

# TRANSISTOR MODULE (THREE PHASES BRIDGE TYPE)

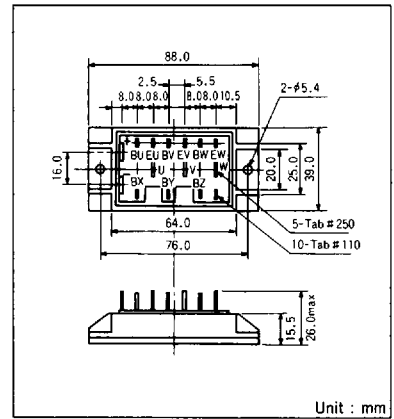
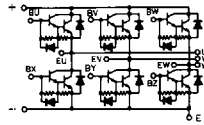
## QF20AA40/60

QF20AA is a six pack Darlingtion 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 (VVVF), AC Servo, UPS



Unit : mm  
 $T_j = 25^\circ C$

### Maximum Ratings

Symbol	Item	Conditions	Ratings		Unit
			QF20AA40	QF20AA60	
$V_{CBO}$	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	( ) = $pw \leq 1ms$	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 ~ +150		$^\circ C$
$T_{stg}$	Storage Temperature		-40 ~ +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

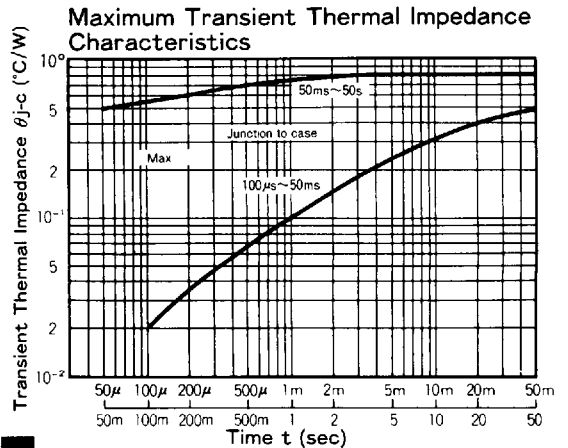
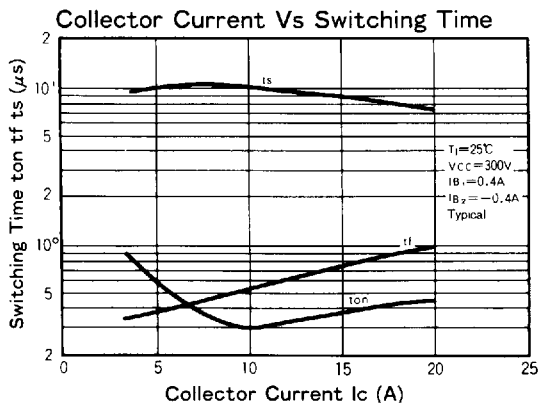
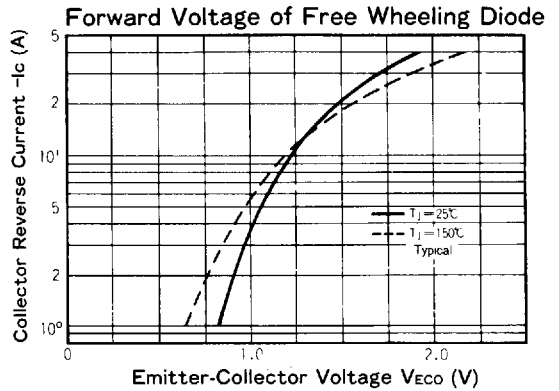
