

TRANSISTOR MODULE

QCA75A/QCB75A40/60

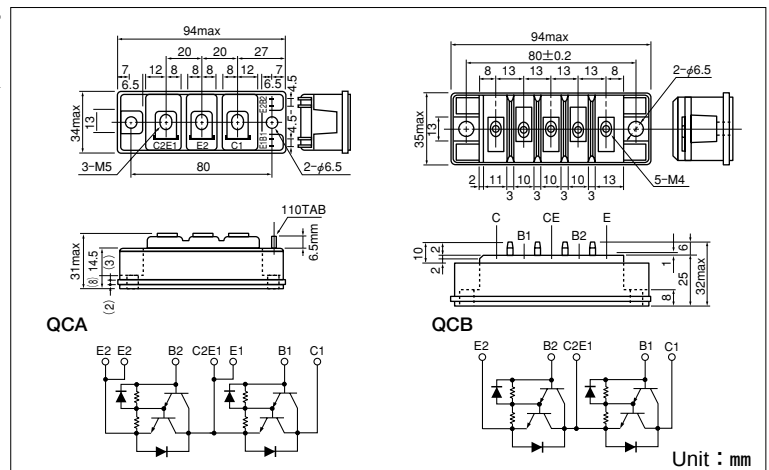
UL:E76102 (M)

QCA75A and **QCB75A** are dual Darlington power transistor modules which have series-connected high speed, high power Darlington transistors. Each transistor has a reverse paralleled fast recovery diode.

- $I_C=75A$, $V_{CEX}=400/600V$
- 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

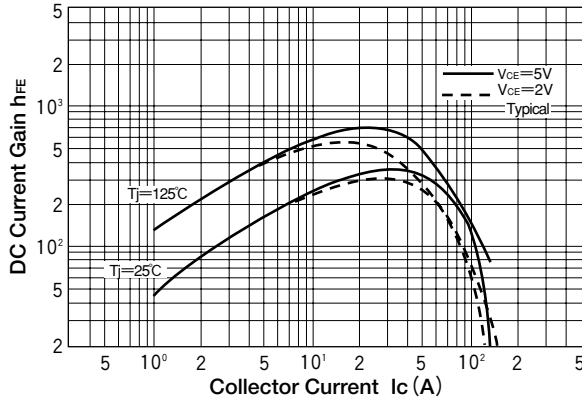
($T_j=25^\circ C$ unless otherwise specified)

Symbol	Item			Conditions	Ratings		Unit
					QCA75A40 QCB75A40	QCA75A60 QCB75A60	
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	75 (150)		A
−I _C	Reverse Collector Current				75		A
I _B	Base Current				4.5		A
P _T	Total power dissipation			T _C =25℃	350		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	QCA75A	Mounting (M6)	Recommended Value 2.5-3.9 (25-40)	4.7(48)		N·m kgf·cm
			Terminal (M5)	Recommended Value 1.5-2.5 (15-25)	2.7(28)		
		QCB75A	Mounting (M5)	Recommended Value 1.5-2.5 (15-25)	2.7(28)		
			Terminal (M4)	Recommended Value 1.0-1.4 (10-14)	1.5(15)		
	Mass	QCA75A/QCB75A		Typical Value	240/195		g

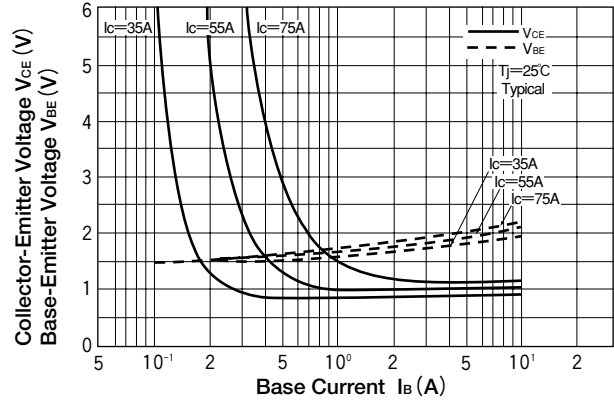
Electrical Characteristics

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		$V_{EB}=V_{EBO}$		300	mA
$V_{CEO(SUS)}$	Collector Emitter Sustaining Voltage	QCA75A40 QCB75A40	$I_C=1A$	300		V
		QCA75A60 QCB75A60		450		
$V_{CEX(SUS)}$		QCA75A40 QCB75A40	$I_C=15A$, $I_{B2}=-5A$	400		V
		QCA75A60 QCB75A60		600		
h_{FE}	DC Current Gain		$I_C=75A$, $V_{CE}=2V/5V$	75/100		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage		$I_C=75A$, $I_B=1A$		2.0	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage		$I_C=75A$, $I_B=1A$		2.5	V
t_{on}	Switching Time	On Time	$V_{CC}=300V$, $I_C=75A$ $I_{B1}=1A$, $I_{B2}=-1A$		2.0	μs
t_s		Storage Time			12.0	
t_f		Fall Time			3.0	
V_{ECO}	Collector-Emitter Reverse Voltage		$-I_C=75A$		1.4	V
$R_{th(j-c)}$	Thermal Impedance (junction to case)		Transistor part/Diode part		0.35/1.3	$^\circ C/W$

