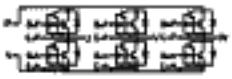
TRANSISTOR MODULE (THREE PHASES BRIDGE TYPE)

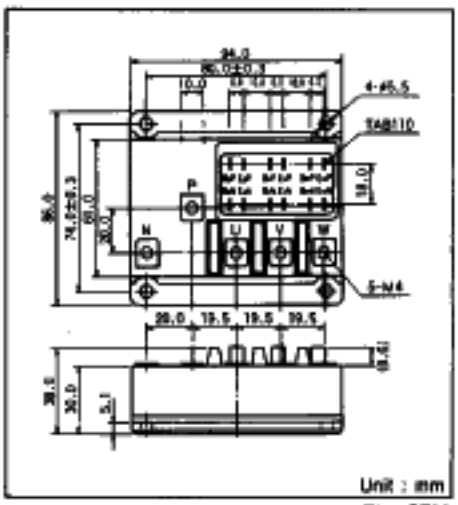
QF50AA40/60

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_{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 (VVVF), AC Servo, UPS





■Maximum Ratings

Tj=25°C

Symbol	Item		Conditions	Ratings QF50AA40	Ratings QF50AA60	Unit
V_{CBO}	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		( )=pw≦1ms	50 (100)		A
$-I_C$	Reverse Collector Current			50		A
I_B	Base Current			3		A
P_T	Total power dissipation		Tc=25°C	300		W
Tj	Junction Temperature			−40~+150		°C
Tstg	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)	2.7 (28)		N·m (kgf·cm)
		Terminal (M4)	Recommended Value 1.0~1.4 (10~14)	1.5 (15)		
	Mass		Typical value	400		g

■Electrical Characteristics

Tj=25°C

Symbol	Item		Conditions	Ratings Min.	Ratings Max.	Unit
I_{CBO}	Collector Cut-off Current		$V_{CB}=V_{CBO}$		1.0	mA
I_{EBO}	Emitter Cut-off Current		$V_{EB}=V_{EBO}$		300	mA
$V_{CEO(SUS)}$	Collector-Emitter Sustaning Voltage	QF50AA40	I_C=1A	300		V
		QF50AA60		450		
$V_{CEX(SUS)}$		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
ton	Switching Time	On Time	Vcc=300V I_C=50A I_{B1}=1A I_{B2}=−1A		1.0	μs
ts		Storage Time			12.0	
tf		Fall Tjme			2.0	
V_{ECO}	Collector-Emitter Reverse Voltage		$-I_C$=50A		1.4	V
Rth(j-c)	Thermal Impedance (junction to case)		Transistor part		0·4	°C/W
			Diode part		1.3	