TRANSISTOR MODULE（Hi- β）

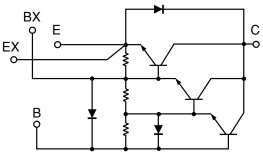
SQD300BA60

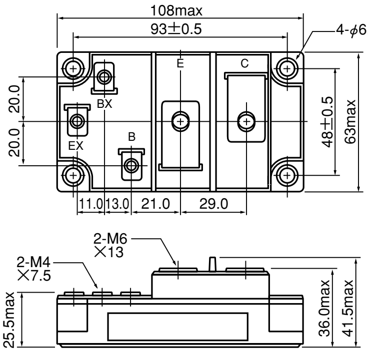
UL;E76102（M）

SQD300BA60 is a Darlington power transistor module with a **ULTRA HIGH** h_{FE}, high speed, high power Darlington transistor. The 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

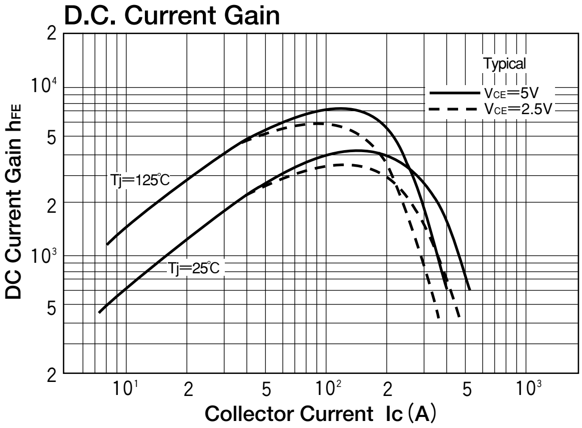
■Maximum Ratings

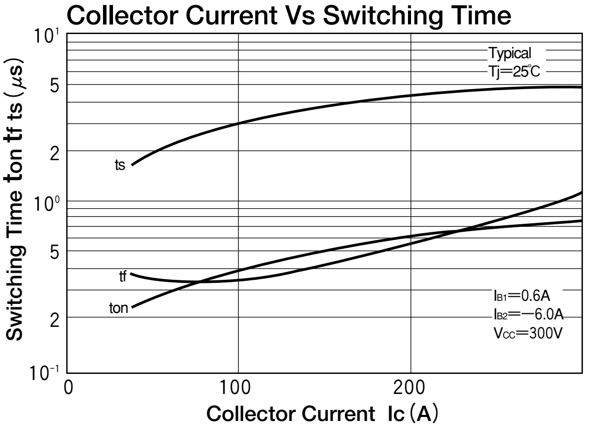
（Tj＝25℃ unless otherwise specified）

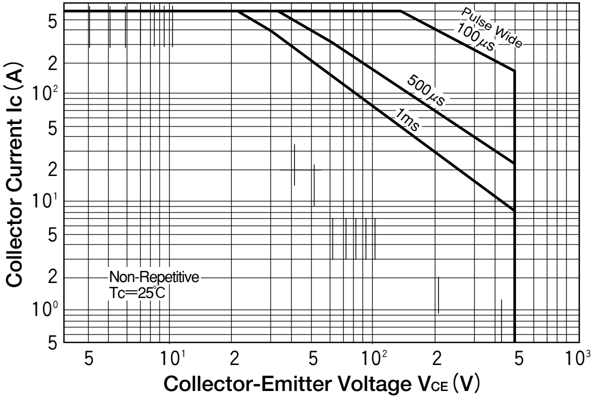
Symbol	Item		Conditions	Ratings SQD300BA60	Unit
V_{CBO}	Collector-Base Voltage			600	V
V_{CEX}	Collector-Emitter Voltage		V_{BE}＝－2V	600	V
V_{EBO}	Emitter-Base Voltage			10	V
I_C	Collector Current		（ ）=pw≦1ms	300（600）	A
$-I_C$	Reverse Collector Current			300	A
I_B	Base Current			18	A
P_T	Total power 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	（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）	
		Terminal（M4）	Recommended Value 1.0-1.4（10-14）	1.5（15）	
	Mass		Typical Value	460	g

