

TRANSISTOR MODULE (Hi- β)

QCA300BA60

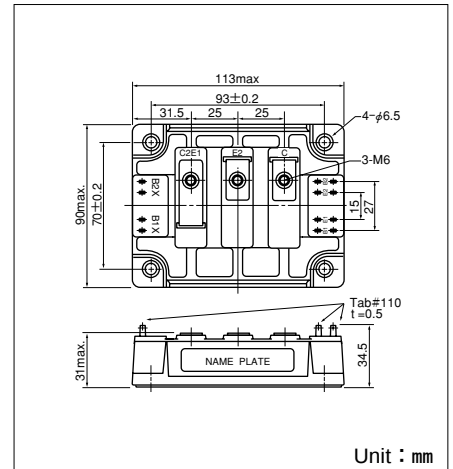
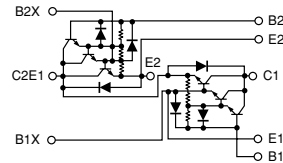
UL;E76102 (M)

QCA300BA60 is a dual Darlington power transistor module which has series-connected **ULTRA HIGH** h_{FE} , high speed, high power Darlington transistor. Each transistor has a reverse paralleled fast recovery diode (**trr : 200ns**). The mounting base of the module is electrically isolated from semiconductor elements for simple heatsink construction,

- $I_C = 300A$, $V_{CEX} = 600V$
- 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



Maximum Ratings

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

Symbol	Item		Conditions	Ratings	Unit
				QCA300BA60	
V_{CBO}	Collector-Base Voltage			600	V
V_{CEX}	Collector-Emitter Voltage		$V_{BE} = -2V$	600	V
$V_{CEX(sus)}$	Collector-Emitter sustaining voltage		$I_C = 60V$ $I_{B2} = -5A$	600	V
V_{EBO}	Emitter-Base Voltage			10	V
I_C	Collector Current		() $p_w \leq 1ms$	300 (600)	A
$-I_C$	Reverse Collector Current			300	A
I_B	Base Current			18	A
P_T	Total power dissipation		$T_c = 25^\circ C$	1380	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)	4.7 (48)	N·m (kgf·cm)
		Terminal (M6)	Recommended Value 2.5-3.9 (25-40)	4.7 (48)	
	Mass		Typical Value	675	g

Electrical Characteristics

Symbol	Item		Conditions	Ratings			Unit
				Min.	Typ.	Max.	
I_{CBO}	Collector Cut-off Current		$V_{CB} = V_{CBO}$			4.0	mA
I_{EBO}	Emitter Cut-off Current		$V_{EB} = V_{EBO}$			500	mA
h_{FE}	D.C. Current Gain		$I_C = 300A$, $V_{CE} = 2.5V$	750			
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage		$I_C = 300A$, $I_B = 400mA$			2.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage		$I_C = 300A$, $I_B = 400mA$			3.0	V
t_{on}	Switching Time	On Time	$V_{CC} = 300V$, $I_C = 300A$ $I_{B1} = 0.6A$, $I_{B2} = -6A$			2.0	μs
t_s		Storage Time				8.0	
t_f		Fall Time				2.0	
V_{ECO}	Collector-Emitter Reverse Voltage		$I_C = -300A$			2.2	V
t_{rr}	Reverse Recovery time		$V_{CC} = 300V$, $I_C = -300A$, $-di/dt = 300A/\mu s$, $V_{BE} = -5V$		200		ns
$R_{th(j-c)}$	Thermal Impedance (junction to case)		Transistor part			0.08	$^\circ C/W$
			Diode part			0.35	

