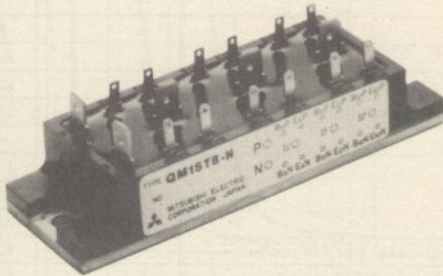


# QM15TB-H

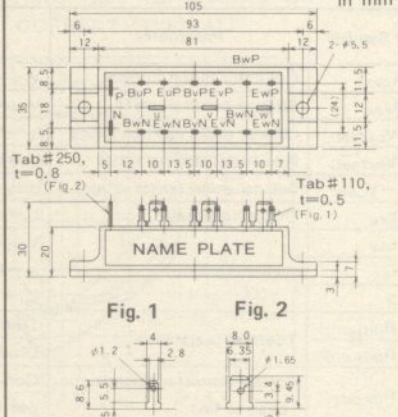
MEDIUM POWER SWITCHING USE  
INSULATED TYPE

datasheet provided by  
www.datasheetbook.com

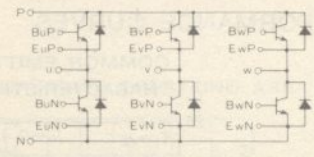
QM15TB-H



### OUTLINE DRAWING Dimensions in mm



### CIRCUIT DIAGRAM



Note: All Transistor Units are Darlington.

- $I_C$  Collector current ..... 15A
- $V_{CEX}$  Collector-emitter voltage ..... 600V
- $h_{FE}$  DC current gain ..... 50
- Insulated Type
- UL Recognized Yellow Card No. ; E80276(M)  
File No. ; E80271

### APPLICATION

Power conditioner, Small to medium size inverters, CVCF

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

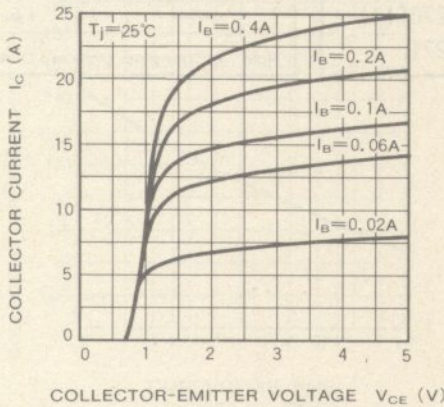
Symbol	Parameter	Conditions	Ratings	Unit
$V_{CEX(SUS)}$	Collector-emitter voltage	$I_C=1A, V_{EB}=2V$	600	V
$V_{CEX}$	Collector-emitter voltage	$V_{EB}=2V$	600	V
$V_{CBO}$	Collector-base voltage	Emitter open	600	V
$V_{EBO}$	Emitter-base voltage	Collector open	5	V
$I_C$	Collector current	DC	15	A
$-I_C$	Reverse collector current (forward diode current)	DC	15	A
$P_C$	Collector dissipation	$T_C=25^\circ C$	100	W
$I_B$	Base current	DC	0.9	A
$-I_{CSM}$	Reverse surge current (forward diode current)	Peak value of one cycle of 60Hz (half wave)	150	A
$T_J$	Junction temperature		-40~+150	$^\circ C$
$T_{stg}$	Storage temperature		-40~+125	$^\circ C$
$V_{isol}$	Isolation voltage	AC for 1 minute	2500	V
-	Mounting torque	M5 mounting screw	15~20	kg·cm
-	Weight	Typical value	190	g

**ELECTRICAL CHARACTERISTICS (T<sub>J</sub>=25°C)**

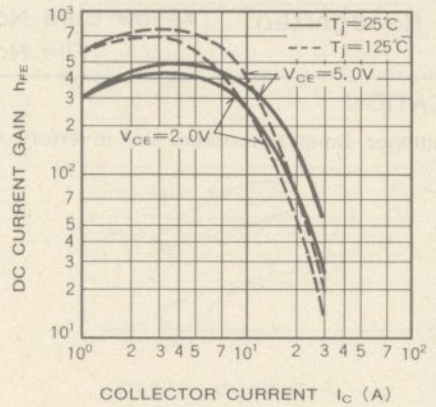
Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
I <sub>CEX</sub>	Collector cutoff current	V <sub>CE</sub> =V <sub>CEX</sub> , V <sub>EB</sub> =2V	—	—	1	mA
I <sub>EBO</sub>	Emitter cutoff current	V <sub>EB</sub> =7V	—	—	80	mA
V <sub>CE(sat)</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =15A, I <sub>B</sub> =0.3A	—	—	2.0	V
V <sub>BE(sat)</sub>	Base-emitter saturation voltage	I <sub>C</sub> =15A, I <sub>B</sub> =0.3A	—	—	2.5	V
-V <sub>CEO</sub>	Collector-emitter reverse voltage	-I <sub>C</sub> =15A (diode forward voltage drop)	—	—	1.5	V
h <sub>FE</sub>	DC current gain	I <sub>C</sub> =15A, V <sub>CE</sub> =2V/5V	50/100	—	—	—
t <sub>on</sub>	Switching time	V <sub>CC</sub> =300V	—	—	1.5	μs
t <sub>s</sub>		I <sub>C</sub> =15A	—	—	8.0	μs
t <sub>f</sub>		I <sub>B1</sub> =-I <sub>B2</sub> =0.3A	—	—	3.0	μs
R <sub>th(j-c)Q</sub>	Thermal resistance	Transistor part, junction to case, per 1/6 module	—	—	1.2	°C/W
R <sub>th(j-c)R</sub>		Diode part, junction to case, per 1/6 module	—	—	2.5	°C/W
R <sub>th(c-f)</sub>	Contact thermal resistance (case to fin)	Conductive grease applied, per 1/6 module	—	—	0.4	°C/W

