

TRANSISTOR MODULE

QCA50B/QCB50A40/60



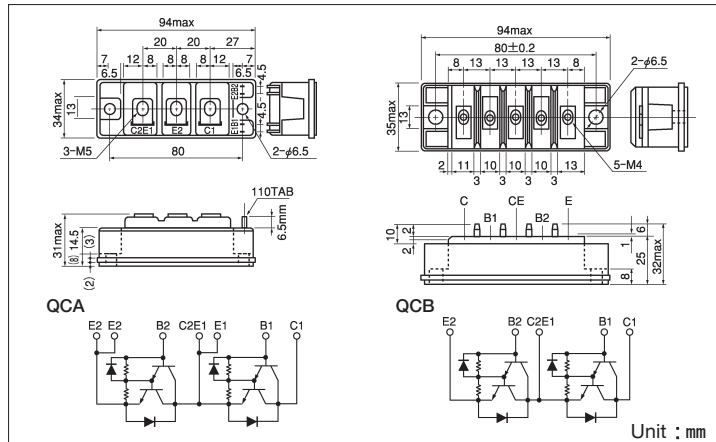
UL;E76102 (M)

QCA50B and QCB50A are dual Darlington power transistor modules which have series-connected high speed, high power Darlington transistors. Each transistor has a reverse paralleled fast recovery diode.

- $I_C=50A$, $V_{CEX}=400/600V$
- Low saturation voltage for higher efficiency.
- 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

($T_j=25^\circ C$)

Symbol	Item	Conditions	Ratings		Unit	
			QCA50B40 QCA50A40	QCA50B60 QCA50A60		
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	() = $p_w \leq 1ms$	50 (100)		A	
$-I_C$	Reverse Collector Current		50		A	
I_B	Base Current		3		A	
P_T	Total power dissipation	$T_c = 25^\circ C$	300		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	QCA50B	Mounting (M6)	Recommended Value 2.5~3.9 (25~40)	4.7 (48)	N·m kgf·cm
			Terminal (M5)	Recommended Value 1.5~2.5 (15~25)	2.7 (28)	
		QCA50A	Mounting (M5)	Recommended Value 1.5~2.5 (15~25)	2.7 (28)	
			Terminal (M4)	Recommended Value 1.0~1.4 (10~14)	1.5 (15)	
	Mass	QCA50B/QCA50A	Typical Value	240/195		g

Electrical Characteristics

($T_j=25^\circ C$)

Symbol	Item	Conditions	Ratings		Unit
			Min.	Max.	
I_{CBO}	Collector Cut-off Current	$V_{CB} = V_{CBO}$		1.0	mA
I_{EBO}	Emitter Cut-off Current	$V_{EB} = V_{EBO}$		300	mA
$V_{CEO(SUS)}$	Collector Emitter Sustaining Voltage	$I_C = 1A$	QCA50B40 QCB50A40	300	V
			QCA50B60 QCB50A60	450	
$V_{CEX(SUS)}$		$I_C = 10A, I_{B2} = -5A$	QCA50B40 QCB50A40	400	V
			QCA50B60 QCB50A60	600	
h_{FE}	DC Current Gain	$I_C = 50A, V_{CE} = 2V/5V$	75/100		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 50A, I_B = 0.67A$		2.0	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 50A, I_B = 0.67A$		2.5	V
t_{on}	Switching Time	$V_{CC} = 300V, I_C = 50A$ $I_{B1} = 1A, I_{B2} = -1A$		1.0	μs
t_s				12.0	
t_f				2.0	
V_{ECO}	Collector-Emitter Reverse Voltage	$-I_C = 50A$		1.4	V
$R_{th(j-c)}$	Thermal Impedance (junction to case)	Transistor part / Diode part		0.4/1.3	$^\circ C/W$

