

TRANSISTOR MODULE

QCA30B/QCB30A40/60



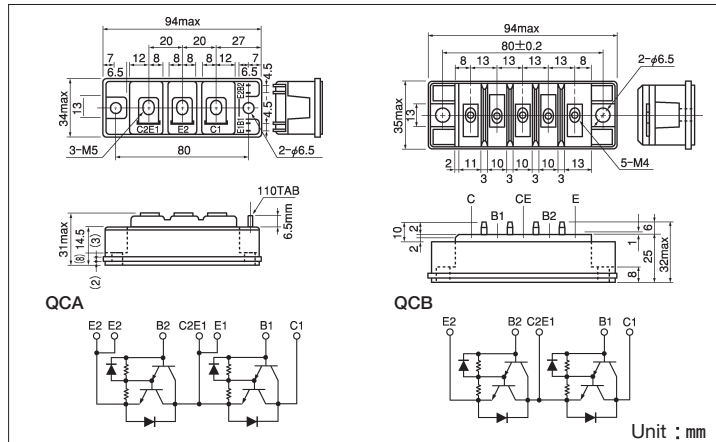
UL;E76102 (M)

QCA30B and QCB30A 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.

- $I_c=30A$, $V_{CEX}=400/600V$
- Low saturation voltage for higher efficiency.
- Isolated mounting base
- $V_{EBO} 10V$ for faster switching speed.

(Applications)

Motor Control (VVF), AC/DC Servo, UPS, Switching Power Supply, Ultrasonic Application



Maximum Ratings

($T_j=25^{\circ}C$)

Symbol	Item	Conditions	Ratings		Unit	
			QCA30B40 QCB30A40	QCA30B60 QCB30A60		
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	() = $pw \leq 1ms$	30 (60)		A	
$-I_c$	Reverse Collector Current		30		A	
I_B	Base Current		2		A	
P_T	Total power dissipation	$T_c=25^{\circ}C$	250		W	
T_j	Junction Temperature		$-40 \sim +150$		$^{\circ}C$	
T_{stg}	Storage Temperature		$-40 \sim +125$		$^{\circ}C$	
V_{iso}	Isolation Voltage	A.C.1minute	2500		V	
	Mounting Torque	QCA30B	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)	
		QCB30A	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	QCA30B/QCB30A	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	$I_c = 1A$	QCA30B40 QCB30A40	300	V
			QCA30B60 QCB30A60	450	
$V_{CEX(SUS)}$	Collector-Emitter Sustaining Voltage	$I_c = 6A, I_{B2} = -5A$	QCA30B40 QCB30A40	400	V
			QCA30B60 QCB30A60	600	
h_{FE}	DC Current Gain	$I_c = 30A, V_{CE} = 2V/5V$	75/100		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_c = 30A, I_B = 0.4A$		2.0	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_c = 30A, I_B = 0.4A$		2.5	V
t_{on}	Switching Time	$V_{CC} = 300V, I_c = 30A$ $I_{B1} = 0.6A, I_{B2} = -0.6A$		1.0	μs
t_s				12.0	
t_f				2.0	
V_{ECO}	Collector-Emitter Reverse Voltage	$-I_c = 30A$		1.4	V
$R_{th(j-c)}$	Thermal Impedance (junction to case)	Transistor part / Diode part		0.5/1.6	$^{\circ}C/W$

