



MITSUBISHI TRANSISTOR MODULE  
QM300HA-H

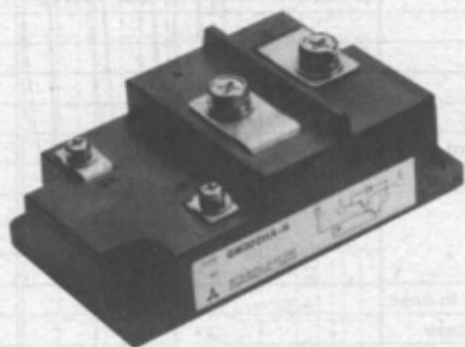
MITSUBISHI TRANSISTOR MODULES

**QM300HA-H**

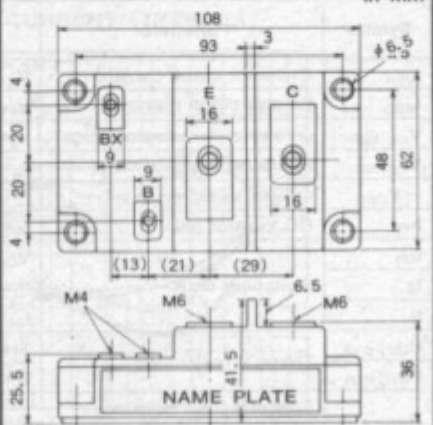
HIGH POWER SWITCHING USE  
INSULATED TYPE

datasheet provided by  
[www.ineltron.de](http://www.ineltron.de)

QM300HA-H

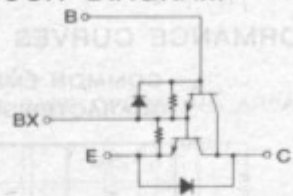


OUTLINE DRAWING Dimensions in mm



- $I_C$  Collector current ..... 300A
- $V_{CEX}$  Collector-emitter voltage ..... 600V
- $h_{FE}$  DC current gain ..... 75
- Insulated Type
- UL Recognized Yellow Card No. ; E80276(M)  
File No. ; E80271

CIRCUIT DIAGRAM



APPLICATION

AC motor controllers, DC motor controllers, UPS, CVCF,  
SMPS, NC equipment, Welders, Inverters, Converters, Lamp  
drive, Relay switch array

ABSOLUTE MAXIMUM RATINGS ( $T_c=25^\circ C$ )

Symbol	Parameter	Conditions	Ratings	Unit
$V_{CEX(SUS)}$	Collector-emitter voltage	$I_C=1A, V_{EB}=2V$	600	V
$V_{CEX}$	Collector-emitter voltage	$V_{EB}=2V$	600	V
$V_{CBO}$	Collector-base voltage	Emitter open	600	V
$V_{EBO}$	Emitter-base voltage	Collector open	7	V
$I_C$	Collector current	DC	300	A
$-I_C$	Reverse collector current	DC (forward diode current)	300	A
$P_C$	Collector dissipation	$T_C=25^\circ C$	1380	W
$I_B$	Base current	DC	18	A
$-I_{CSM}$	Reverse surge current	Peak value of one cycle of 60Hz (half wave)	3000	A
$T_j$	Junction temperature		$-40 \sim +150$	$^\circ C$
$T_{stg}$	Storage temperature		$-40 \sim +125$	$^\circ C$
$V_{isol}$	Isolation voltage	AC for 1 minute	2500	V
—	Mounting torque	B and BX terminals M4	10~15	kg·cm
—		Main terminals and mounting screw M6	20~30	
—	Weight	Typical value	460	g



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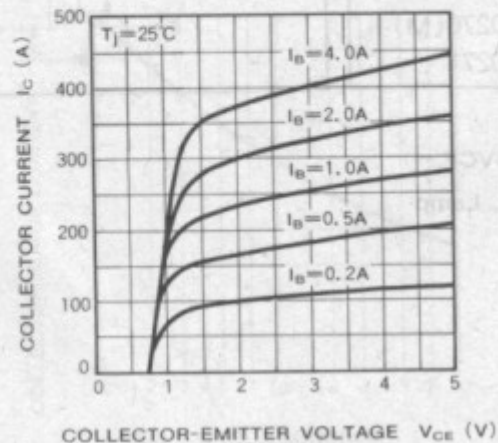
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ELECTRICAL CHARACTERISTICS ( $T_J=25^\circ\text{C}$ )

