

TRANSISTOR MODULE

QCA200A40/60

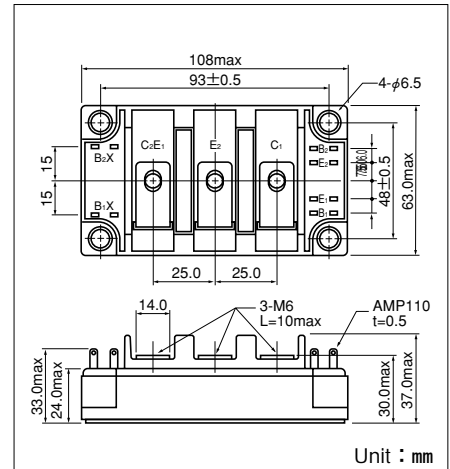
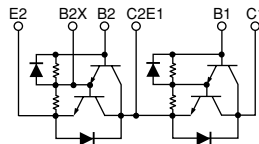
UL:E76102(M)

QCA200 is a dual Darlington power transistor module which has series-connected high speed, high power Darlington transistors. Each transistor has a reverse paralleled fast recovery diode. The mounting base of the module is electrically isolated from semiconductor elements for simple heatsink construction,

- $I_C=200A$, $V_{CEX}=400/600V$
- Low saturation voltage for higher efficiency.
- High DC current gain h_{FE}
- Isolated mounting base
- V_{EBO} 10V for faster switching speed.

(Applications)

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



Unit : mm

Maximum Ratings

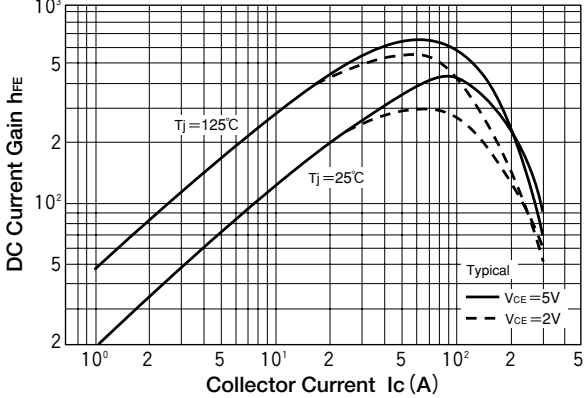
($T_j=25^\circ C$ unless otherwise specified)

Symbol	Item	Conditions	Ratings		Unit
			QCA200A40	QCA200A60	
V_{CB0}	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	() $p_w \leq 1ms$	200 (400)		A
$-I_C$	Reverse Collector Current		200		A
I_B	Base Current		12		A
P_T	Total power dissipation	$T_C=25^\circ C$	1250		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 (M6)	Recommended Value 2.5-3.9 (25-40)		N·m (kgf·cm)
		Terminal (M6)	Recommended Value 2.5-3.9 (25-40)		
	Mass	Typical Value	470		g

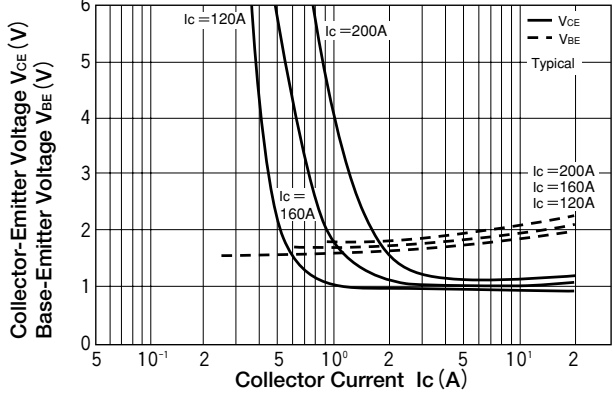
Electrical Characteristics

Symbol	Item	Conditions	Ratings		Unit
			Min.	Max.	
I_{CBO}	Collector Cut-off Current	$V_{CB}=V_{CB0}$		2.0	mA
I_{EBO}	Emitter Cut-off Current	$V_{EB}=V_{EBO}$		800	mA
$V_{CE0(SUS)}$	Collector Emitter Sustaining Voltage	$I_C=1A$	QCA200A40	300	V
			QCA200A60	450	
$V_{CEX(SUS)}$		QCA200A40	$I_C=40A, I_{B2}=-8A$	400	V
				QCA200A60	
h_{FE}	DC Current Gain	$I_C=200A, V_{CE}=2V$	75		
		$I_C=200A, V_{CE}=5V$	100		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=200A, I_B=2.7A$		2.0	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=200A, I_B=2.7A$		2.5	V
t_{on}	Switching Time	$V_{CC}=300V, I_C=200A$ $I_{B1}=4A, I_{B2}=-4A$		2.0	μs
t_s			Storage Time	12.0	
t_f			Fall Time	3.0	
V_{ECO}	Collector-Emitter Reverse Voltage	$-I_C=200A$		1.4	V
$R_{th(j-c)}$	Thermal Impedance (junction to case)	Transistor part		0.1	$^\circ C/W$
		Diode part		0.3	

