

# TRANSISTOR MODULE

## QCA200A40/60

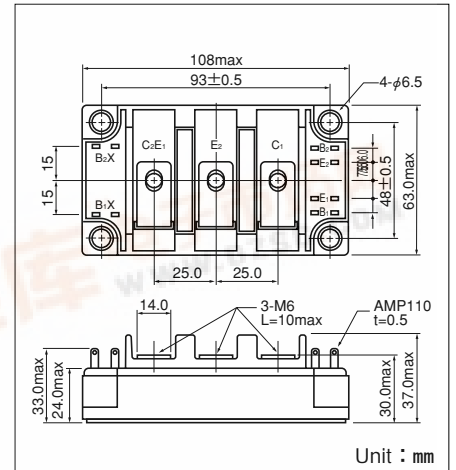
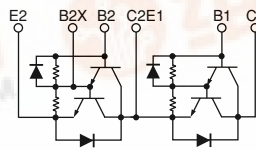
UL;E76102 (M)

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	
$V_{CBO}$	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	( ) $p_w \leq 1ms$	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

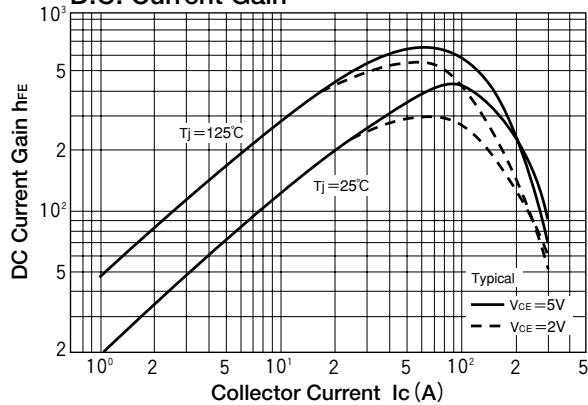
**Electrical Characteristics**

Symbol	Item	Conditions	Ratings		Unit
			Min.	Max.	
$I_{CBO}$	Collector Cut-off Current	$V_{CB}=V_{CBO}$		2.0	mA
$I_{EBO}$	Emitter Cut-off Current	$V_{EB}=V_{EBO}$		800	mA
$V_{CEO(SUS)}$	Collector Emitter Sustaining Voltage	QCA200A40	300		V
		QCA200A60			
$V_{CEX(SUS)}$	Collector Emitter Sustaining Voltage	QCA200A40	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	On Time	2.0		$\mu s$
$t_s$		Storage Time	12.0		
$t_f$		Fall Time	3.0		
$V_{ECO}$	Collector-Emitter Reverse Voltage	$-I_C=200A$	1.4		V
$\theta_{th(j-c)}$	Thermal Impedance (junction to case)	Transistor part	0.1		$^{\circ}C/W$
		Diode part	0.3		

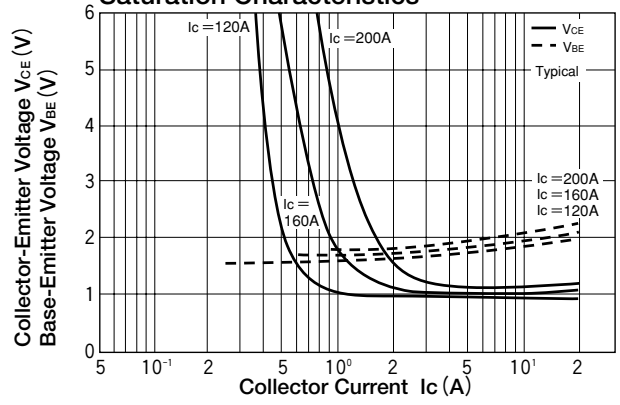


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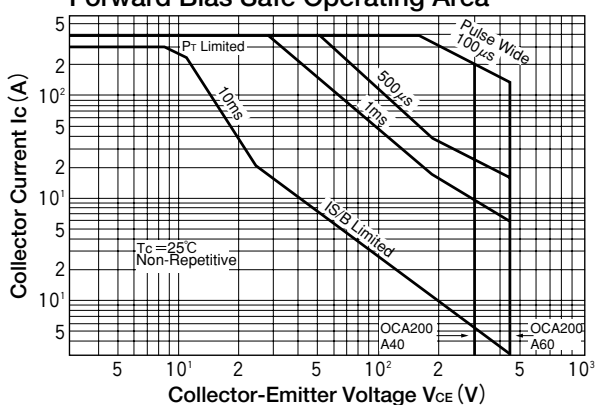
**D.C. Current Gain**



