TRANSISTOR MODULE

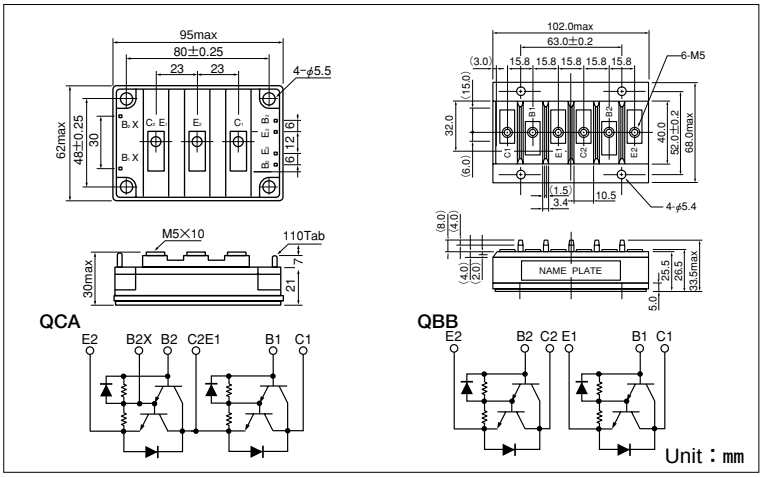
QCA100A/QBB100A40/60

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
- Ic=100A, VCEX=400/600V
- Low saturation voltage for higher efficiency.
- Isolated mounting base
- VEBO 10V for faster switching speed.

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



■Maximum Ratings

(Tj=25℃ unless otherwise specified)

Symbol	Item		Conditions	Ratings		Unit
				QCA100A40 QBB100A40	QCA100A60 QBB100A60	
VCBO	Collector-Base Voltage			400	600	V
VCEX	Collector-Emitter Voltage		VBE=−2V	400	600	V
VEBO	Emitter-Base Voltage			10		V
Ic	Collector Current		( ) pw≦1ms	100 (200)		A
−Ic	Reverse Collector Current			100		A
IB	Base Current			6		A
PT	Total power dissipation		TC=25℃	620		W
Tj	Junction Temperature			−40 to +150		℃
Tstg	Storage Temperature			−40 to +125		℃
VISO	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.	
ICBO	Collector Cut-off Current		VCB=VCBO		1.0	mA
IEBO	Emitter Cut-off Current		VEB=VEBO		400	mA
VCEO(SUS)	Collector Emitter Sustaning Voltage	QCA100A40 QBB100A40	Ic=1A	300		V
		QCA100A60 QBB100A60		450		
VCEX(SUS)		QCA100A40 QBB100A40	Ic=20A, IB2=−5A	400		V
		QCA100A60 QBB100A60		600		
hFE	DC Current Gain		Ic=100A, VCE=2V/5V	75/100		
VCE(sat)	Collector-Emitter Saturation Voltage		Ic=100A, IB=1.4A		2.0	V
VBE(sat)	Base-Emitter Saturation Voltage		Ic=100A, IB=1.4A		2.5	V
ton	Switching Time	On Time	Vcc=300V, Ic=100A IB1=2A, IB2=−2A		2.0	μs
ts		Storage Time			12.0	
tf		Fall Time			3.0	
VECO	Collector-Emitter Reverse Voltage		−Ic=100A		1.4	V
Rth(j-c)	Thermal Impedance		Transistor part/Diode part		0.2/0.6	℃/W

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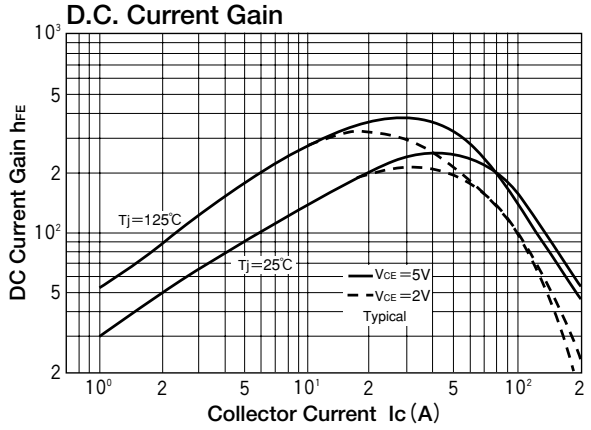
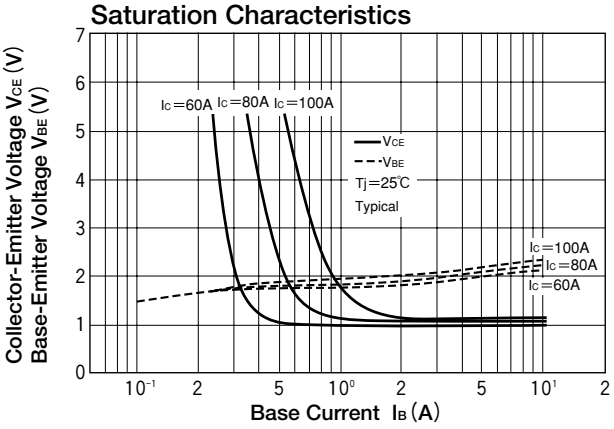
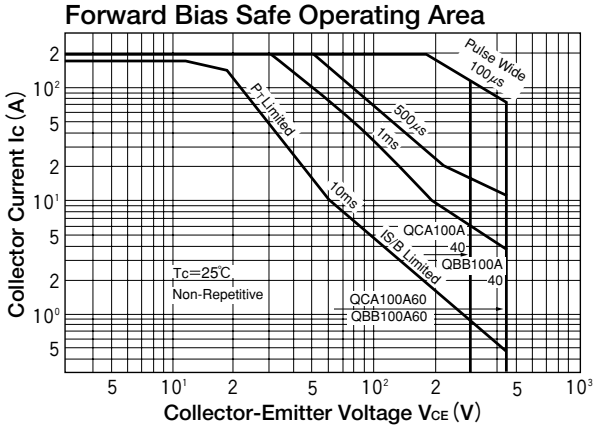
D.C. Current Gain