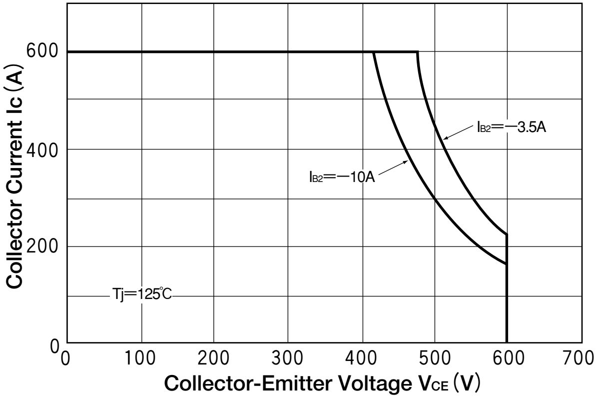
■Electrical Characteristics

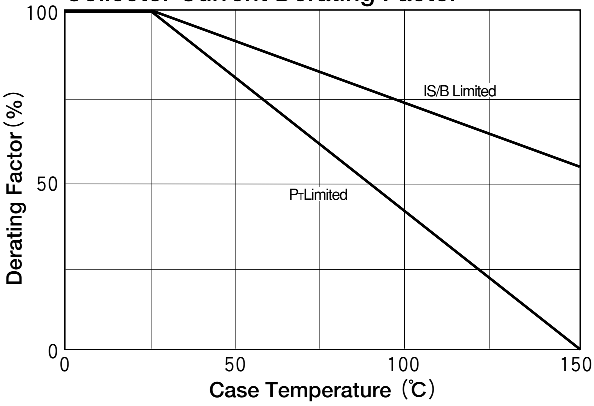
Symbol	Item		Conditions	Ratings Min.	Ratings Typ.	Ratings Max.	Unit
I_{CBO}	Collector Cut-off Current		V_{CB}＝V_{CBO}			4.0	mA
I_{EBO}	Emitter Cut-off Current		V_{EB}＝V_{EBO}			1200	mA
V_{CEO}(sus)	Collector Emitter Sustaning Voltage		Ic＝1A	450			V
V_{CEX}(sus)			Ic＝60A, I_{B2}＝－10A	600			
h_{FE}	DC 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			1.8	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			0.09	℃/W
			Diode part			0.3	

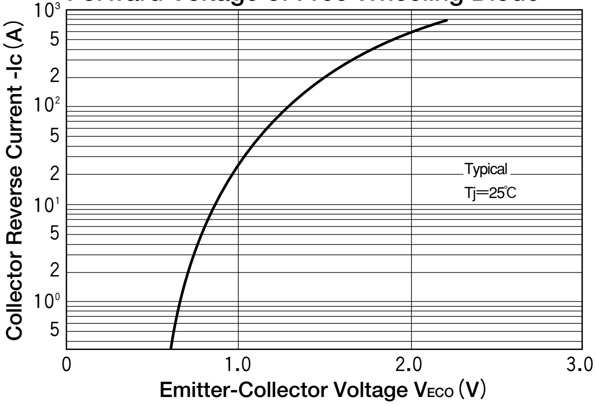

D.C. Current Gain

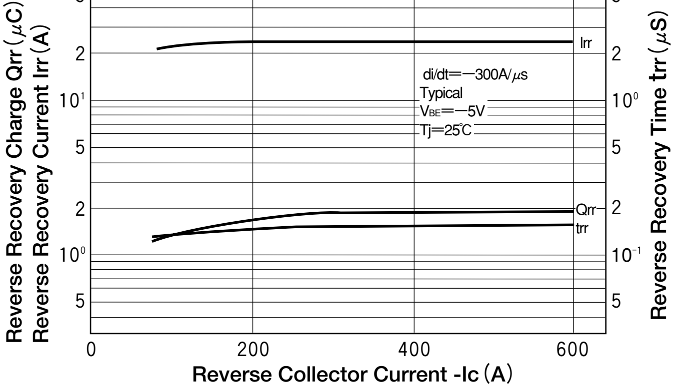

Collector Current Vs Switching Time

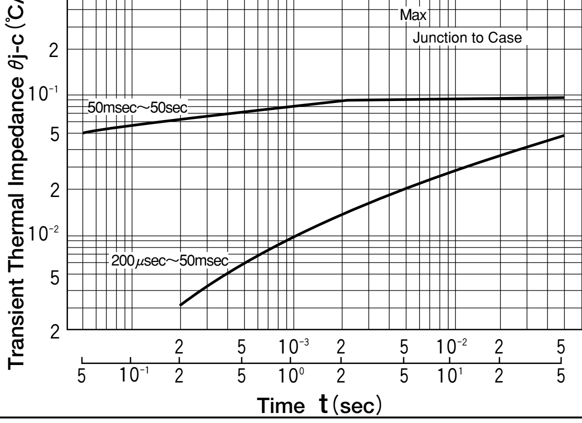

Forward Bias Safe Operating Area


Reverse Bias Safe Operating Area


Collector Current Derating Factor


Forward Voltage of Free Wheeling Diode


Reverse Recovery Characteristics


Maximum Transient Thermal Impedance Characteristics