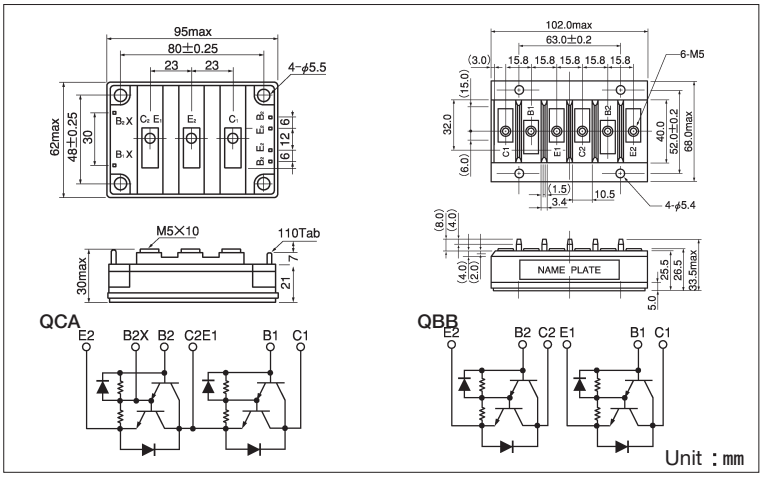
QCA100A/QBB100A40/60

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

(Tj=25℃)

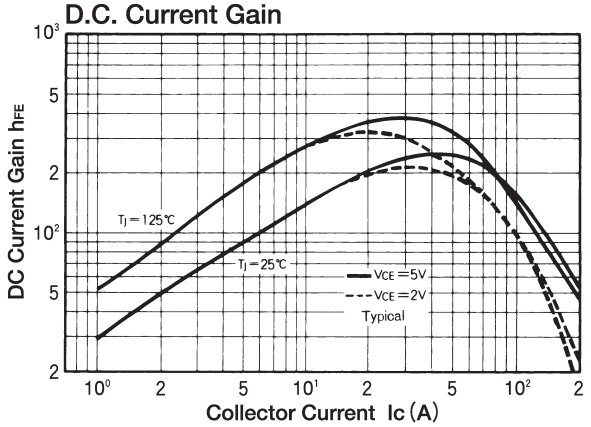
Symbol	Item		Conditions	Ratings		Unit
				QCA100A40 QBB100A40	QCA100A60 QBB100A60	
V_{CBO}	Collector-Base Voltage			400	600	V
V_{CEX}	Collector-Emitter Voltage		V_{BE}=−2V	400	600	V
V_{EBO}	Emitter-Base Voltage			10		V
I_C	Collector Current		( ) =pw≦1ms	100 (200)		A
−I_C	Reverse Collector Current			100		A
I_B	Base Current			6		A
P_T	Total power dissipation		T_C=25℃	620		W
T_j	Junction Temperature			−40～+150		℃
Tstg	Storage Temperature			−40～+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

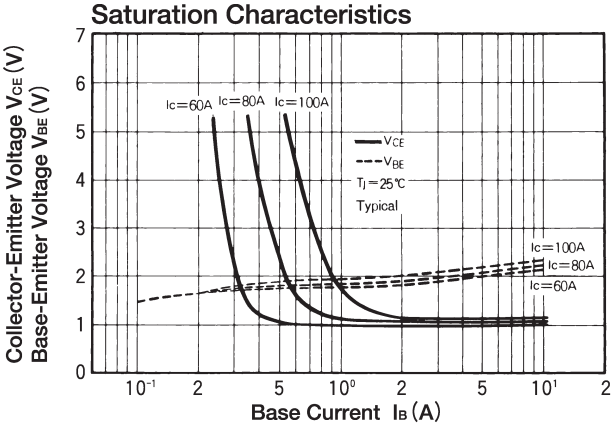
(Tj=25℃)

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 Sustaning 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
ton	Switching Time	On Time	Vcc=300V, I_C=100A I_{B1}=2A, I_{B2}=−2A		2.0	μs
ts		Storage Time			12.0	
tf		Fall Time			3.0	
V_{ECO}	Collector-Emitter Reverse Voltage		−I_C=100A		1.4	V
Rth(j-c)	Thermal Impedance		Transistor part／Diode part		0.2/0.6	℃/W

