

TRANSISTOR MODULE

QCA75A/QCB75A40/60

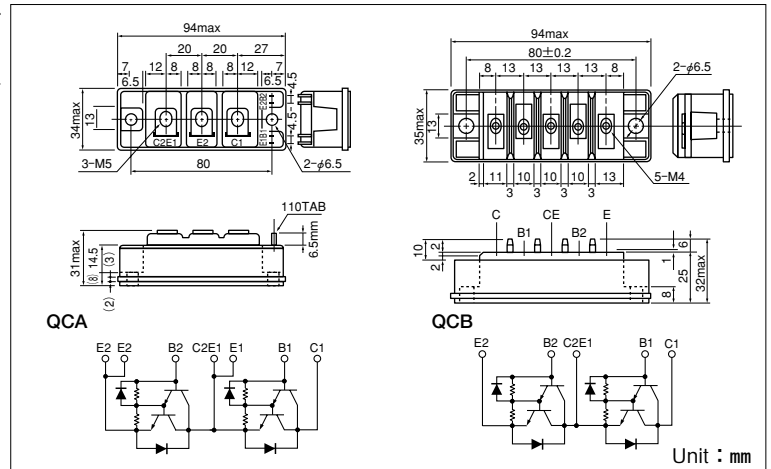
UL:E76102(M)

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

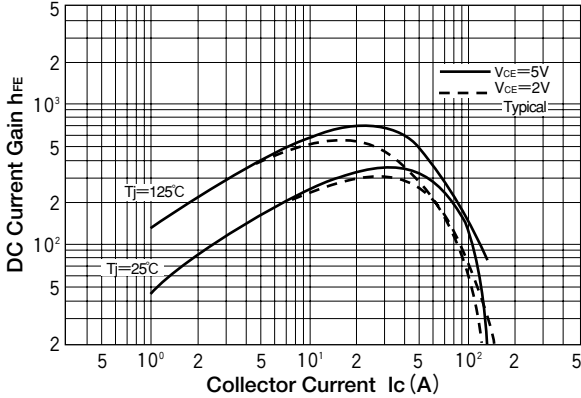
($T_j=25^\circ C$ unless otherwise specified)

Symbol	Item	Conditions	Ratings		Unit
			QCA75A40 QCB75A40	QCA75A60 QCB75A60	
V_{CBO}	Collector-Base Voltage		400	600	V
V_{CEX}	Collector-Emmitter Voltage	$V_{BE}=-2V$	400	600	V
V_{EBO}	Emitter-Base Voltage		10		V
I_C	Collector Current	() $p_w \leq 1ms$	75 (150)		A
$-I_C$	Reverse Collector Current		75		A
I_B	Base Current		4.5		A
P_T	Total power dissipation	$T_C=25^\circ C$	350		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	QCA75A	Mounting (M6)	Recommended Value 2.5-3.9 (25-40)	N·m kgf·cm
			Terminal (M5)	Recommended Value 1.5-2.5 (15-25)	
		QCB75A	Mounting (M5)	Recommended Value 1.5-2.5 (15-25)	
			Terminal (M4)	Recommended Value 1.0-1.4 (10-14)	
Mass	QCA75A/QCB75A	Typical Value	240/195		g

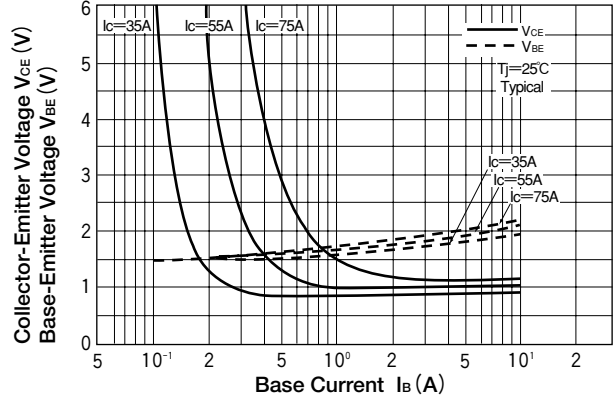
Electrical Characteristics

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 Emmitter Sustaning Voltage	$I_C=1A$	QCA75A40 QCB75A40	300	V	
$V_{CEX(SUS)}$			QCA75A60 QCB75A60	450		
		$I_C=15A, I_{B2}=-5A$	QCA75A40 QCB75A40	400	V	
			QCA75A60 QCB75A60	600		
h_{FE}	DC Current Gain	$I_C=75A, V_{CE}=2V/5V$	75/100			
$V_{CE(sat)}$	Collector-Emmitter Saturation Voltage	$I_C=75A, I_B=1A$		2.0	V	
$V_{BE(sat)}$	Base-Emmitter Saturation Voltage	$I_C=75A, I_B=1A$		2.5	V	
t_{on}	Switching 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-Emmitter 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	$^\circ C/W$	

