

TRANSISTOR MODULE (THREE PHASES BRIDGE TYPE)

QF15AA40/60

TOP

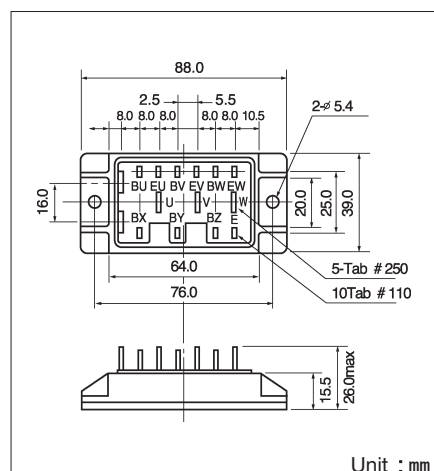
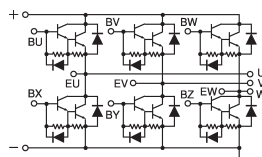


QF15AA is six pack Darlington power transistor module which has six transistors connected in three phase bridge configuration. Each transistor has a reverse paralleled fast recovery diode. The mounting base of the module is electrically isolated from semiconductor elements for simple heatsink construction.

- $I_C=15A$, $V_{CEX}=400/600V$
- 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 (VVF), AC Servo, UPS



Unit : mm

Maximum Ratings

($T_j=25^\circ C$)

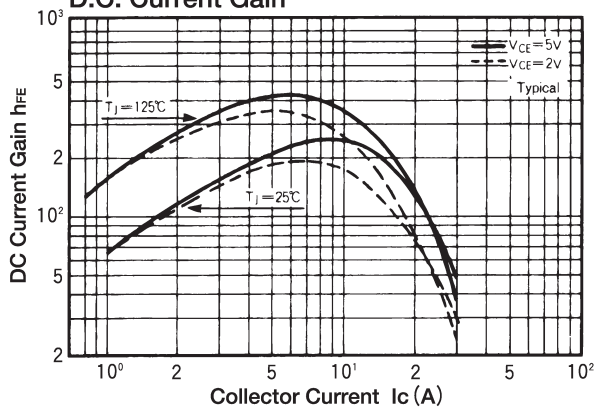
Symbol	Item	Conditions	Ratings		Unit
			QF15AA40	QF15AA60	
V_{CBO}	Collector-Base Voltage		400	600	V
V_{CEX}	Collector-Emitter Voltage	$V_{BE} = -2V$	400	600	V
V_{EBO}	Emitter-Base Voltage		10		V
I_C	Collector Current	() = $p_w \leq 1ms$	15 (30)		A
$-I_C$	Reverse Collector Current		15		A
I_B	Base Current		1		A
P_T	Total power dissipation	$T_C = 25^\circ C$	100		W
T_j	Junction Temperature		$-40 \sim +150$		$^\circ C$
T_{stg}	Storage Temperature		$-40 \sim +125$		$^\circ C$
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

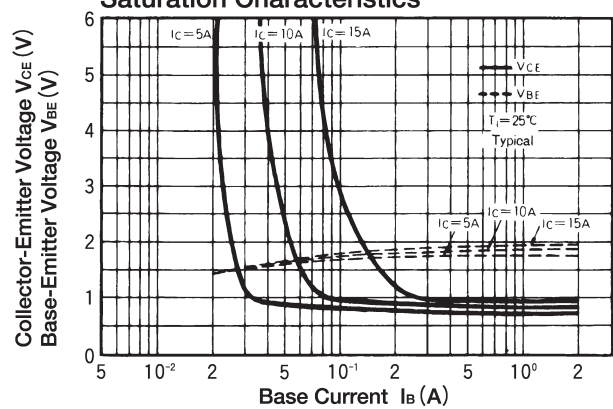
($T_j=25^\circ C$)

Symbol	Item		Conditions	Ratings		Unit
				Min.	Max.	
IcBO	Collector Cut-off Current		V _{CB} = V _{CB0}		1.0	mA
IEBO	Emitter Cut-off Current		V _{EB} = V _{EBO}		100	mA
V _{CEO} (SUS)	Collector Emitter Sustaning Voltage	QF15AA40	I _C = 1A	300		V
		QF15AA60		450		
V _{CEX} (SUS)		QF15AA40	I _C = 3A, I _{B2} = -1A	400		V
		QF15AA60		600		
h _{FE}	DC Current Gain		I _C = 15A, V _{CE} = 2V	75		
			I _C = 15A, V _{CE} = 5V	100		
V _{CE} (sat)	Collector-Emitter Saturation Voltage		I _C = 15A, I _B = 0.2A		2.0	V
V _{BE} (sat)	Base-Emitter Saturation Voltage		I _C = 15A, I _B = 0.2A		2.5	V
ton	Switching Time	On Time	V _{CC} = 300V, I _C = 15A I _{B1} = 0.4A, I _{B2} = -0.4A		1.0	μs
ts		Storage Time			12.0	
tf		Fall Time			2.0	
V _{ECO}	Collector-Emitter Reverse Voltage		-I _C = 15A		1.5	V
R _{th} (j-c)	Thermal Impedance (junction to case)		Transistor part		1.2	°C/W
			Diode part		2.5	

