

TRANSISTOR MODULE (THREE PHASES BRIDGE TYPE)

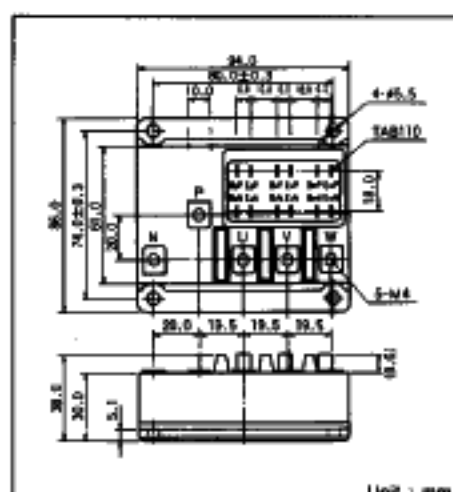
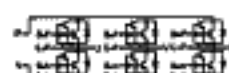
QF50AA40/60

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

Tj = 25°C

Maximum Ratings

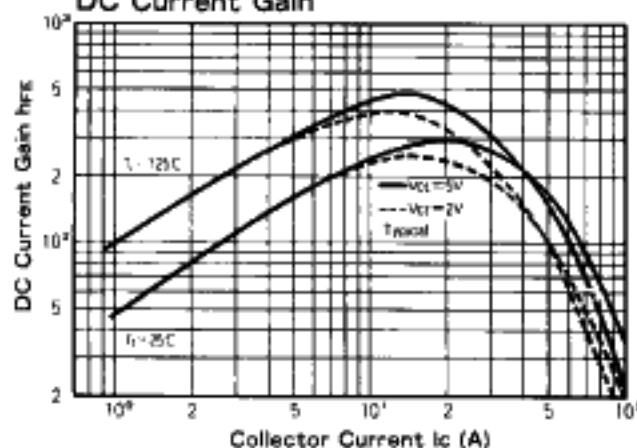
Symbol	Item	Conditions	Ratings		Unit
			QF50AA40	QF50AA60	
V _{CB0}	Collector-Base Voltage		400	600	V
V _{CEX}	Collector-Emitter Voltage	V _{BE} = - 2V	400	600	V
V _{EB0}	Emitter-Base Voltage		10		V
I _c	Collector Current	() = pw ≤ 1ms	50 (100)		A
- I _c	Reverse Collector Current		50		A
I _b	Base Current		3		A
P _T	Total power dissipation	T _c = 25°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

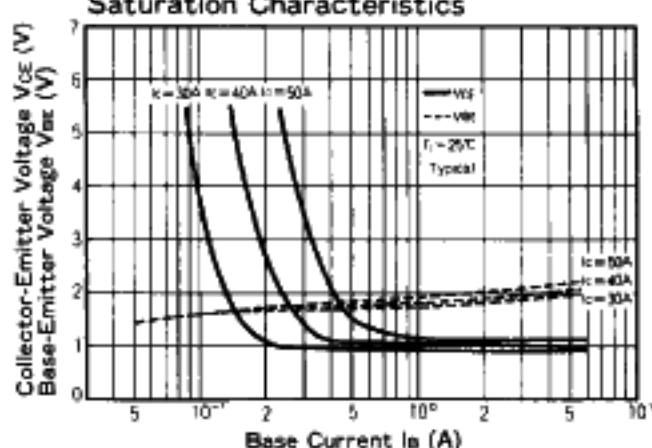
Tj = 25°C

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	$I_c = 1A$	300		V
			450		
$V_{CEX(SUS)}$	Collector-Emitter Sustaining Voltage	$I_c = 10A$ $I_{B2} = -5A$	400		V
			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	$V_{CC} = 300V$ $I_c = 50A$ $I_{B1} = 1A$ $I_{B2} = -1A$		1.0	μs
t_s				12.0	
t_f				2.0	
V_{CEO}	Collector-Emitter Reverse Voltage	$-I_c = 50A$		1.4	V
$R_{th(j-c)}$	Thermal Impedance (junction to case)	Transistor part		0.4	°C/W
		Diode part		1.3	

