

# TRANSISTOR MODULE

## QCA150AA100

TOP



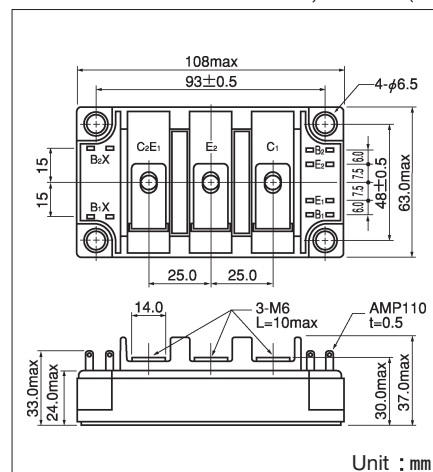
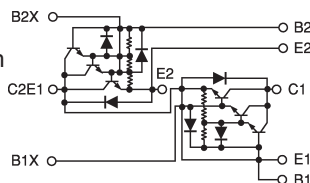
UL;E76102 (M)

QCA150AA100 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,

- $I_C=150A$ ,  $V_{CEX}=1000V$
- 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



Unit : mm

### Maximum Ratings

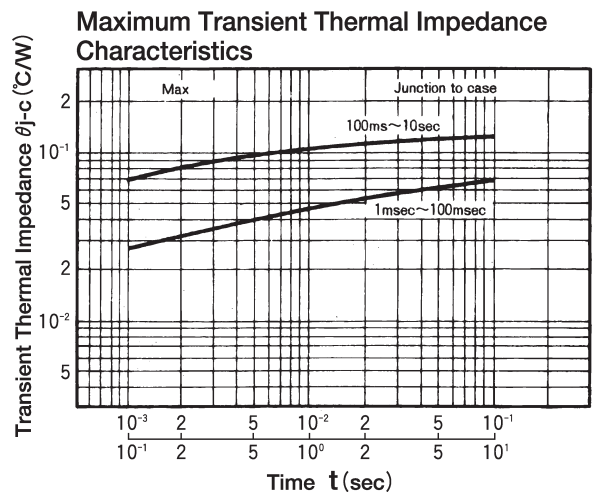
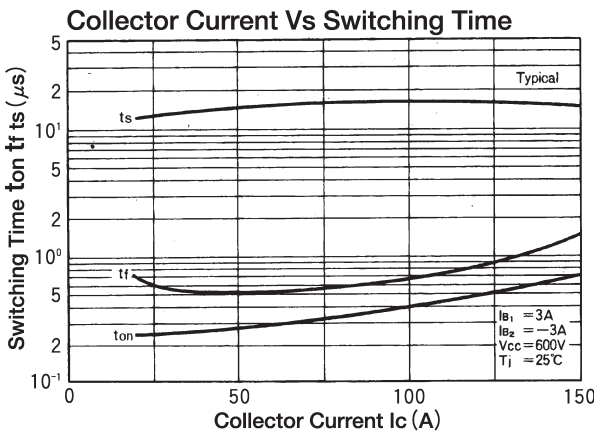
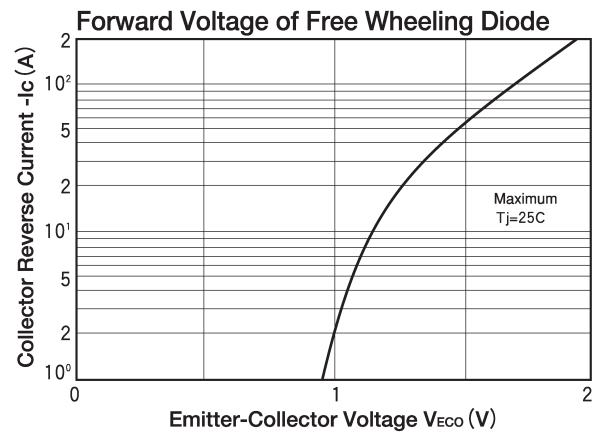
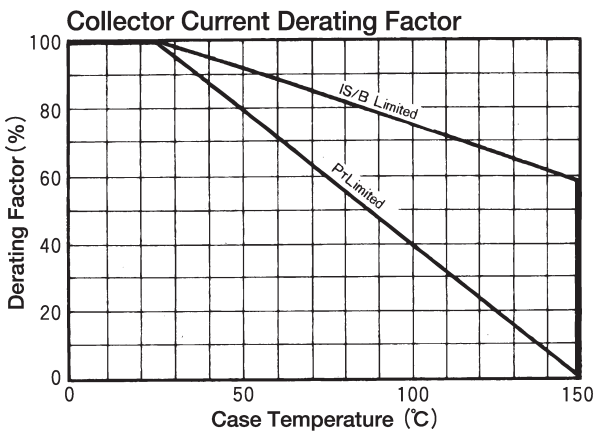
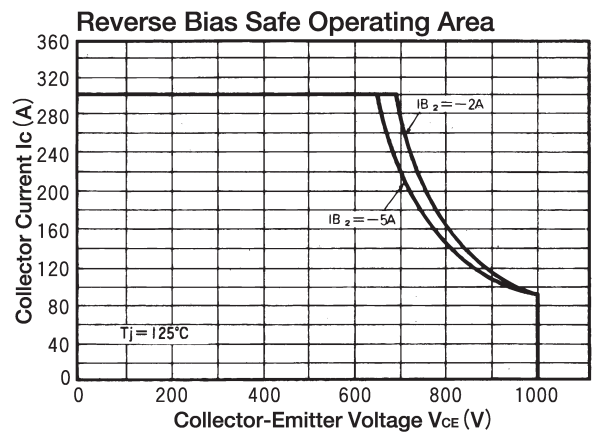
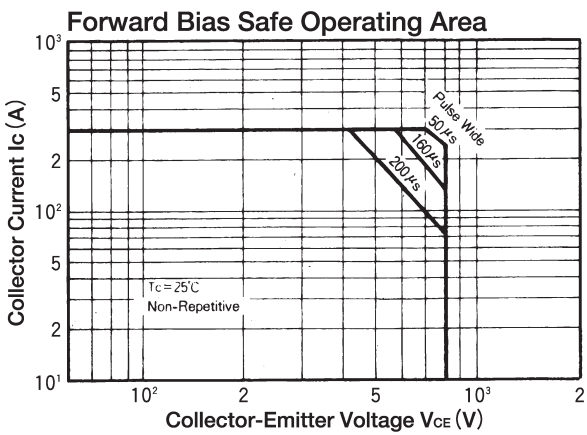
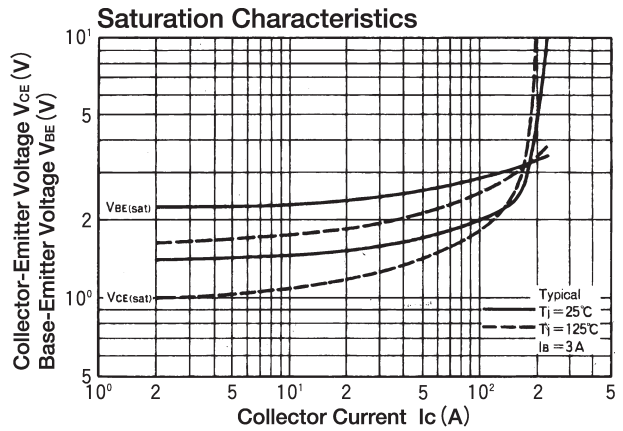
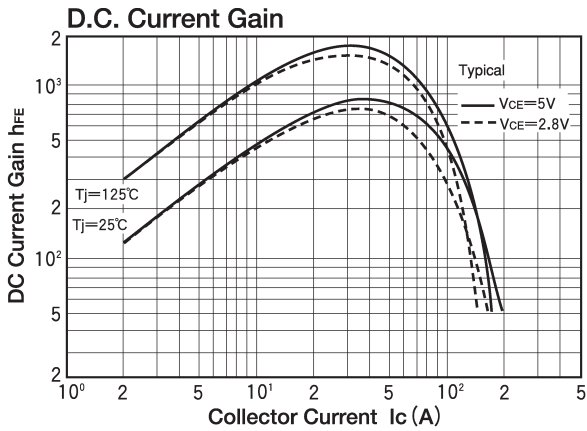
( $T_j=25^\circ C$ )