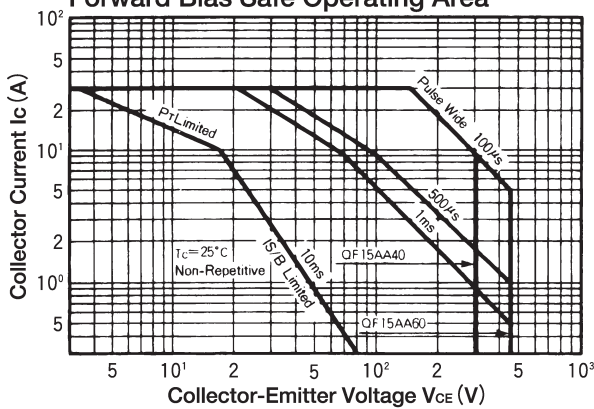
D.C. Current Gain



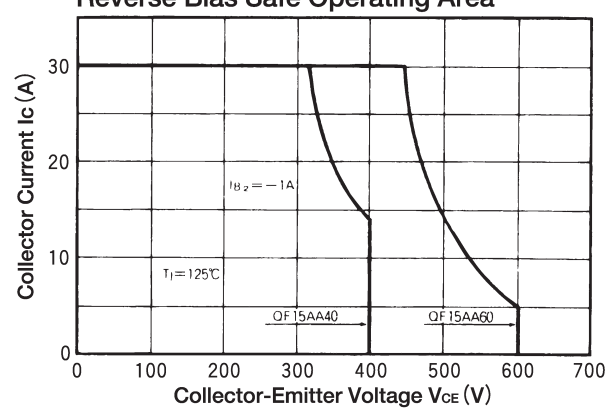
Saturation Characteristics



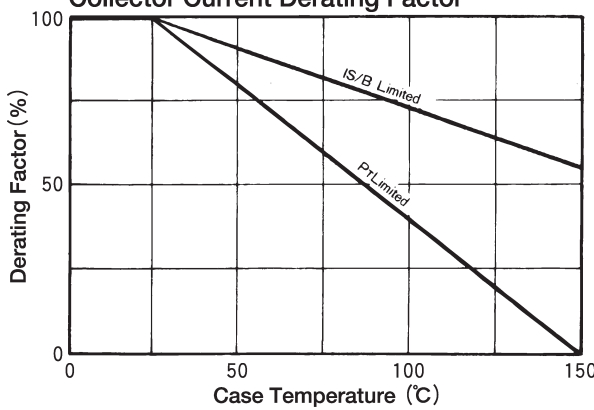
Forward Bias Safe Operating Area



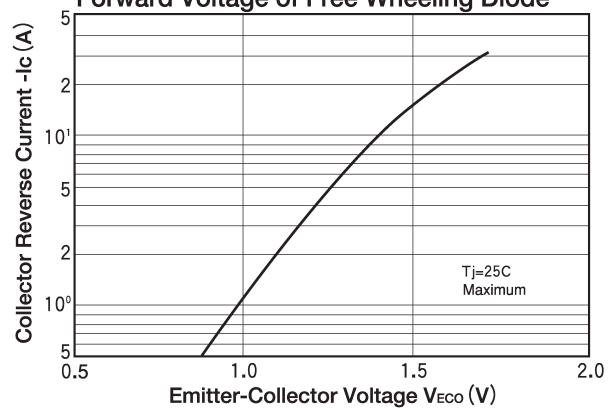
Reverse Bias Safe Operating Area



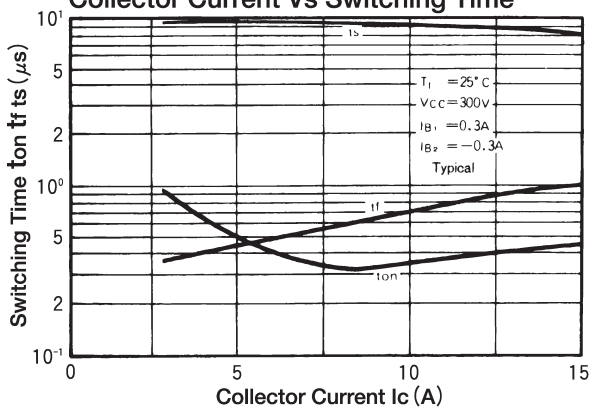
Collector Current Derating Factor



Forward Voltage of Free Wheeling Diode



Collector Current Vs Switching Time



Maximum Transient Thermal Impedance Characteristics