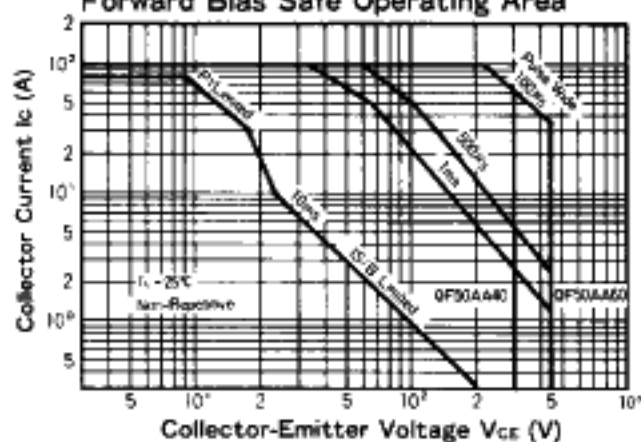
DC Current Gain



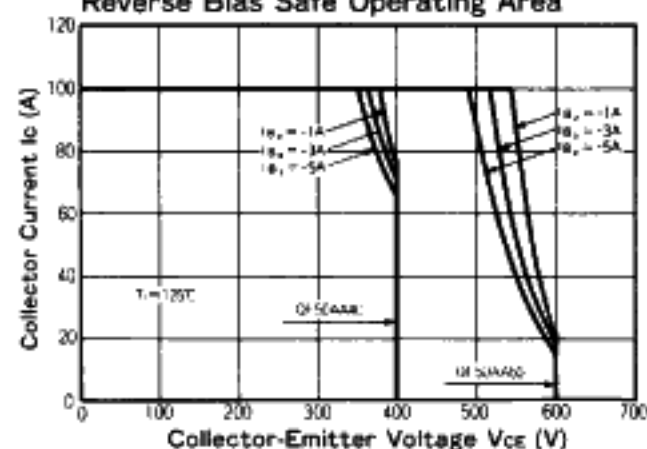
Saturation Characteristics



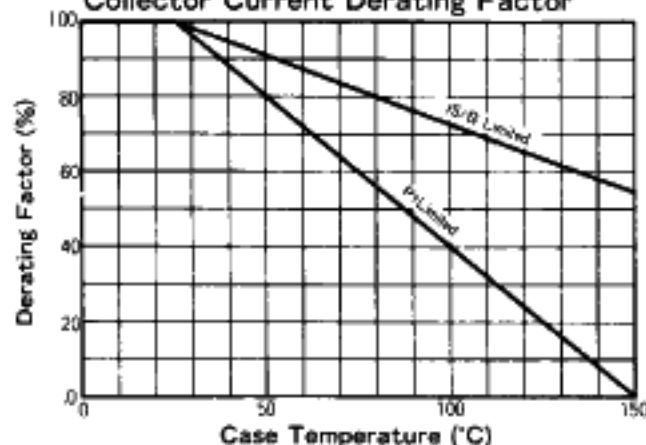
Forward Bias Safe Operating Area



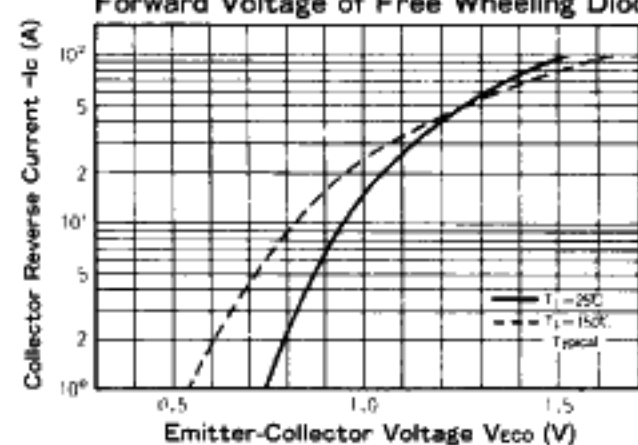
Reverse Bias Safe Operating Area



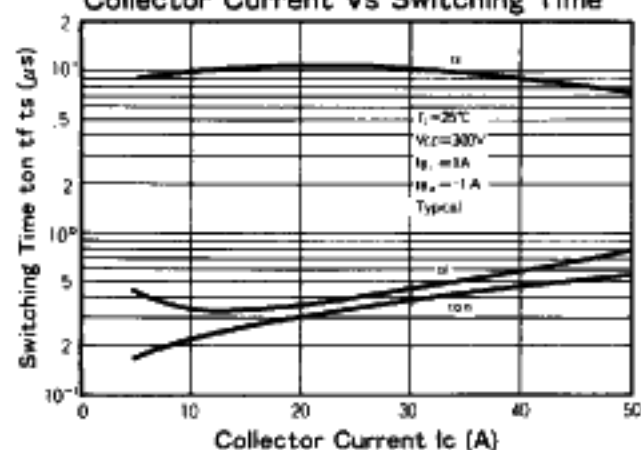
Collector Current Derating Factor



Forward Voltage of Free Wheeling Diode



Collector Current Vs Switching Time



Maximum Transient Thermal Impedance Characteristics

