

# TRANSISTOR MODULE (THREE PHASES BRIDGE TYPE)

## QF20AA40/60

TOP

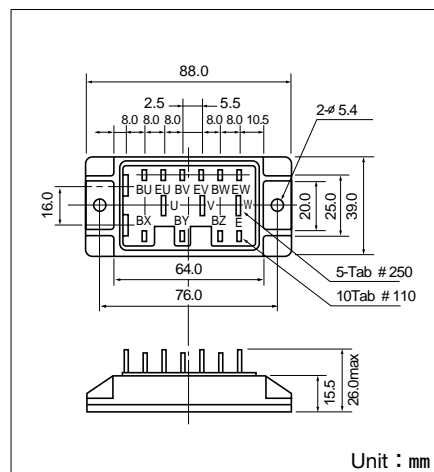
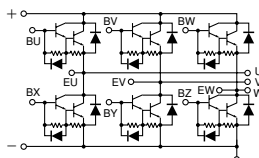


QF20AA is six pack Darlington power transistor module which has six transistors connected in three phase bridge configuration. Each transistor has a reverse paralleled fast recovery diode. The mounting base of the module is electrically isolated from semiconductor elements for simple heatsink construction,

- $I_C=20A$ ,  $V_{CEX}=400/600V$
- Low saturation voltage for higher efficiency.
- High DC current gain  $h_{FE}$
- Isolated mounting base
- $V_{EBO} 10V$  for faster switching speed.

### (Applications)

Motor Control (VWF), AC Servo, UPS



Unit : mm

### Maximum Ratings

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

Symbol	Item	Conditions	Ratings		Unit
			QF20AA40	QF20AA60	
$V_{CB0}$	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	( ) = $p_w \leq 1ms$	20 (40)		A
$-I_C$	Reverse Collector Current		20		A
$I_B$	Base Current		2		A
$P_T$	Total power dissipation	$T_C=25^\circ C$	160		W
$T_j$	Junction Temperature		-40 to +150		$^\circ C$
$T_{stg}$	Storage Temperature		-40 to +125		$^\circ C$
$V_{ISO}$	Isolation Voltage	A.C.1minute	2500		V
	Mounting Torque (M5)	Recommended Value 1.5-2.5 (15-25)	2.7 (28)		N·m (kgf·cm)
	Mass	Typical Value	95		g

### Electrical Characteristics

Symbol	Item	Conditions	Ratings		Unit
			Min.	Max.	
$I_{CBO}$	Collector Cut-off Current	$V_{CB}=V_{CB0}$		1.0	mA
$I_{EBO}$	Emitter Cut-off Current	$V_{EB}=V_{EBO}$		200	mA
$V_{CE0(SUS)}$	Collector Emitter Sustaining Voltage	QF20AA40	300		V
		QF20AA60			
$V_{CEX(SUS)}$	Collector Emitter Sustaining Voltage	QF20AA40	400		V
		QF20AA60			
$h_{FE}$	DC Current Gain	$I_C=20A$ , $V_{CE}=2V$	75		
		$I_C=20A$ , $V_{CE}=5V$	100		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=20A$ , $I_B=0.27A$	2.0		V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=20A$ , $I_B=0.27A$	2.5		V
$t_{on}$	Switching Time	On Time	1.0		$\mu s$
$t_s$		Storage Time	12.0		
$t_f$		Fall Time	2.0		
$V_{ECO}$	Collector-Emitter Reverse Voltage	$-I_C=20A$	1.6		V
$R_{th(j-c)}$	Thermal Impedance (junction to case)	Transistor part	0.8		$^\circ C/W$
		Diode part	2.2		