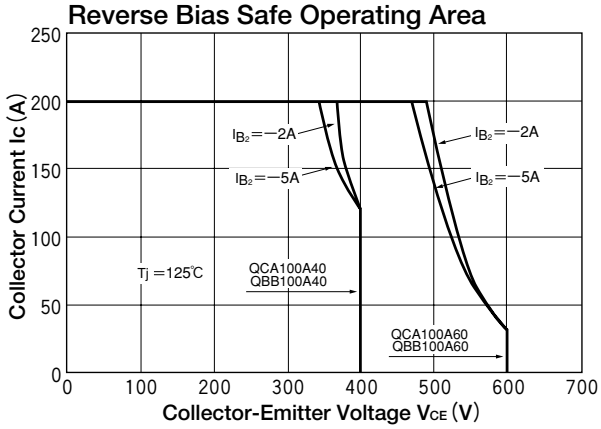
Saturation Characteristics



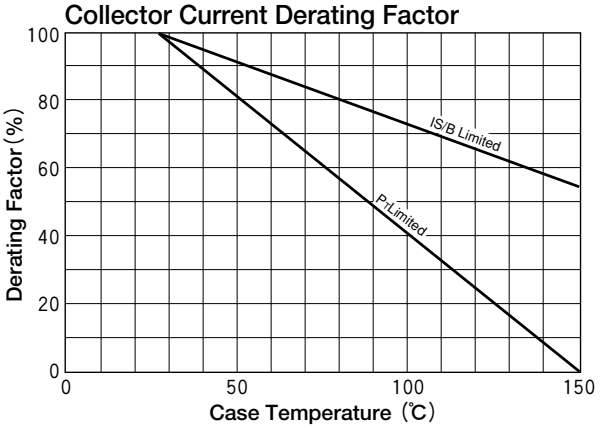
Forward Bias Safe Operating Area



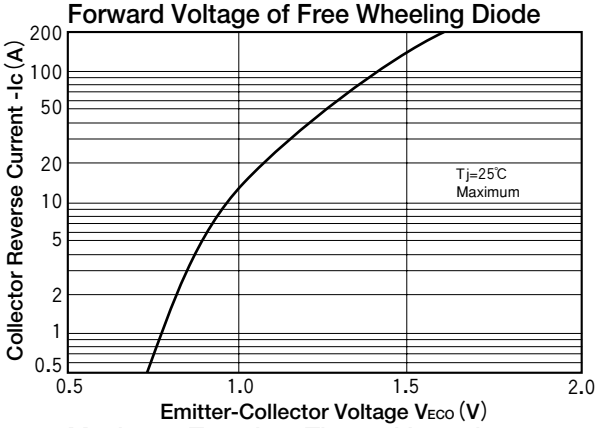
Reverse Bias Safe Operating Area



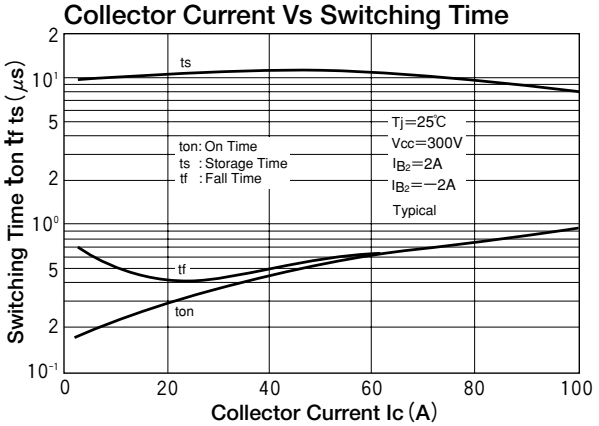
Collector Current Derating Factor



Forward Voltage of Free Wheeling Diode



Collector Current Vs Switching Time



Maximum Transient Thermal Impedance Characteristics