

# TRANSISTOR MODULE (THREE PHASES BRIDGE TYPE)

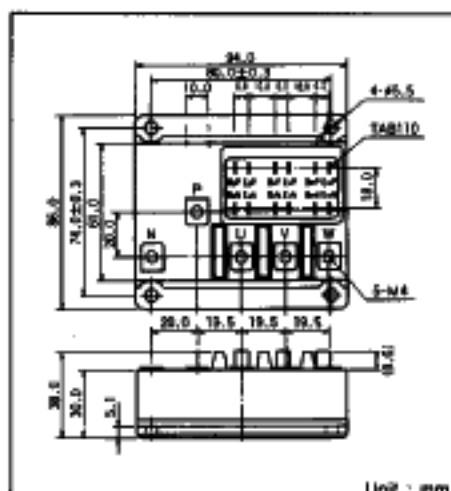
## QF50AA40/60

QF50AA is a 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.

- $I_c = 50A$   $V_{CE} = 400/600V$
- Low saturation voltage for higher efficiency.
- High DC current gain  $h_{FE}$
- Isolated mounting base
- $V_{CEO} 10V$  for faster switching speed.

### (Applications)

Motor Control (VVVF), AC Servo, UPS



Unit : mm  
T<sub>j</sub> = 25°C

### Maximum Ratings

Symbol	Item	Conditions	Ratings		Unit
			QF50AA40	QF50AA60	
V <sub>CB0</sub>	Collector-Base Voltage		400	600	V
V <sub>CEX</sub>	Collector-Emitter Voltage	V <sub>BE</sub> = -2V	400	600	V
V <sub>EB0</sub>	Emitter-Base Voltage		10		V
I <sub>c</sub>	Collector Current	( ) = pw ≤ 1ms	50 (100)		A
-I <sub>c</sub>	Reverse Collector Current		50		A
I <sub>b</sub>	Base Current		3		A
P <sub>T</sub>	Total power dissipation	T <sub>c</sub> = 25°C	300		W
T <sub>j</sub>	Junction Temperature		-40 ~ +150		°C
T <sub>stg</sub>	Storage Temperature		-40 ~ +125		°C
V <sub>iso</sub>	Isolation Voltage	A.C. 1minute	2500		V
	Mounting Torque	(M5)	Recommended Value 1.5 ~ 2.5 (15 ~ 25)		N·m (kgf·cm)
		Terminal (M4)	Recommended Value 1.0 ~ 1.4 (10 ~ 14)		
	Mass	Typical value	400		g

### Electrical Characteristics

T<sub>j</sub> = 25°C

Symbol	Item	Conditions	Ratings		Unit
			Min.	Max.	
I <sub>CB0</sub>	Collector Cut-off Current	V <sub>CB</sub> = V <sub>CB0</sub>	1.0		mA
I <sub>EB0</sub>	Emitter Cut-off Current	V <sub>EB</sub> = V <sub>EB0</sub>	300		mA
V <sub>CE0(SUS)</sub>	Collector-Emitter Sustaining Voltage	QF50AA40	300		V
		QF50AA60	450		
V <sub>CEX(SUS)</sub>	Collector-Emitter Sustaining Voltage	QF50AA40	400		V
		QF50AA60	600		
h <sub>FE</sub>	DC Current Gain	I <sub>c</sub> = 50A V <sub>CE</sub> = 2V	75		
		I <sub>c</sub> = 50A V <sub>CE</sub> = 5V	100		
V <sub>CE(sat)</sub>	Collector-Emitter Saturation Voltage	I <sub>c</sub> = 50A I <sub>B</sub> = 0.67A	2.0		V
V <sub>BE(sat)</sub>	Base-Emitter Saturation Voltage	I <sub>c</sub> = 50A I <sub>B</sub> = 0.67A	2.5		V
t <sub>on</sub>	Switching Time	V <sub>CC</sub> = 300V I <sub>c</sub> = 50A I <sub>B1</sub> = 1A I <sub>B2</sub> = -1A	1.0		μs
t <sub>s</sub>			12.0		
t <sub>f</sub>			2.0		
V <sub>CE0</sub>	Collector-Emitter Reverse Voltage	-I <sub>c</sub> = 50A	1.4		V
R <sub>th(j-c)</sub>	Thermal Impedance (junction to case)	Transistor part	0.4		°C/W
		Diode part	1.3		