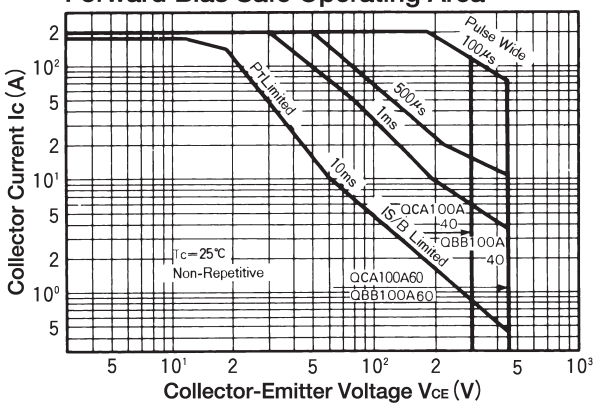
D.C. Current Gain



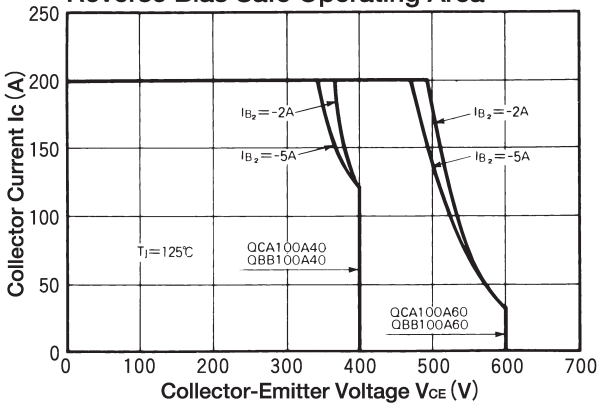
Saturation Characteristics



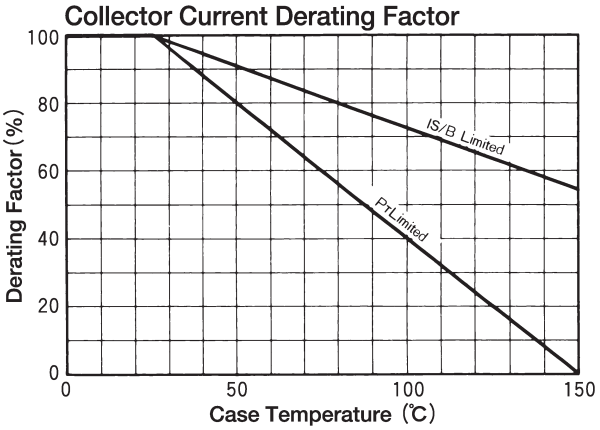
Forward Bias Safe Operating Area



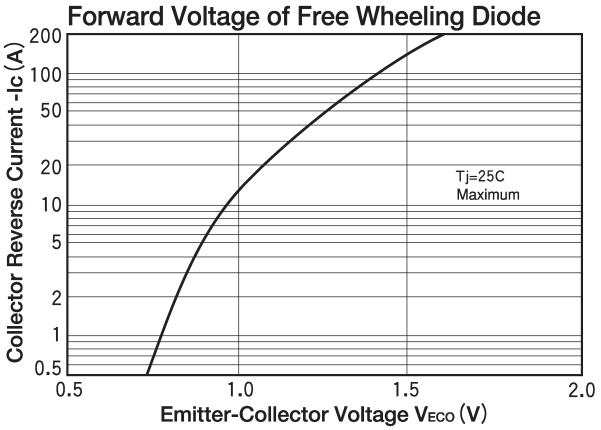
Reverse Bias Safe Operating Area



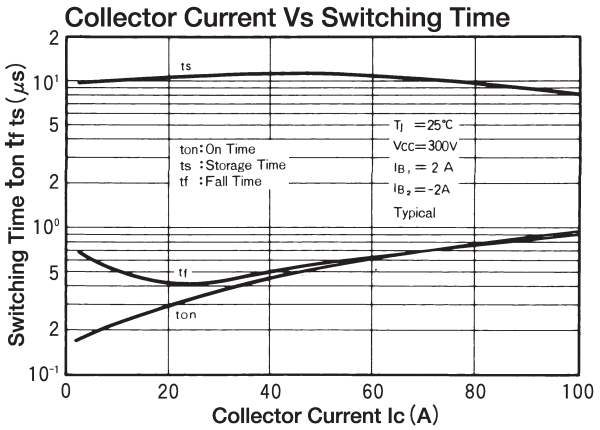
Collector Current Derating Factor



Forward Voltage of Free Wheeling Diode



Collector Current Vs Switching Time



Maximum Transient Thermal Impedance Characteristics