

# TRANSISTOR MODULE (Hi-β)

## QCA100BA60



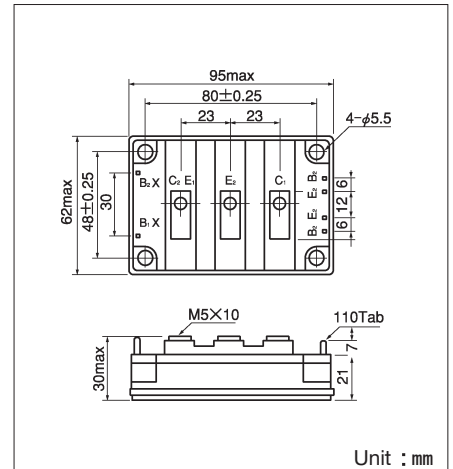
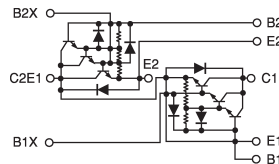
UL;E76102 (M)

QCA100BA60 is a dual Darlington power transistor module which has series-connected **ULTRA HIGH**  $h_{FE}$ , high speed, high power Darlington transistors. Each transistor has a reverse paralleled fast recovery diode ( $t_{rr}$  : 200ns). The mounting base of the module is electrically isolated from Semiconductor elements for simple heatsink construction,

- $I_C=100A$ ,  $V_{CEX}=600V$
- Low saturation voltage for higher efficiency.
- **ULTRA HIGH** DC current gain  $h_{FE}$ .  $h_{FE} \geq 750$
- 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

( $T_j=25^\circ C$ )

Symbol	Item	Conditions	Ratings		
			QCA100BA60	Unit	
$V_{CBO}$	Collector-Base Voltage		600	V	
$V_{CEX}$	Collector-Emitter Voltage	$V_{BE} = -2V$	600	V	
$V_{EBO}$	Emitter-Base Voltage		10	V	
$I_C$	Collector Current	( ) = $pw \leq 1ms$	100 (200)	A	
$-I_C$	Reverse Collector Current		100	A	
$I_B$	Base Current		6	A	
$P_T$	Total power dissipation	$T_C = 25^\circ C$	620	W	
$T_j$	Junction Temperature		-40 ~ +150	$^\circ C$	
$T_{stg}$	Storage Temperature		-40 ~ +125	$^\circ C$	
$V_{ISO}$	Isolation Voltage	A.C.1minute	2500	V	
	Mounting Torque	Mounting (M5)	Recommended Value 1.5~2.5 (15~25)	2.7 (28)	N·m (kgf·cm)
		Terminal (M5)	Recommended Value 1.5~2.5 (15~25)	2.7 (28)	
	Mass	Typical Value	360	g	

### Electrical Characteristics

( $T_j=25^\circ C$ )

Symbol	Item	Conditions	Ratings			Unit
			最小	標準	最大	
$I_{CBO}$	Collector Cut-off Current	$V_{CB} = V_{CBO}$			1.0	mA
$I_{EBO}$	Emitter Cut-off Current	$V_{EB} = V_{EBO}$			400	mA
$V_{CEO(SUS)}$	Collector Emitter Sustaining Voltage	$I_C = 1A$	450			V
$V_{CEX(SUS)}$		$I_C = 20A, I_{B2} = -5A$	600			
$h_{FE}$	D.C. Current Gain	$I_C = 100A, V_{CE} = 2.5V$	750			
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 100A, I_B = 130mA$			2.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 100A, I_B = 130mA$			3.0	V
$t_{on}$	Switching Time	On Time			2.0	$\mu s$
$t_s$		Storage Time	$V_{CC} = 300V, I_C = 100A$		8.0	
$t_f$		Fall Time	$I_{B1} = 0.2A, I_{B2} = -2A$		2.0	
$V_{ECO}$	Collector-Emitter Reverse Voltage	$I_C = -100A$			1.8	V
$t_{rr}$	Reverse Recovery time	$V_{CC} = 300V, -I_C = 100A, -di/dt = 100/\mu s, V_{BE} = -5V$	200			ns
$R_{th(j-c)}$	Thermal Impedance (junction to case)	Transistor part			0.2	$^\circ C/W$
		Diode part			0.6	

