

# TRANSISTOR MODULE (THREE PHASE BRIDGE TYPE)

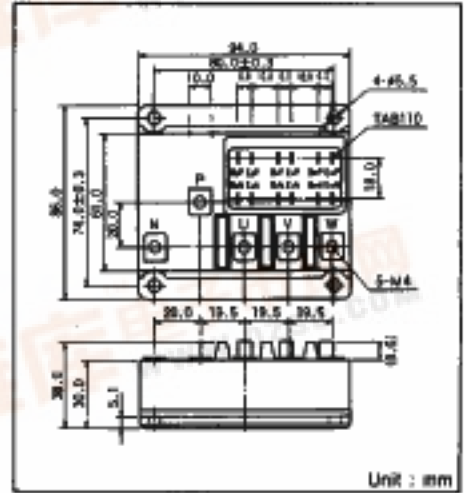
## QF50AA40/60

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
- $V_{EBO} 10V$  for faster switching speed.

(Applications)

Motor Control (VVVF), AC Servo, UPS



Unit : mm  
Tj = 25°C

### Maximum Ratings

Symbol	Item	Conditions	Ratings		Unit
			QF50AA40	QF50AA60	
$V_{CB0}$	Collector-Base Voltage		400	600	V
$V_{CEK}$	Collector-Emitter Voltage	$V_{BE} = -2V$	400	600	V
$V_{EB0}$	Emitter-Base Voltage		10		V
$I_c$	Collector Current	( ) = $p_w \leq 1ms$	50 (100)		A
$-I_c$	Reverse Collector Current		50		A
$I_B$	Base Current		3		A
$P_T$	Total power dissipation	$T_c = 25^\circ C$	300		W
$T_j$	Junction Temperature		-40 ~ +150		°C
$T_{stg}$	Storage Temperature		-40 ~ +125		°C
$V_{iso}$	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

Tj = 25°C

Symbol	Item	Conditions	Ratings		Unit
			Min.	Max.	
$I_{c0}$	Collector Cut-off Current	$V_{CB} = V_{CB0}$		1.0	mA
$I_{e0}$	Emitter Cut-off Current	$V_{EB} = V_{EB0}$		300	mA
$V_{CE0(SUS)}$	Collector-Emitter Sustaining Voltage	QF50AA40	$I_c = 1A$	300	V
		QF50AA60		450	
$V_{CEK(SUS)}$	Collector-Emitter Sustaining Voltage	QF50AA40	$I_c = 10A$ $I_{B2} = -5A$	400	V
		QF50AA60		600	
$h_{FE}$	DC Current Gain	$I_c = 50A$ $V_{CE} = 2V$	75		
		$I_c = 50A$ $V_{CE} = 5V$	100		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_c = 50A$ $I_B = 0.67A$	2.0		V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_c = 50A$ $I_B = 0.67A$	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		
$V_{CBO}$	Collector-Emitter Reverse Voltage	$-I_c = 50A$	1.4		V
	Thermal Impedance (junction to case)	Transistor part	0.4		°C/W
		Diode part	1.3		

