

TRANSISTOR MODULE

QCA100A/QBB100A40/60

TOP



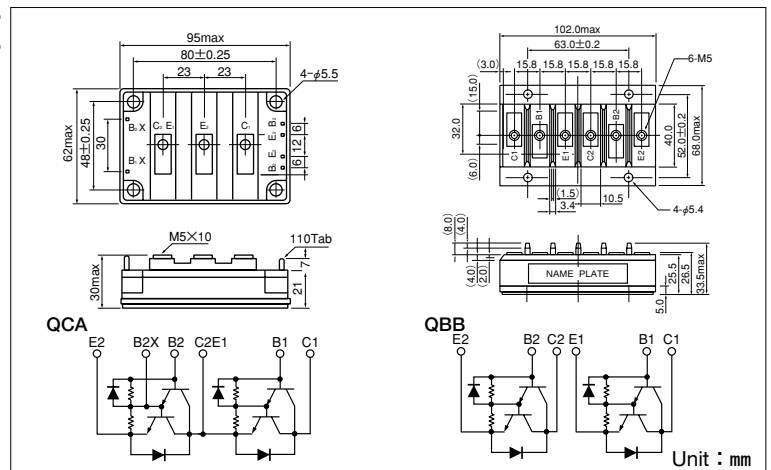
UL;E76102 (M)

QCA100A and QBB100A is a dual Darlington power transistor modules with two high speed, high power Darlington transistors. Each transistor has a reverse paralleled fast recovery diode.

- QCA100A...Series-connected type
- QBB100A...Separate Type
- $I_C=100A$, $V_{CEX}=400/600V$
- Low saturation voltage for higher efficiency.
- Isolated mounting base
- V_{EBO} 10V for faster switching speed.

(Applications)

Motor Control (VVVF), AC/DC Servo, UPS,
Switching Power Supply, Ultrasonic Application



Maximum Ratings

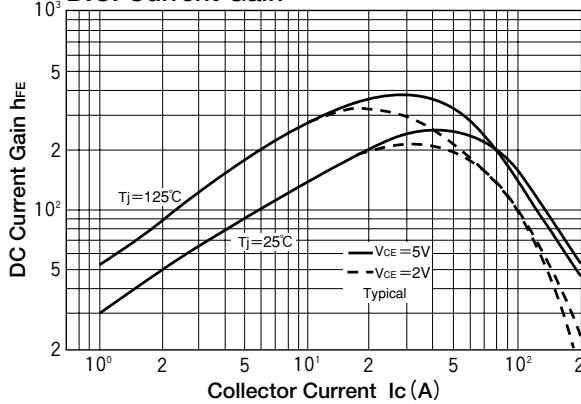
($T_j=25^\circ C$ unless otherwise specified)

Symbol	Item		Conditions	Ratings		Unit
				QCA100A40 QBB100A40	QCA100A60 QBB100A60	
V _{CBO}	Collector-Base Voltage			400	600	V
V _{CEX}	Collector-Emitter Voltage		V _{BE} =−2V	400	600	V
V _{EBO}	Emitter-Base Voltage			10		V
I _C	Collector Current		() pw≤1ms	100 (200)		A
−I _C	Reverse Collector Current			100		A
I _B	Base Current			6		A
P _T	Total power dissipation		T _C =25℃	620		W
T _J	Junction Temperature			−40 to +150		℃
T _{stg}	Storage Temperature			−40 to +125		℃
V _{iso}	Isolation Voltage		A.C.1minute	2500		V
	Mounting Torque	Mounting (M5)	Recommended Value 1.5-2.5 (15-25)	2.7 (28)		N·m (kgf·cm)
		Terminal (M5)	Recommended Value 1.5-2.5 (15-25)	2.7 (28)		
	Mass	QCA100A/QBB100A	Typical Value	360/340		g

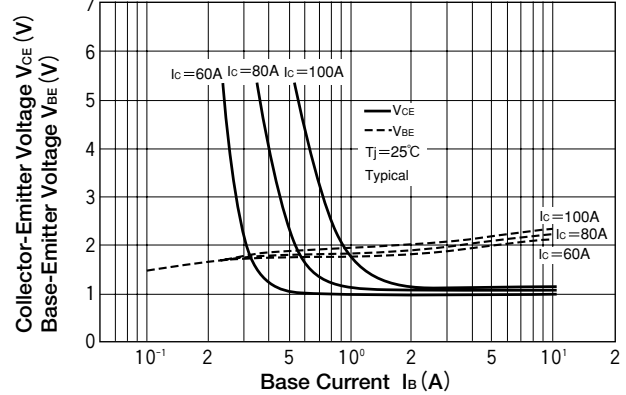
Electrical Characteristics

Symbol	Item	Conditions	Ratings		Unit
			Min.	Max.	
I_{CBO}	Collector Cut-off Current	$V_{CB}=V_{CBO}$		1.0	mA
I_{EBO}	Emitter Cut-off Current	$V_{EB}=V_{EBO}$		400	mA
$V_{CEO(SUS)}$	Collector Emitter Sustaining Voltage	QCA100A40 QBB100A40 $I_C=1A$	300		V
		QCA100A60 QBB100A60	450		
$V_{CEX(SUS)}$		QCA100A40 QBB100A40 $I_C=20A, I_{B2}=-5A$	400		V
		QCA100A60 QBB100A60	600		
h_{FE}	DC Current Gain	$I_C=100A, V_{CE}=2V/5V$	75/100		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=100A, I_B=1.4A$		2.0	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=100A, I_B=1.4A$		2.5	V
t_{on}	Switching Time	On Time		2.0	μs
t_s		Storage Time		12.0	
t_f		Fall Time		3.0	
V_{ECO}	Collector-Emitter Reverse Voltage	$-I_C=100A$		1.4	V
$R_{th(j-c)}$	Thermal Impedance	Transistor part/Diode part		0.2/0.6	$^\circ C/W$

