

TRANSISTOR MODULE

QCA50AA100



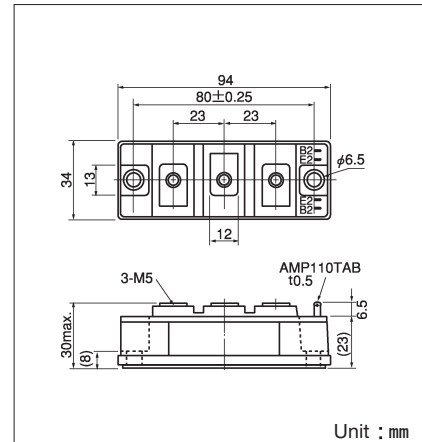
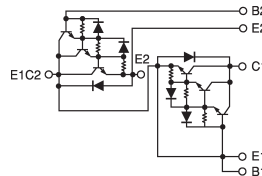
UL;E76102 (M)

QCA50AA100 is a dual Darlington power transistor module which has series-connected high speed, high power Darlington transistors. Each transistor has a reverse paralleled fast recovery diode. The mounting base of the module is electrically isolated from semiconductor elements for simple heatsink construction,

- $I_C=50A$, $V_{CEX}=1000V$
- Low saturation voltage for higher efficiency.
- High DC current gain h_{FE}
- Isolated mounting base

(Applications)