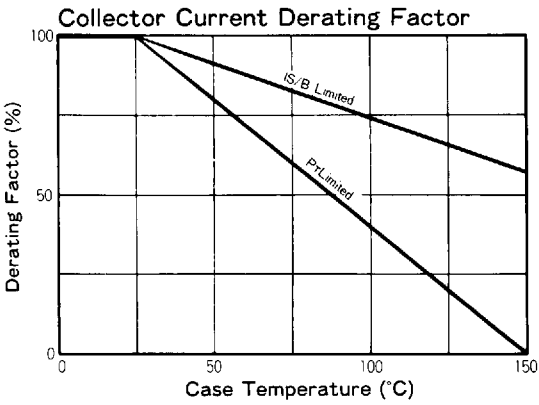
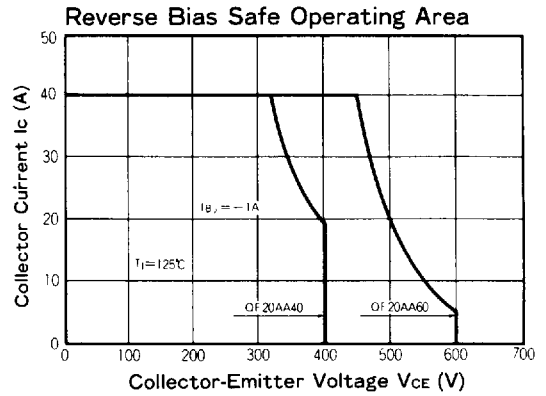
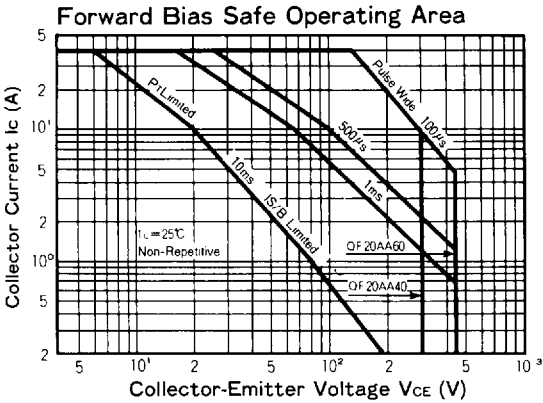
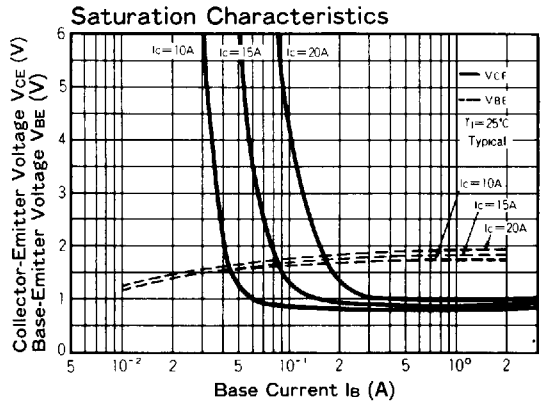
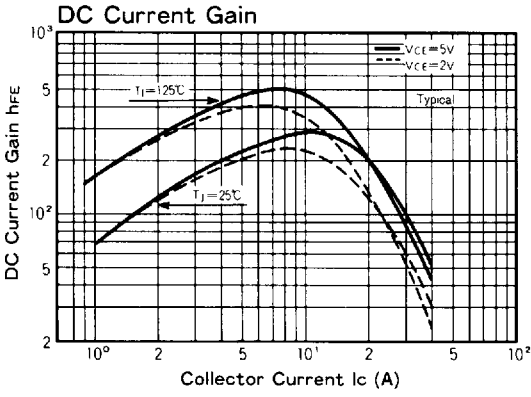
### Electrical Characteristics

$T_j = 25^\circ C$

Symbol	Item	Conditions	Ratings		Unit
			Min.	Max.	
$I_{CBO}$	Collector Cut-off Current	$V_{CB} = V_{CBO}$		1.0	mA
$I_{EBO}$	Emitter Cut-off Current	$V_{EB} = V_{EBO}$		200	mA
$V_{CEO(SUS)}$	Collector-Emitter Sustaning Voltage	QF20AA40	300		V
		QF20AA60			
$V_{CEX(SUS)}$	Sustaning 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 $T_{jme}$	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		

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