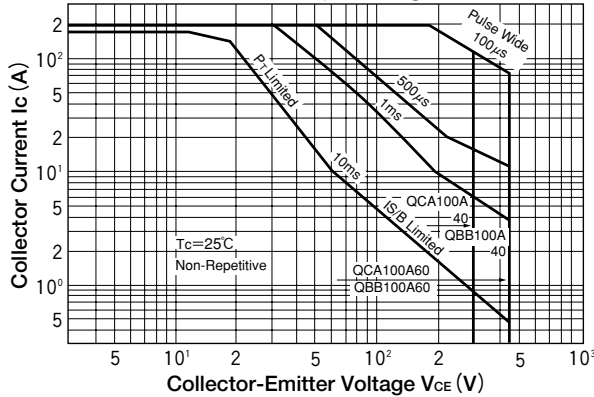
D.C. Current Gain



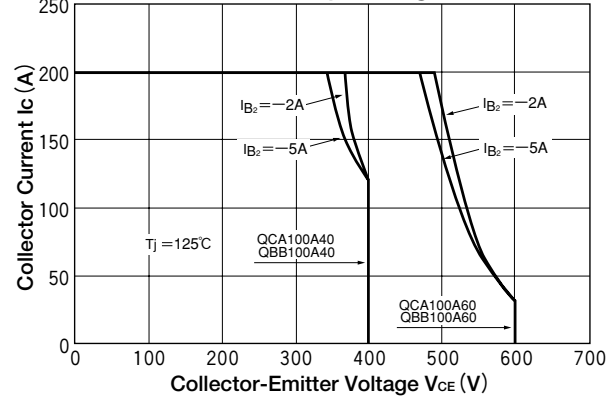
Saturation Characteristics



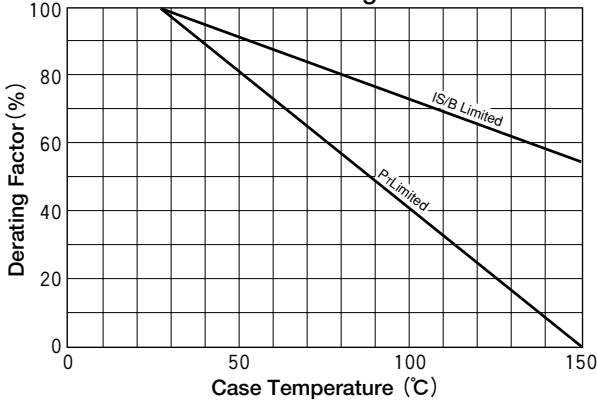
Forward Bias Safe Operating Area



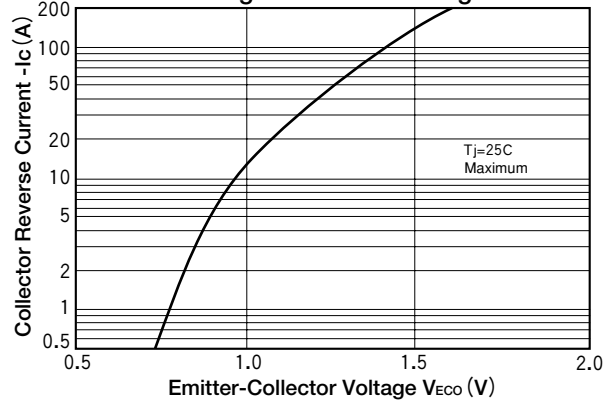
Reverse Bias Safe Operating Area



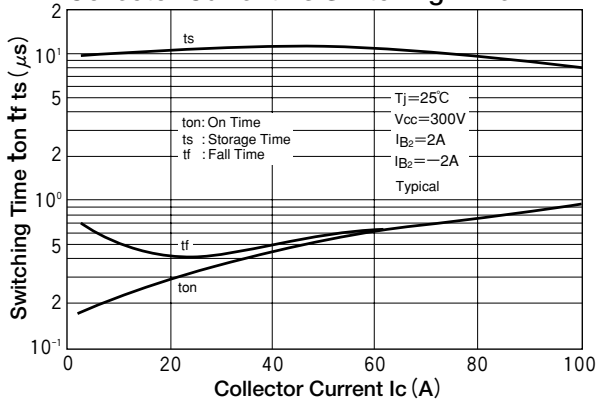
Collector Current Derating Factor



Forward Voltage of Free Wheeling Diode



Collector Current Vs Switching Time



Maximum Transient Thermal Impedance Characteristics

