TRANSISTOR MODULE (Hi-β)

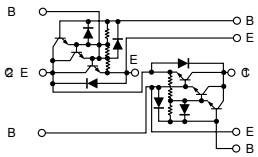
QCA300BA60

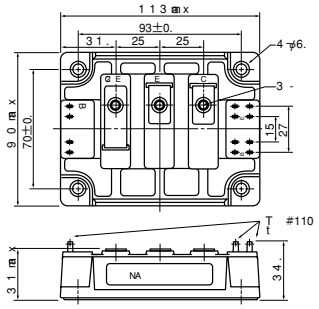
UL;E76102(M)

QCA300BA60 is a dual Darlington power transistor module which has series-connected **ULTRA HIGH** h_{FE}, high speed, high power Darlington transistor. Each transistor has a reverse paralleled fast recovery diode (**trr：200ns**). The mounting base of the module is electrically isolated from semiconductor elements for simple heatsink construction,

- I_C=300A, V_{CEX}=600V
- Low saturation voltage for higher efficiency.
- ULITRA HIGH DC current gain h_{FE}. h_{FE}≧750
- Isolated mounting base
- V_{EBO} 10V for faster switching speed.

(Applications)
Motor Control (VVVF), AC/DC Servo, UPS,
Switching Power Supply, Ultrasonic Application





Unit：mm

■Maximum Ratings

(Tj=25℃ unless otherwise specified)

Symbol	Item		Conditions	Ratings QCA300BA60	Unit
V_{CBO}	Collector-Base Voltage			600	V
V_{CEX}	Collector-Emitter Voltage		V_{BE}=−2V	600	V
$V_{CEX(sus)}$	Collector-Emitter sustaining voltage		I_C=60V I_{B2}=−5A	600	V
V_{EBO}	Emitter-Base Voltage			10	V
I_C	Collector Current		( ) pw≦1ms	300 (600)	A
−I_C	Reverse Collector Current			300	A
I_B	Base Current			18	A
P_T	Total power dissipation		T_C=25℃	1380	W
T_j	Junction Temperature			−40 to +150	℃
Tstg	Storage Temperature			−40 to +125	℃
V_{ISO}	Isolation Voltage		A.C.1minute	2500	V
	Mounting Torque	Mounting (M6)	Recommended Value 2.5-3.9 (25-40)	4.7 (48)	N·m (kgf·cm)
		Terminal (M6)	Recommended Value 2.5-3.9 (25-40)	4.7 (48)	
	Mass		Typical Value	675	g

■Electrical Characteristics

Symbol	Item		Conditions	Ratings Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cut-off Current		V_{CB}=V_{CBO}			4.0	mA
I_{EBO}	Emitter Cut-off Current		V_{EB}=V_{EBO}			500	mA
h_{FE}	D.C. Current Gain		Ic=300A, V_{CE}=2.5V	750			
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage		Ic=300A, I_B=400mA			2.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage		Ic=300A, I_B=400mA			3.0	V
ton	Switching Time	On Time	Vcc=300V, Ic=300A I_{B1}=0.6A, I_{B2}=−6A			2.0	μs
ts		Storage Time				8.0	
tf		Fall Time				2.0	
V_{ECO}	Collector-Emitter Reverse Voltage		Ic=−300A			2.2	V
trr	Reverse Recovery time		Vcc=300V, Ic=−300A, −di/dt=300A/μs, V_{BE}=−5V		200		ns
Rth(j-c)	Thermal Impedance (junction to case)		Transistor part			0.08	℃/W
			Diode part			0.35	

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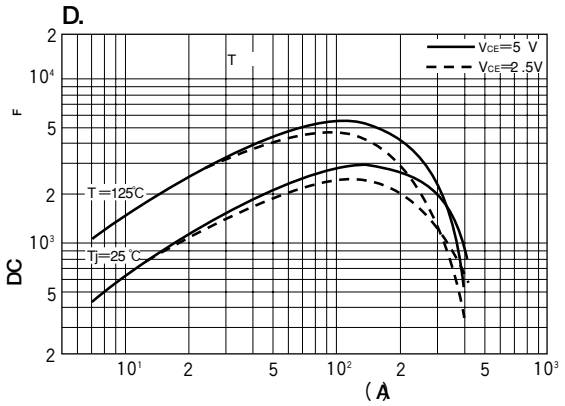

