

TRANSISTOR MODULE

QCA150A/QBB150A40/60

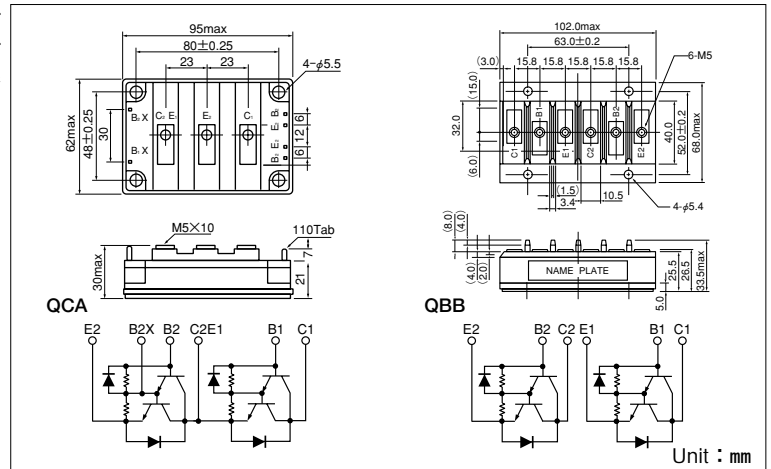
UL:E76102(M)

QCA150A and QBB150A is a dual Darlington power transistor module with two high speed, high power Darlington transistors. Each transistor has a reverse paralleled fast recovery diode.

- QCA150A...Series-connected type
- QBB150A...Separate Type
- $I_C=150A$, $V_{CEX}=400/600V$
- 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)

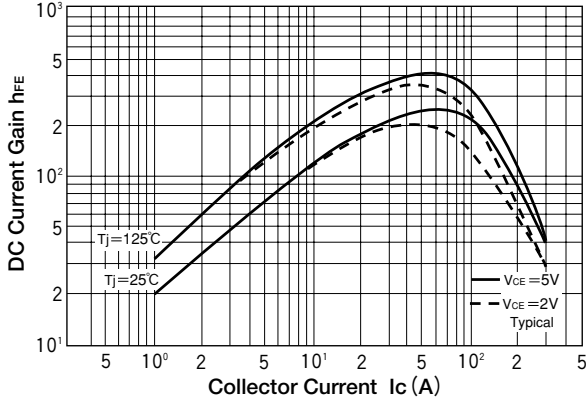
Symbol	Item	Conditions	Ratings		Unit
			QCA150A40 QBB150A40	QCA150A60 QBB150A60	
V_{CBO}	Collector-Base Voltage		400	600	V
V_{CEX}	Collector-Emmitter Voltage	$V_{BE}=-2V$	400	600	V
V_{EBO}	Emitter-Base Voltage		10		V
I_C	Collector Current	() $p_w \leq 1ms$	150 (300)		A
$-I_C$	Reverse Collector Current		150		A
I_B	Base Current		9		A
P_T	Total power dissipation	$T_C=25^\circ C$	690		W
T_j	Junction Temperature		-40 to +150		$^\circ C$
T_{stg}	Storage Temperature		-40 to +125		$^\circ C$
V_{iso}	Isolation Voltage	A.C.1minute	2500		V
	Mounting Torque	Mounting (M5)	Recommended Value 1.5-2.5 (15-25)		N·m (kgf·cm)
		Terminal (M5)	Recommended Value 1.5-2.5 (15-25)		
	Mass	QCA150A/QBB150A Typical Value	370/340		g

Electrical Characteristics

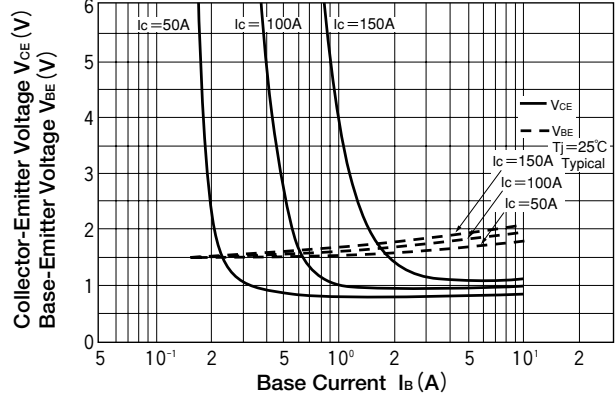
Symbol	Item	Conditions	Ratings		Unit
			Min.	Max.	
I_{CBO}	Collector Cut-off Current	$V_{CB}=V_{CBO}$		1.0	mA
I_{EBO}	Emitter Cut-off Current	$V_{EB}=V_{EBO}$		500	mA
$V_{CEO(SUS)}$	Collector Emmitter Sustaning Voltage	$I_C=1A$	QCA150A40 QBB150A40	300	V
			QCA150A60 QBB150A60	450	
$V_{CEX(SUS)}$		$I_C=30A, I_{B2}=-5A$	QCA150A40 QBB150A40	400	V
			QCA150A60 QBB150A60	600	
h_{FE}	DC Current Gain	$I_C=150A, V_{CE}=2V/5V$	75/100		
$V_{CE(sat)}$	Collector-Emmitter Saturation Voltage	$I_C=150A, I_B=2.0A$	2.0		V
$V_{BE(sat)}$	Base-Emmitter Saturation Voltage	$I_C=150A, I_B=2.0A$	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-Emmitter Reverse Voltage	$-I_C=150A$	1.4		V
$R_{th(j-c)}$	Thermal Impedance (junction to case)	Transistor part/Diode part	0.18/0.6		$^\circ C/W$