**PERFORMANCE CURVES**

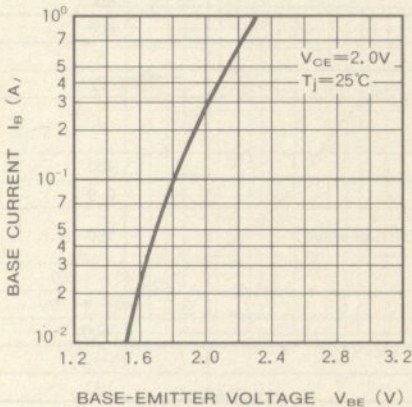
**COMMON EMITTER OUTPUT CHARACTERISTICS (TYPICAL)**



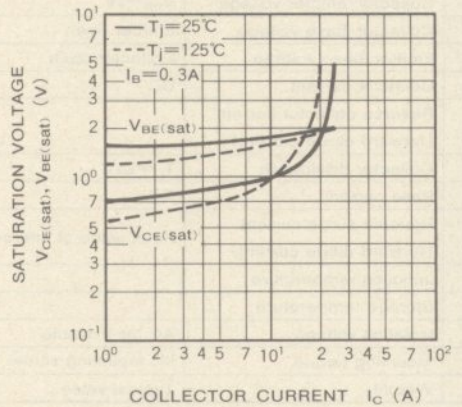
**DC CURRENT GAIN VS. COLLECTOR CURRENT (TYPICAL)**



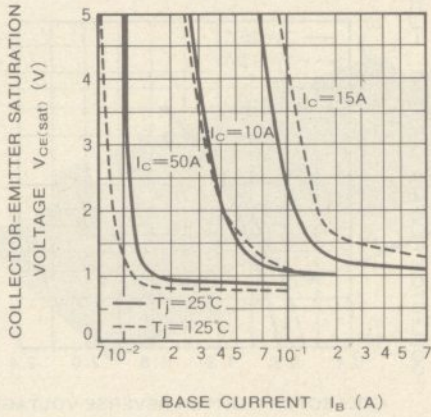
**COMMON EMITTER INPUT CHARACTERISTICS (TYPICAL)**



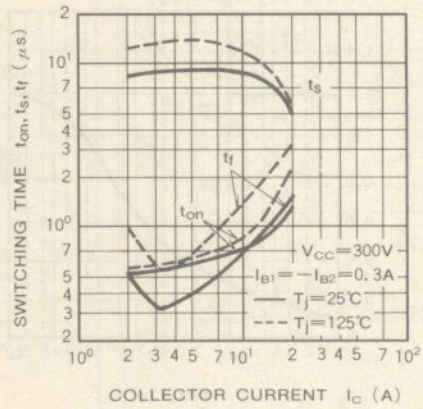
**SATURATION VOLTAGE CHARACTERISTICS (TYPICAL)**



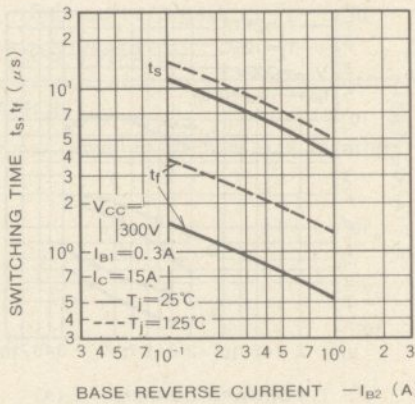
COLLECTOR-EMITTER SATURATION VOLTAGE (TYPICAL)