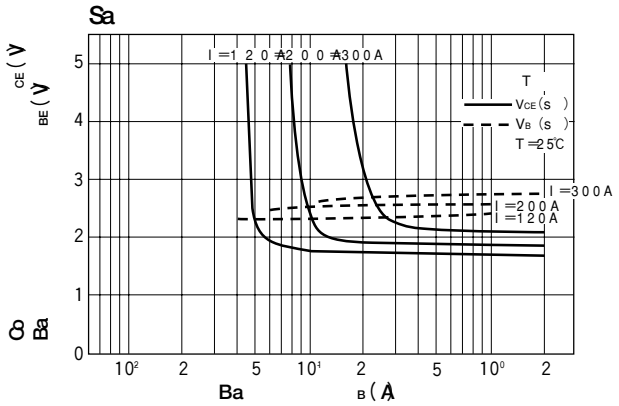

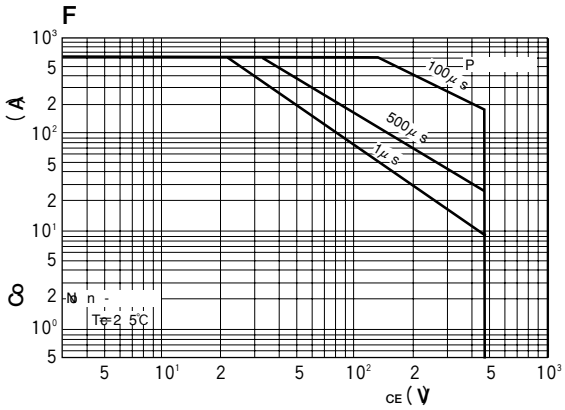

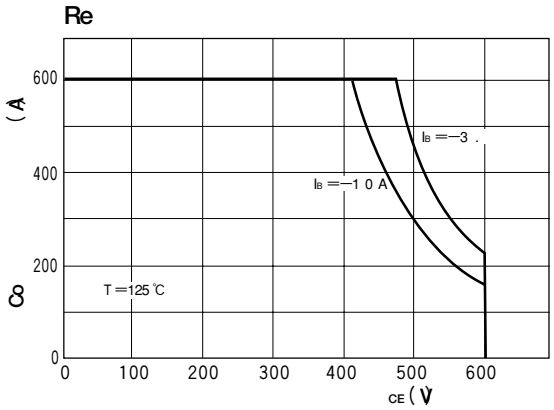

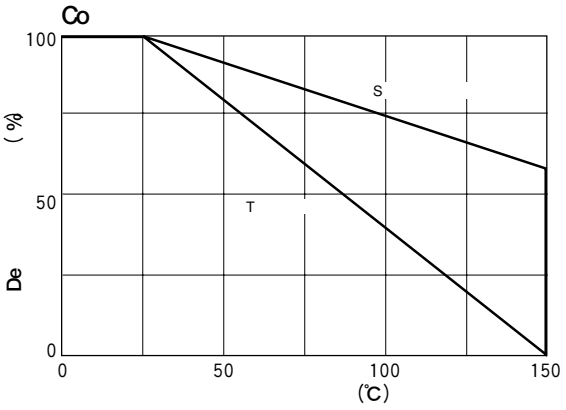

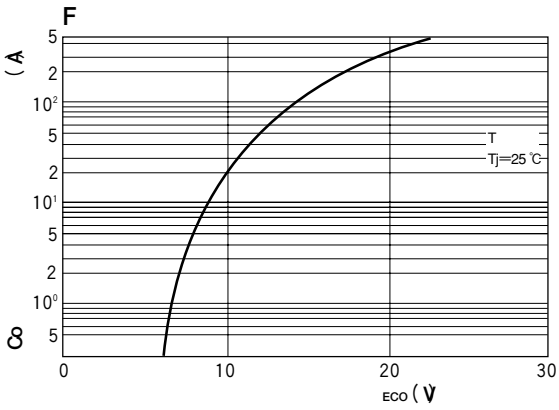

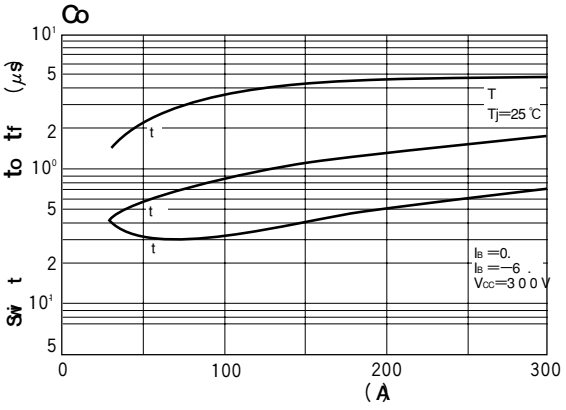

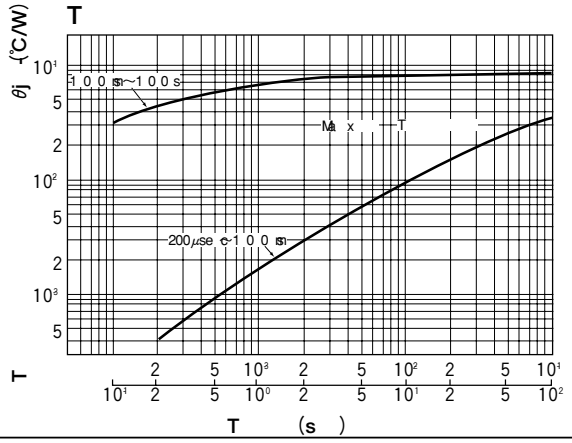

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