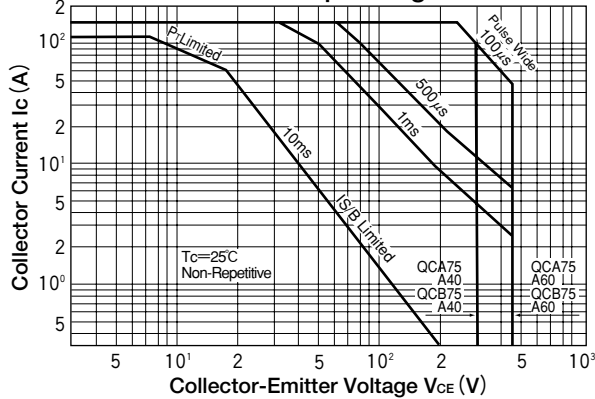
D.C. Current Gain



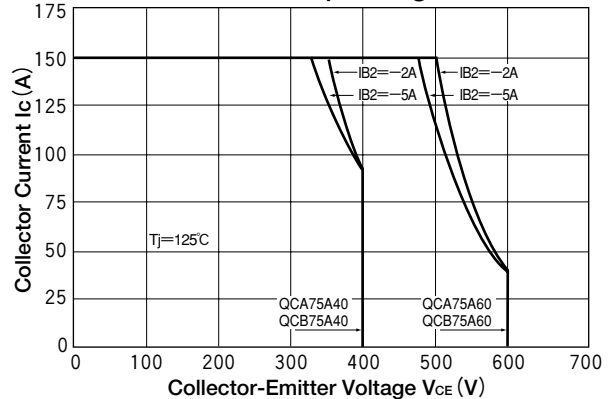
Saturation Characteristics



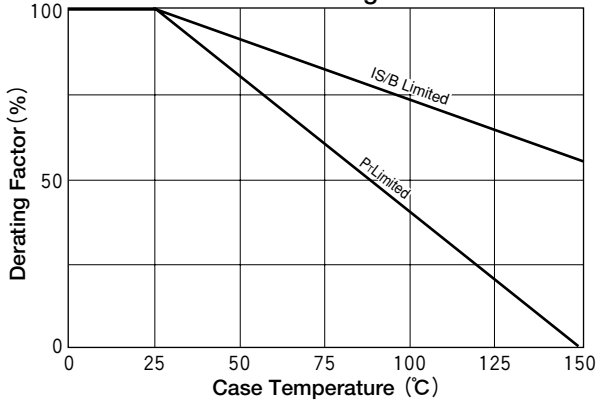
Forward Bias Safe Operating Area



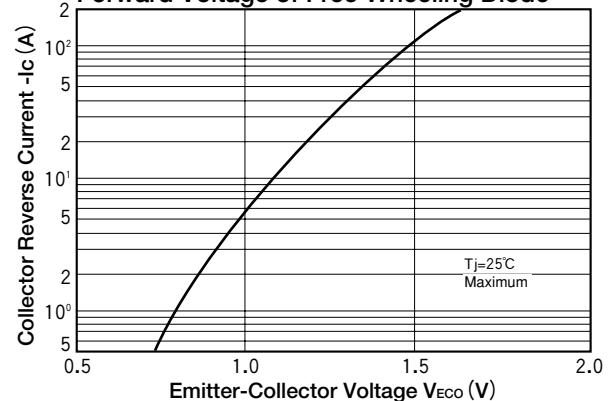
Reverse Bias Safe Operating Area



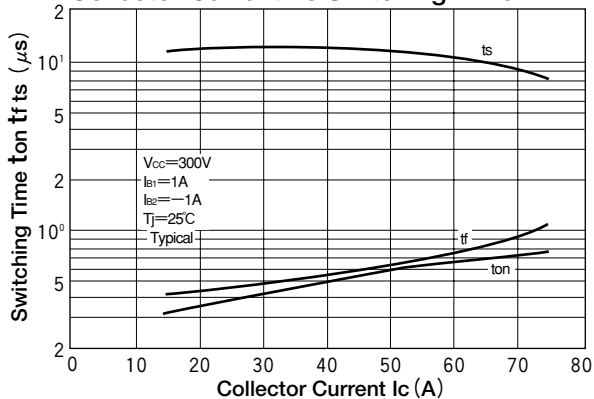
Collector Current Derating Factor



Forward Voltage of Free Wheeling Diode



Collector Current Vs Switching Time



Maximum Transient Thermal Impedance Characteristics