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



Maximum Ratings

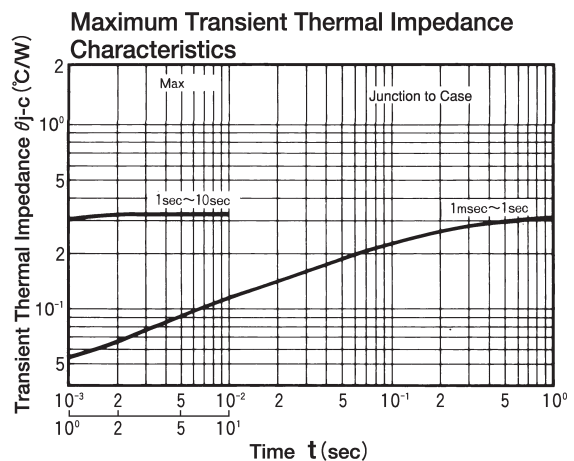
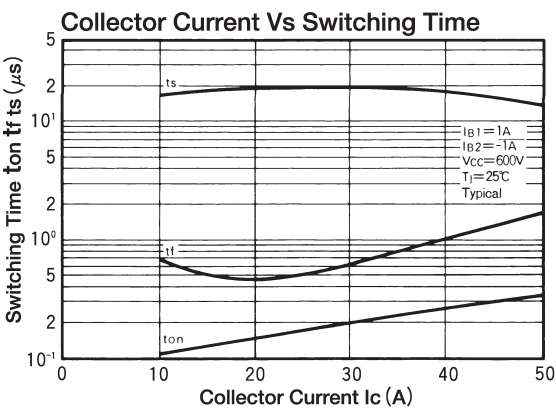
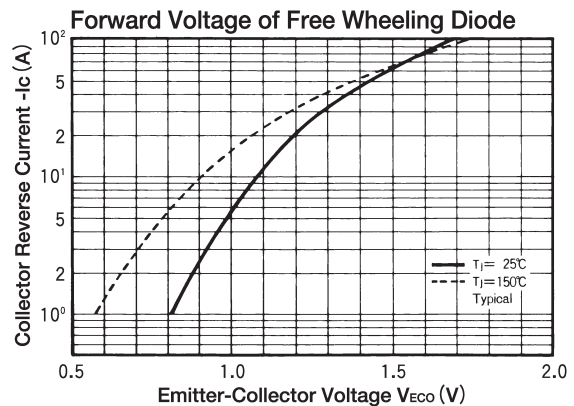
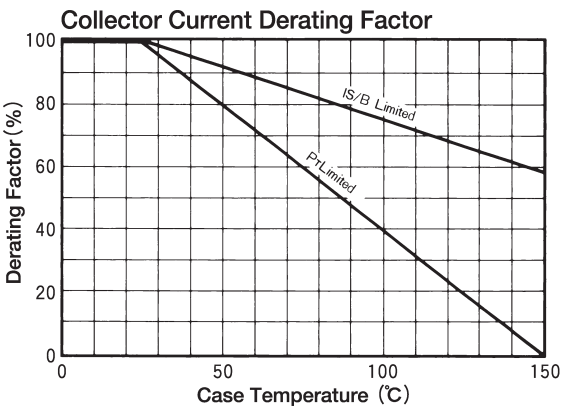
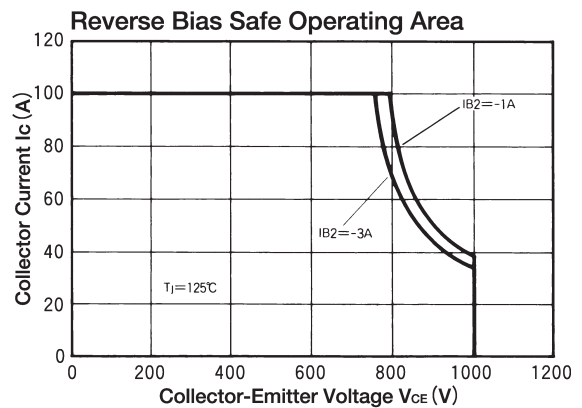
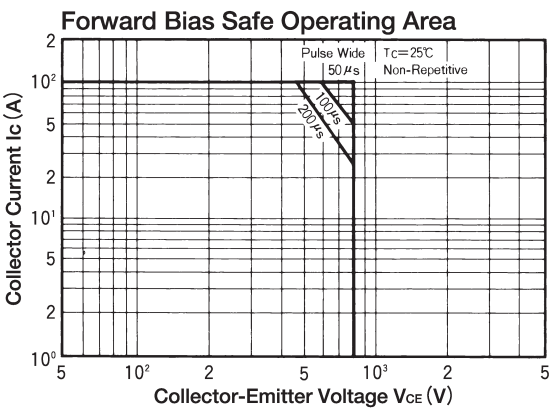
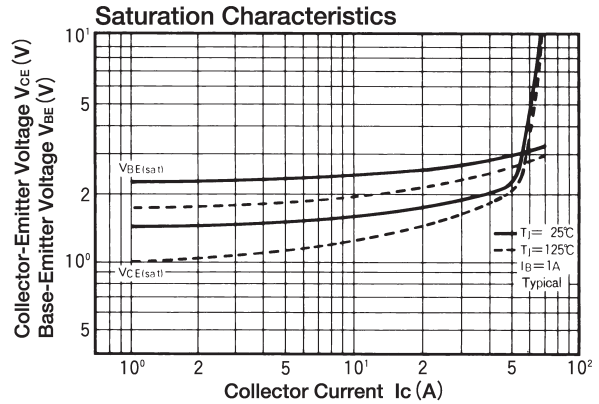
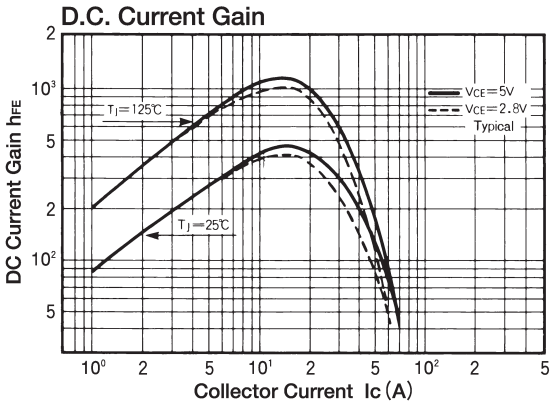
($T_j=25^{\circ}C$)

Symbol	Item	Conditions	Ratings		Unit
			QCA50AA100		
V_{CB0}	Collector-Base Voltage		1000		V
V_{CEX}	Collector-Emitter Voltage	$V_{BE} = -2V$	1000		V
V_{EBO}	Emitter-Base Voltage		7		V
I_C	Collector Current		50		A
$-I_C$	Reverse Collector Current		50		A
I_B	Base Current		3		A
P_T	Total power dissipation	$T_C = 25^{\circ}C$	400		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 (M6)	Recommended Value 2.5~3.9 (25~40)		N·m (kgf·cm)
		Terminal (M5)	Recommended Value 1.5~2.5 (15~25)		
	Mass	Typical Value	210		g