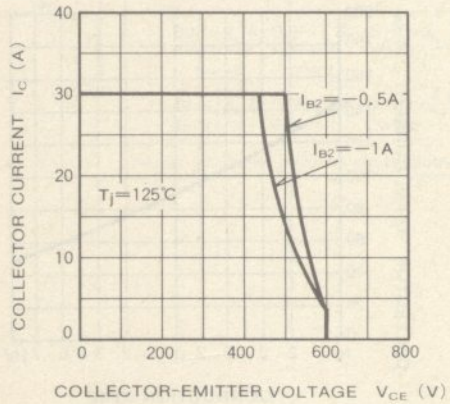
SWITCHING TIME VS. COLLECTOR CURRENT (TYPICAL)



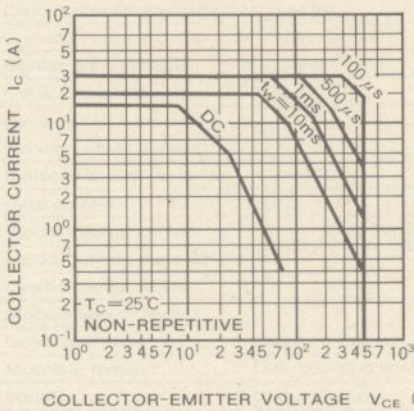
SWITCHING TIME VS. BASE CURRENT (TYPICAL)



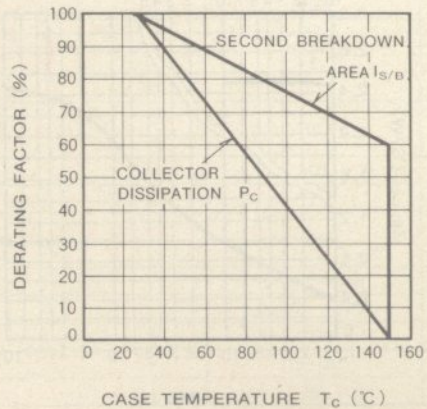
REVERSE BIAS SAFE OPERATING AREA



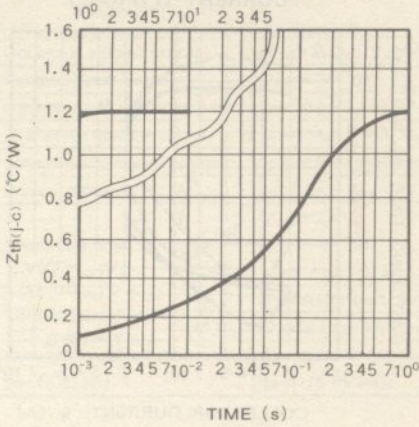
FORWARD BIAS SAFE OPERATING AREA



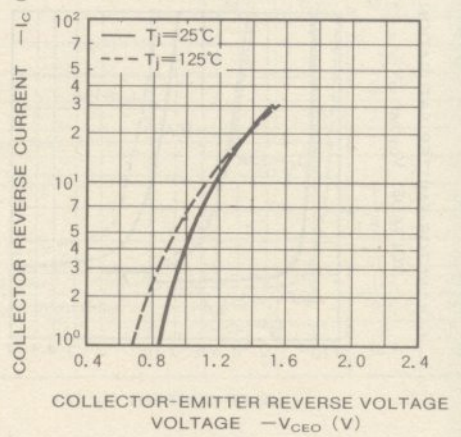
DERATING FACTOR OF F.B.S.O.A.



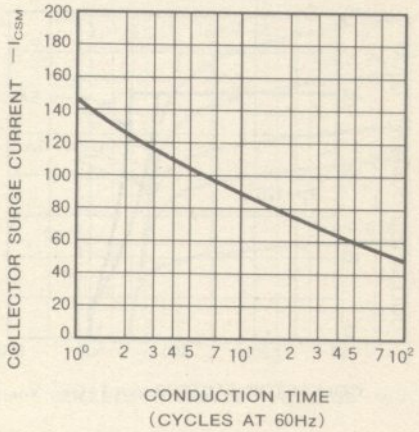
TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (TRANSISTOR)



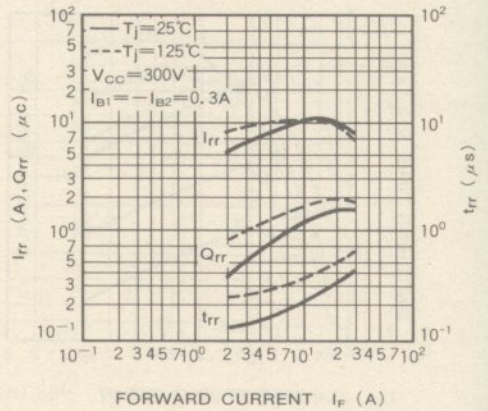
REVERSE COLLECTOR CURRENT VS. COLLECTOR-EMITTER REVERSE VOLTAGE (DIODE FORWARD CHARACTERISTICS) (TYPICAL)



RATED COLLECTOR SURGE CURRENT (DIODE FORWARD SURGE CURRENT)



REVERSE RECOVERY CHARACTERISTICS OF FREE-WHEEL DIODE (TYPICAL)



TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (DIODE)