Symbol	Item	Conditions	Ratings		
			QCA150AA100	Unit	
$V_{CBO}$	Collector-Base Voltage		1000	V	
$V_{CEX}$	Collector-Emmitter Voltage	$V_{BE} = -2V$	1000	V	
$V_{EBO}$	Emmitter-Base Voltage		7	V	
$I_C$	Collector Current		150	A	
$-I_C$	Reverse Collector Current		150	A	
$I_B$	Base Current		8	A	
$P_T$	Total power dissipation	$T_C=25^\circ C$	1000	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)	4.7 (48)	N·m (kgf·cm)
		Terminal (M6)	Recommended Value 2.5~3.9 (25~40)	4.7 (48)	
	Mass	Typical Value	540	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
$I_{EBO}$	Emmitter Cut-off Current	$V_{EB}=7V$		400	mA
$V_{CEX(SUS)}$	Collector Emmitter Sustaning Voltage	$I_C=30A$ , $I_{B2}=-5A$	1000		V
$h_{FE}$	DC Current Gain	$I_C=150A$ , $V_{CE}=2.8V$	75		
		$I_C=150A$ , $V_{CE}=5V$	100		
$V_{CE(sat)}$	Collector-Emmitter Saturation Voltage	$I_C=150A$ , $I_B=3A$		2.5	V
$V_{BE(sat)}$	Base-Emmitter Saturation Voltage	$I_C=150A$ , $I_B=3A$		3.5	V
$t_{on}$	Switching Time	On Time		3.0	$\mu s$
$t_s$		Storage Time	$V_{CC}=600V$ , $I_C=150A$ $I_{B1}=3A$ , $I_{B2}=-3A$	15.0	
$t_f$		Fall Time		3.0	
$V_{ECO}$	Collector-Emmitter Reverse Voltage	$-I_C=150A$		1.8	V
$R_{th(j-c)}$	Thermal Impedance (junction to case)	Transistor part		0.125	$^\circ C/W$
		Diode part		0.6	



# TRANSISTOR MODULE

## QCA150AA120



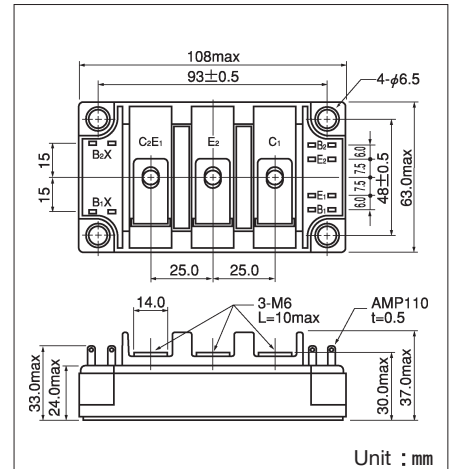
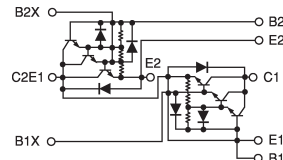
UL;E76102 (M)

QCA150AA120 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,

- $I_C=150A$ ,  $V_{CEX}=1200V$
- 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		
			QCA150AA120	Unit	
$V_{CBO}$	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		150	A	
$-I_C$	Reverse Collector Current		150	A	
$I_B$	Base Current		8	A	
$P_T$	Total power dissipation	$T_C=25^\circ C$	1000	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)	4.7 (48)	N·m (kgf·cm)
		Terminal (M6)	Recommended Value 2.5~3.9 (25~40)	4.7 (48)	
	Mass	Typical Value	470	g	

### Electrical Characteristics

( $T_j=25^\circ C$ )

Symbol	Item	Conditions	Ratings		Unit
			Min.	Max.	
$I_{CBO}$	Collector Cut-off Current	$V_{CB}=1200V$		2.0	mA
$I_{EBO}$	Emitter Cut-off Current	$V_{EB}=10V$		600	mA
$V_{CEX(SUS)}$	Collector Emitter Sustaining Voltage	$I_C=30A$ , $I_{B2}=-6A$	1200		V
$h_{FE}$	DC Current Gain	$I_C=150A$ , $V_{CE}=5V$	75		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=150A$ , $I_B=3A$		3.0	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=150A$ , $I_B=3A$		3.5	V
$t_{on}$	Switching Time	On Time		3.0	$\mu s$
$t_s$		Storage Time	$V_{CC}=600V$ , $I_C=150A$ $I_{B1}=3A$ , $I_{B2}=-3A$	15.0	
$t_f$		Fall Time		3.0	
$V_{ECO}$	Collector-Emitter Reverse Voltage	$-I_C=150A$		1.8	V
$R_{th(j-c)}$	Thermal Impedance (junction to case)	Transistor part		0.125	$^\circ C/W$
		Diode part		0.6	