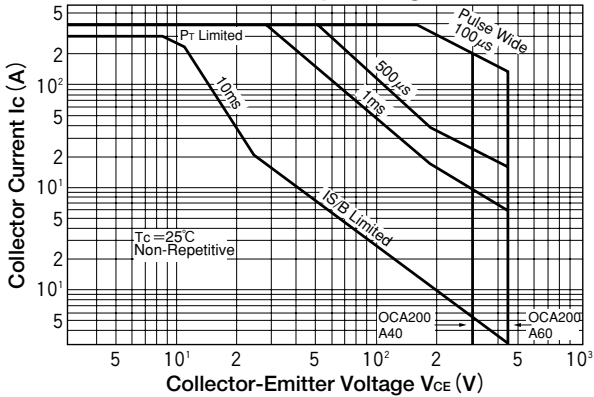
D.C. Current Gain



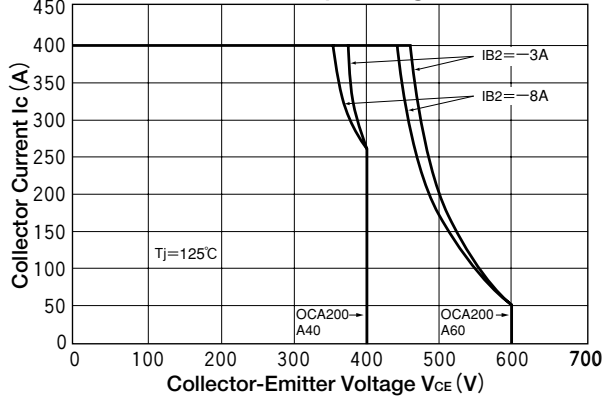
Saturation Characteristics



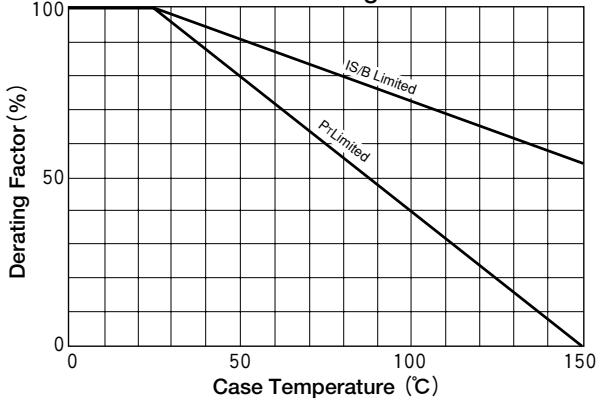
Forward Bias Safe Operating Area



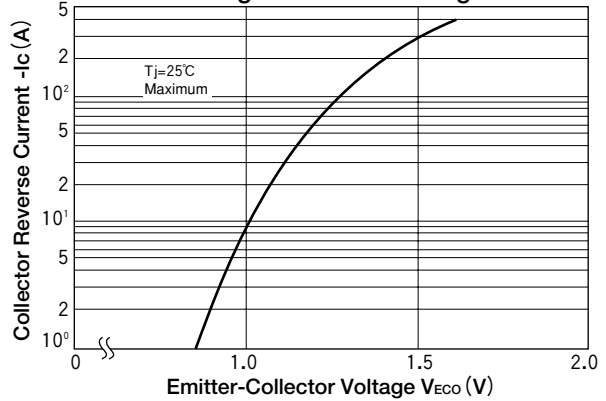
Reverse Bias Safe Operating Area



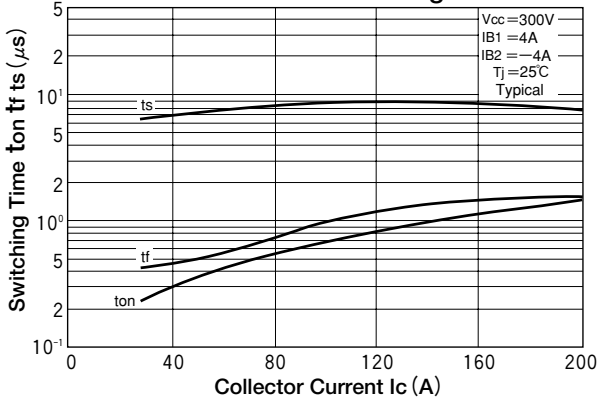
Collector Current Derating Factor



Forward Voltage of Free Wheeling Diode



Collector Current Vs Switching Time



Maximum Transient Thermal Impedance Characteristics