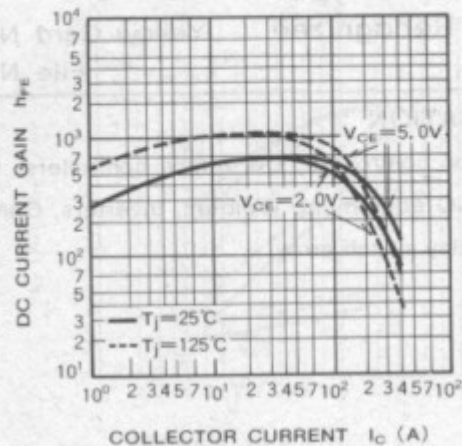
Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
$I_{CEX}$	Collector cutoff current	$V_{CE}=V_{CEX}, V_{EB}=2V$	—	—	4	mA
$I_{EBO}$	Emitter cutoff current	$V_{EB}=7V$	—	—	300	mA
$V_{CE(sat)}$	Collector-emitter saturation voltage	$I_C=300A, I_B=4A$	—	—	2.0	V
$V_{BE(sat)}$	Base-emitter saturation voltage	$I_C=300A, I_B=4A$	—	—	2.5	V
$-V_{CEO}$	Collector-emitter reverse voltage	$-I_C=300A$ (diode forward voltage drop)	—	—	1.85	V
$h_{FE}$	DC current gain	$I_C=300A, V_{CE}=2V/5V$	75/100	—	—	—
$t_{on}$	Switching time	$V_{CC}=300V$	—	—	2.5	$\mu\text{s}$
$t_s$		$I_C=300A$	—	—	12	$\mu\text{s}$
$t_f$		$I_{B1}=-I_{B2}=6A$	—	—	3.0	$\mu\text{s}$
$R_{th(j-c)O}$	Thermal resistance	Transistor part, junction to case	—	—	0.09	$^\circ\text{C/W}$
$R_{th(j-c)R}$		Diode part, junction to case	—	—	0.3	$^\circ\text{C/W}$
$R_{th(c-f)}$	Contact thermal resistance (case to fin)	Conductive grease applied	—	—	0.04	$^\circ\text{C/W}$

PERFORMANCE CURVES

COMMON EMITTER OUTPUT CHARACTERISTICS (TYPICAL)



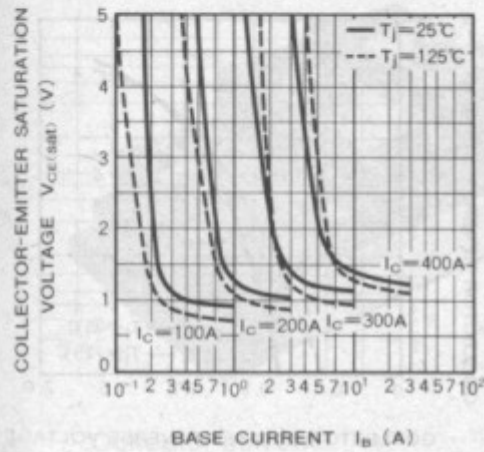
DC CURRENT GAIN VS. COLLECTOR CURRENT (TYPICAL)



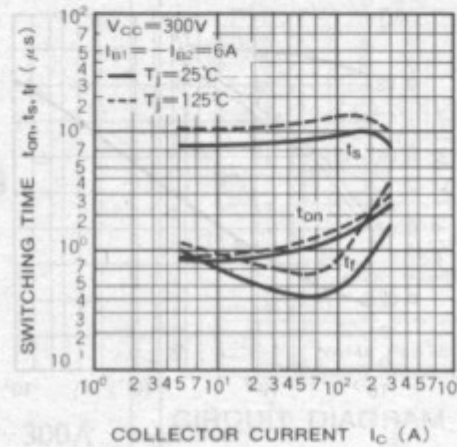
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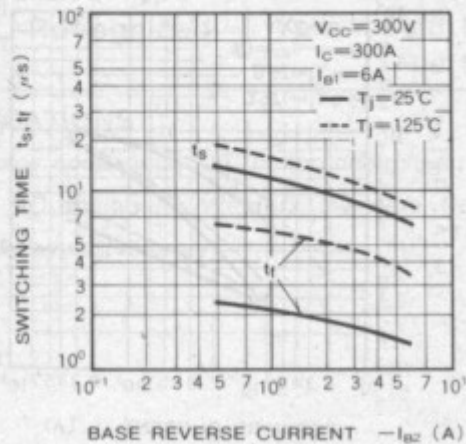
COLLECTOR-EMITTER SATURATION VOLTAGE (TYPICAL)



