

TRANSISTOR MODULE (Hi-β)

QCA150BA60

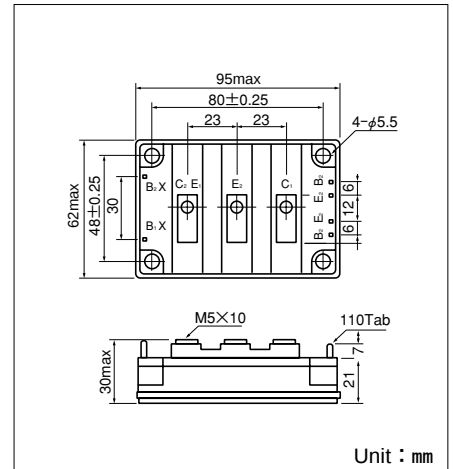
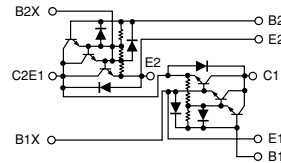
UL;E76102(M)

QCA150BA60 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 (**trr** : **200ns**). The mounting base of the module is electrically isolated from Semiconductor elements for simple heatsink construction.

- $I_C=150A$, $V_{CEX}=600V$
- 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

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

Symbol	Item		Conditions	Ratings	Unit
				QCA150BA60	
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		() $p_w \leq 1ms$	150 (300)	A
$-I_C$	Reverse Collector Current			150	A
I_B	Base Current			9	A
P_T	Total power dissipation		$T_C=25^\circ\text{C}$	690	W
T_j	Junction Temperature			-40 to $+150$	$^\circ\text{C}$
T_{stg}	Storage Temperature			-40 to $+125$	$^\circ\text{C}$
V_{ISO}	Isolation Voltage		A.C.1minute	2500	V
	Mounting Torque	Mounting (M6)	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	370	g

Electrical Characteristics

Symbol	Item		Conditions	Ratings			Unit
				Min.	Typ.	Max.	
I_{CBO}	Collector Cut-off Current		$V_{CB}=V_{CBO}$			2.0	mA
I_{EBO}	Emitter Cut-off Current		$V_{EB}=V_{EBO}$			600	mA
$V_{CEO(SUS)}$	Collector Emitter Sustaining Voltage		$I_C=1A$	450			V
$V_{CEX(SUS)}$			$I_C=30A$, $I_{B2}=-5A$	600			
h_{FE}	D.C. Current Gain		$I_C=150A$, $V_{CE}=2.5V$	750			
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage		$I_C=150A$, $I_B=200mA$			2.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage		$I_C=150A$, $I_B=200mA$			3.0	V
t_{on}	Switching Time	On Time	$V_{CC}=300V$, $I_C=150A$ $I_{B1}=300mA$, $I_{B2}=-3A$			2.0	μs
t_s		Storage Time				8.0	
t_f		Fall Time				2.0	
V_{ECO}	Collector-Emitter Reverse Voltage		$I_C=-150A$			1.8	V
t_{rr}	Reverse Recovery time		$V_{CC}=300V$, $-I_C=150A$, $-di/dt=150A/\mu s$, $V_{BE}=-5V$		200		ns
$R_{th(j-c)}$	Thermal Impedance (junction to case)		Transistor part			0.18	$^\circ\text{C}/W$
			Diode part			0.6	