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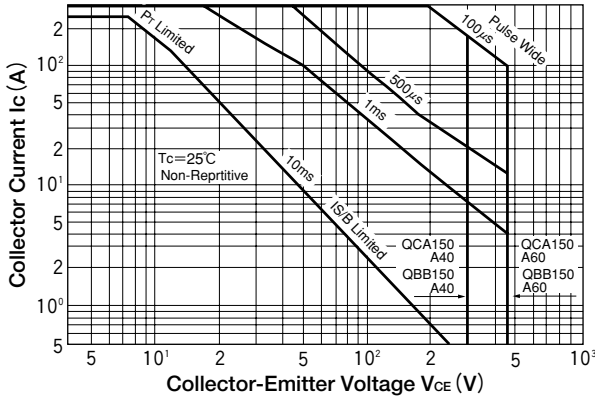
D.C. Current Gain



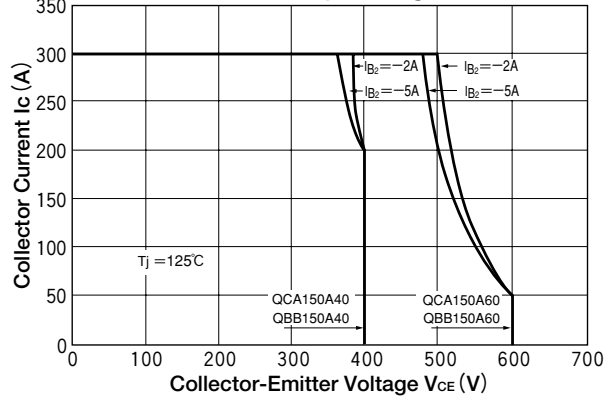
Saturation Characteristics



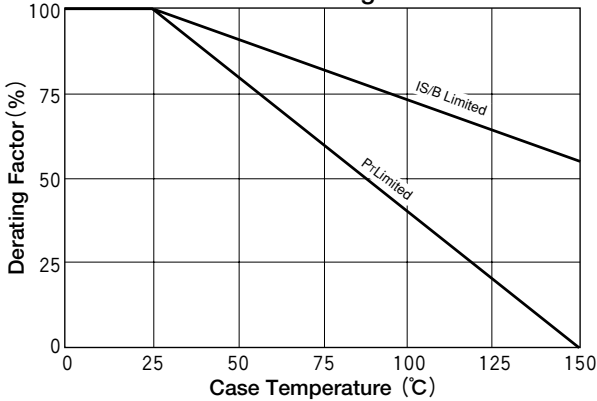
Forward Bias Safe Operating Area



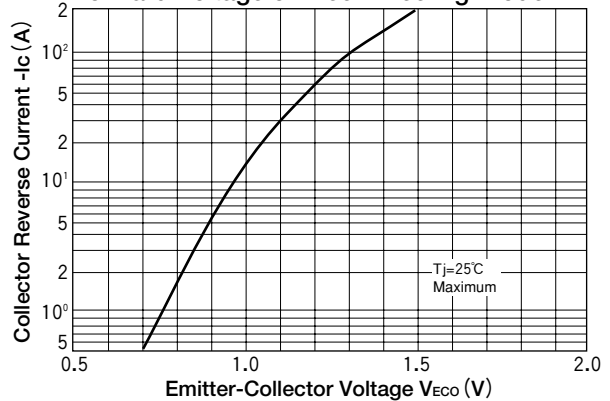
Reverse Bias Safe Operating Area



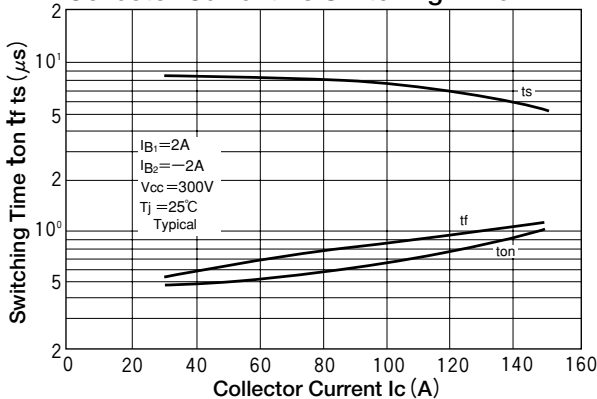
Collector Current Derating Factor



Forward Voltage of Free Wheeling Diode



Collector Current Vs Switching Time



Maximum Transient Thermal Impedance Characteristics