Electrical Characteristics

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

Symbol	Item	Conditions	Ratings		Unit
			Min.	Max.	
I_{CBO}	Collector Cut-off Current	$V_{CB} = 1000V$		1.0	mA
I_{EBO}	Emitter Cut-off Current	$V_{EB} = 7V$		200	mA
$V_{CEX(SUS)}$	Collector Emitter Sustaining Voltage	$I_C = 10A$, $I_B = -3A$	1000		V
h_{FE}	DC Current Gain	$I_C = 50A$, $V_{CE} = 2.8V$	75		
		$I_C = 50A$, $V_{CE} = 5V$	100		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 50A$, $I_B = 1A$		2.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 50A$, $I_B = 1A$		3.5	V
t_{on}	Switching Time	On Time		2.5	μs
t_s		Storage Time	$V_{CC} = 600V$, $I_C = 50A$ $I_{B1} = 1A$, $I_{B2} = -1A$	15.0	
t_f		Fall Time		3.0	
V_{ECO}	Collector-Emitter Reverse Voltage	$-I_C = 50A$		1.8	V
$R_{th(j-c)}$	Thermal Impedance (junction to case)	Transistor part		0.31	$^{\circ}C/W$
		Diode part		1.2	



TRANSISTOR MODULE

QCA50AA120



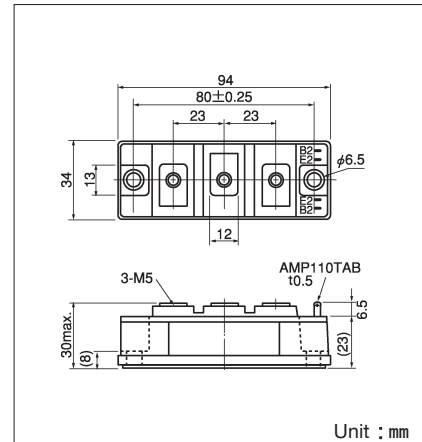
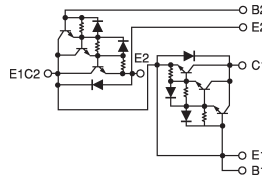
UL;E76102 (M)

QCA50AA120 is a dual Darlington power transistor module which has series-connected high speed, high power Darlington transistors. Each transistor has a reverse paralleled fast recovery diode. The mounting base of the module is electrically isolated from semiconductor elements for simple heatsink construction,

- $I_C=50A$, $V_{CEX}=1200V$
- Low saturation voltage for higher efficiency.
- High DC current gain h_{FE}
- Isolated mounting base

(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
			QCA50AA120		
V_{CBO}	Collector-Base Voltage		1200		V
V_{CEX}	Collector-Emitter Voltage	$V_{BE} = -2V$	1200		V
V_{EBO}	Emitter-Base Voltage		10		V
I_C	Collector Current		50		A
$-I_C$	Reverse Collector Current		50		A
I_B	Base Current		3		A
P_T	Total power dissipation	$T_C = 25^{\circ}C$	400		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	Mounting (M6)	Recommended Value 2.5~3.9 (25~40)		N·m (kgf·cm)
		Terminal (M5)	Recommended Value 1.5~2.5 (15~25)		
	Mass	Typical Value	210		g

Electrical Characteristics

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

Symbol	Item	Conditions	Ratings		Unit
			Min.	Max.	
I_{CBO}	Collector Cut-off Current	$V_{CB} = 1200V$		1.0	mA
I_{EBO}	Emitter Cut-off Current	$V_{EB} = 10V$		300	mA
$V_{CEX(SUS)}$	Collector Emitter Sustaining Voltage	$I_C = 10A, I_B = -2A$	1200		V
h_{FE}	DC Current Gain	$I_C = 50A, V_{CE} = 5V$	75		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 50A, I_B = 1A$		3.0	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 50A, I_B = 1A$		3.5	V
t_{on}	Switching Time	On Time		2.5	μs
t_s		Storage Time	$V_{CC} = 600V, I_C = 50A$	15.0	
t_f		Fall Time	$I_{B1} = 1A, I_{B2} = -1A$	3.0	
V_{ECO}	Collector-Emitter Reverse Voltage	$-I_C = 50A$		1.8	V
$R_{th(j-c)}$	Thermal Impedance (junction to case)	Transistor part		0.31	$^{\circ}C/W$
		Diode part		1.2	

