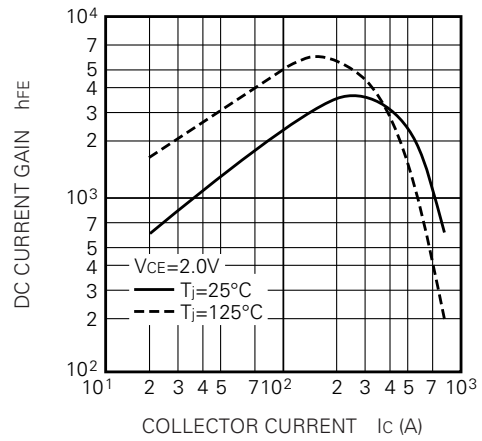
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PERFORMANCE CURVES

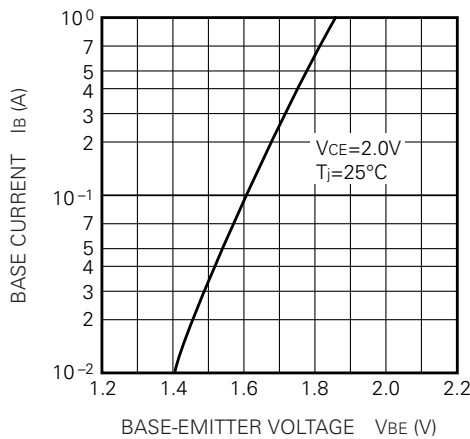
COMMON EMITTER OUTPUT CHARACTERISTICS (TYPICAL)



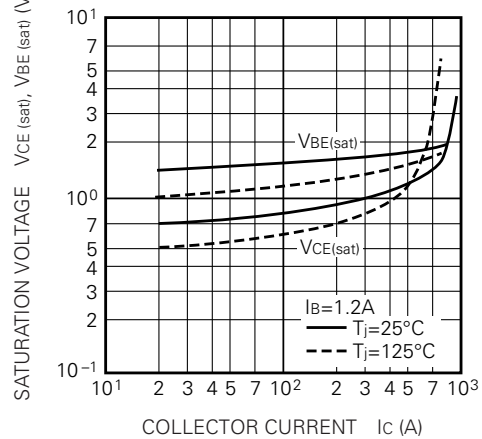
DC CURRENT GAIN VS. COLLECTOR CURRENT (TYPICAL)



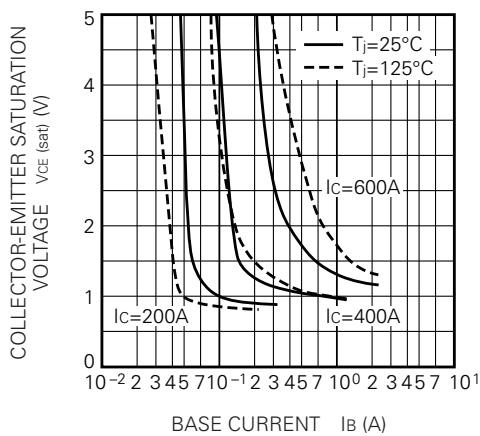
COMMON EMITTER INPUT CHARACTERISTIC (TYPICAL)



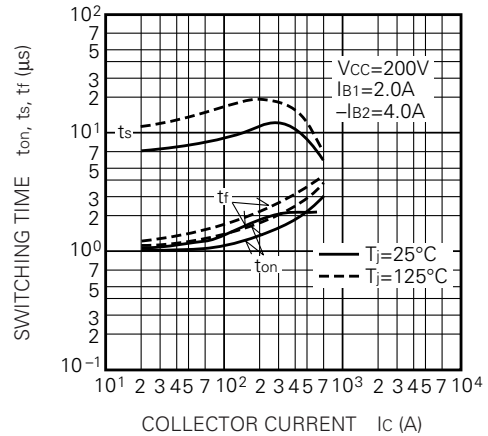
SATURATION VOLTAGE CHARACTERISTICS (TYPICAL)



COLLECTOR-EMITTER SATURATION VOLTAGE (TYPICAL)



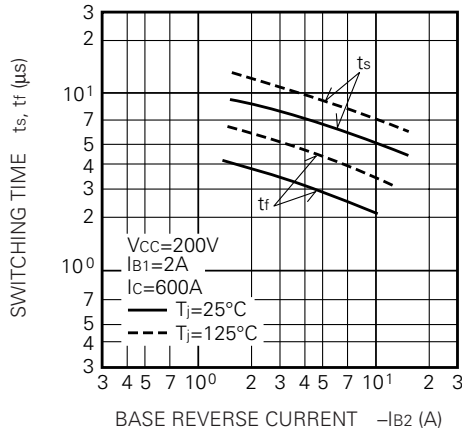
SWITCHING TIME VS. COLLECTOR CURRENT (TYPICAL)



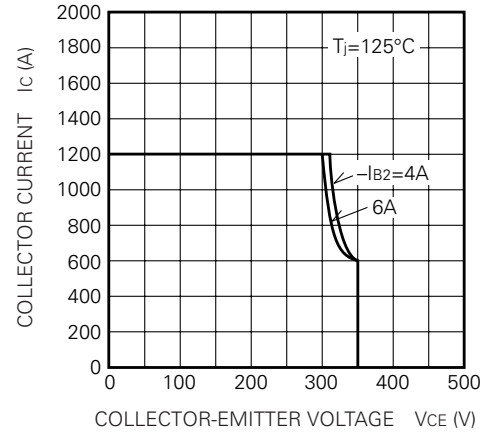
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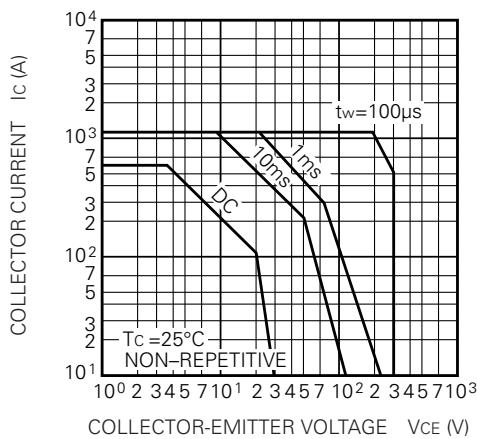
SWITCHING TIME VS. BASE
CURRENT (TYPICAL)



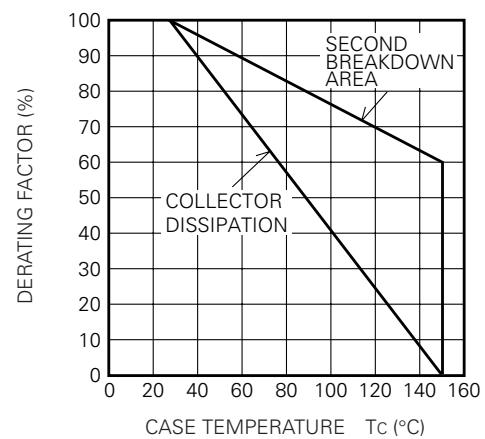
REVERSE BIAS SAFE OPERATING AREA



FORWARD BIAS SAFE OPERATING AREA



DERATING FACTOR OF F. B. S. O. A.



TRANSIENT THERMAL IMPEDANCE
CHARACTERISTIC (TRANSISTOR)