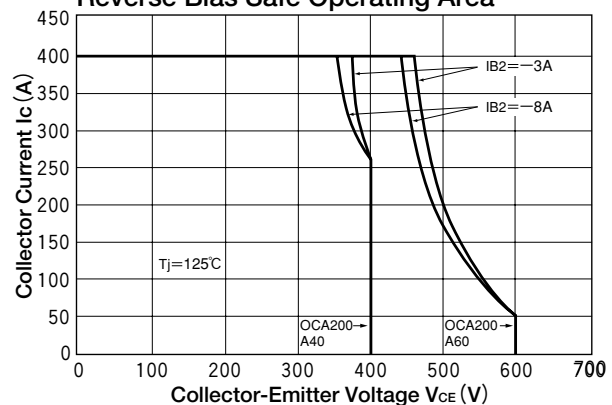
**Saturation Characteristics**



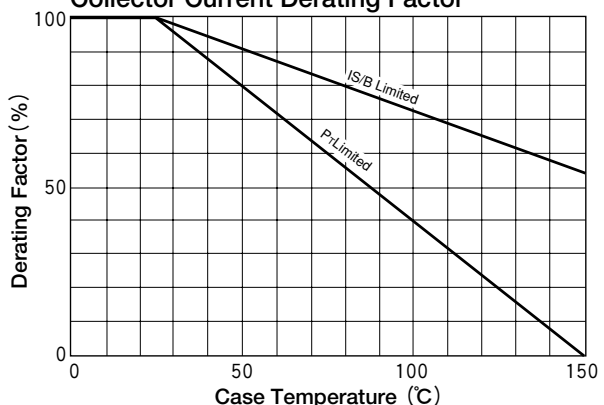
**Forward Bias Safe Operating Area**



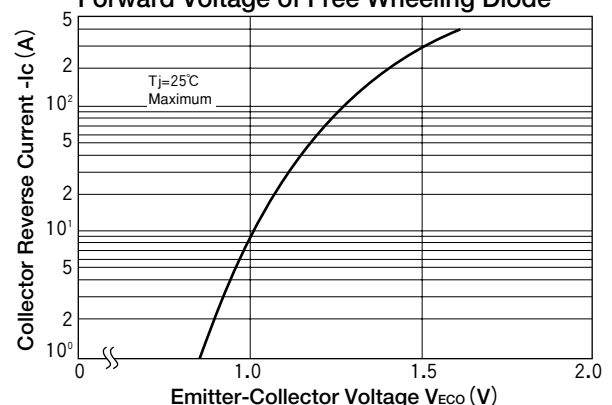
**Reverse Bias Safe Operating Area**



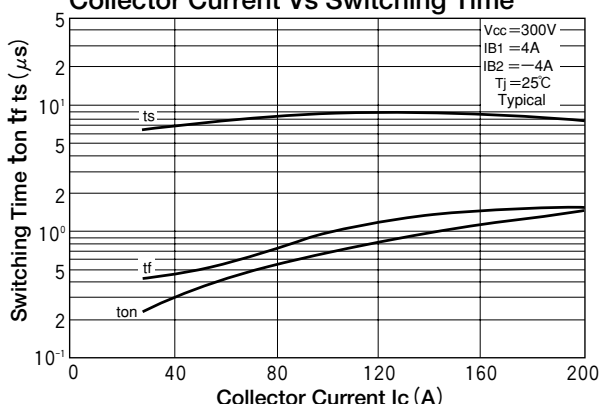
**Collector Current Derating Factor**



**Forward Voltage of Free Wheeling Diode**



**Collector Current Vs Switching Time**



**Maximum Transient Thermal Impedance Characteristics**