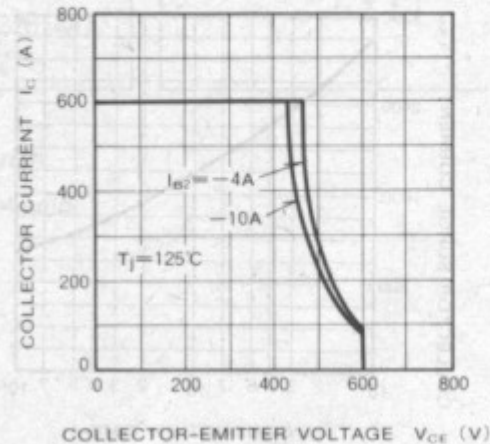
SWITCHING TIME VS. COLLECTOR CURRENT (TYPICAL)



SWITCHING TIME VS. BASE CURRENT (TYPICAL)



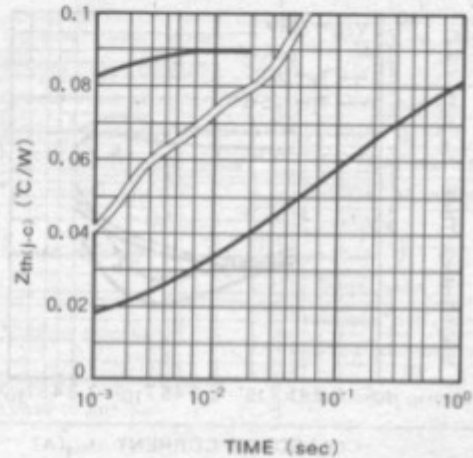
REVERSE BIAS SAFE OPERATING AREA



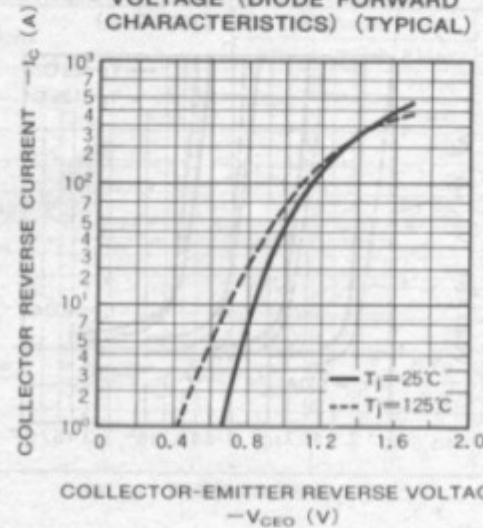
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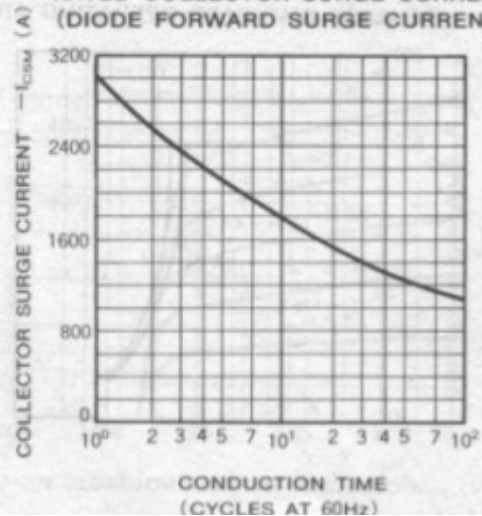
TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (TRANSISTOR)



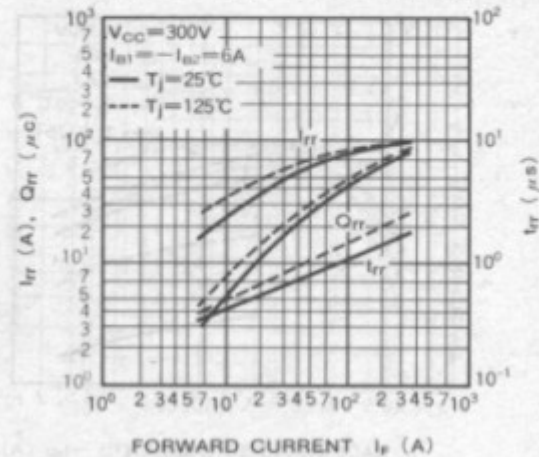
REVERSE COLLECTOR CURRENT VS. COLLECTOR-EMITTER REVERSE VOLTAGE (DIODE FORWARD CHARACTERISTICS) (TYPICAL)



RATED COLLECTOR SURGE CURRENT (DIODE FORWARD SURGE CURRENT)



REVERSE RECOVERY CHARACTERISTICS OF FREE-WHEEL DIODE (TYPICAL)



Please note, that "QM300HA-H" and "QM300HA-HK" mean the same module.