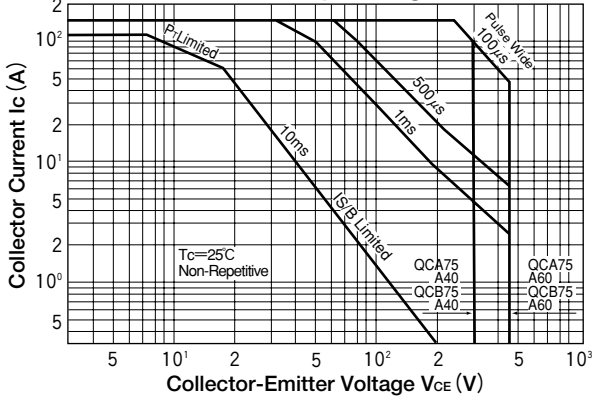
D.C. Current Gain



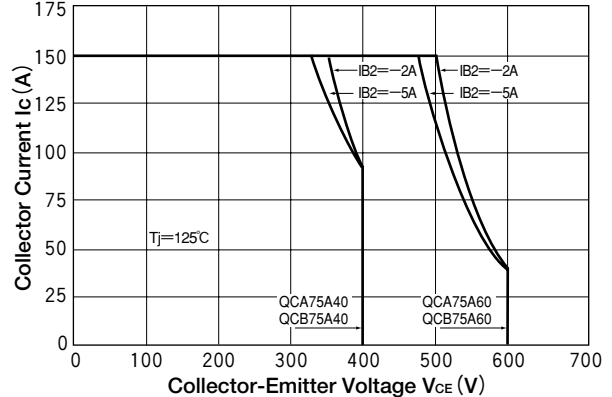
Saturation Characteristics



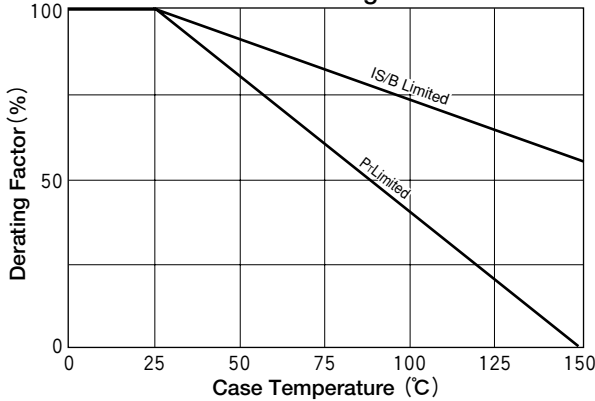
Forward Bias Safe Operating Area



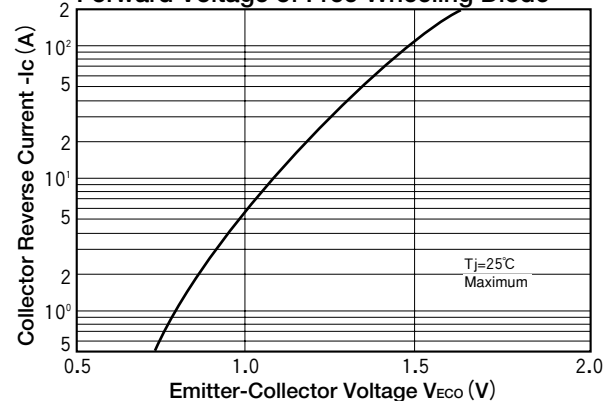
Reverse Bias Safe Operating Area



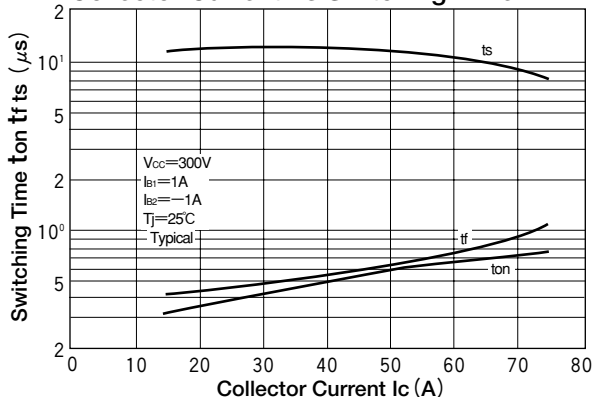
Collector Current Derating Factor



Forward Voltage of Free Wheeling Diode



Collector Current Vs Switching Time



Maximum Transient Thermal Impedance Characteristics

