TRANSISTOR MODULE

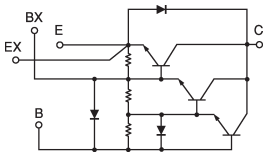
SQD400AA100

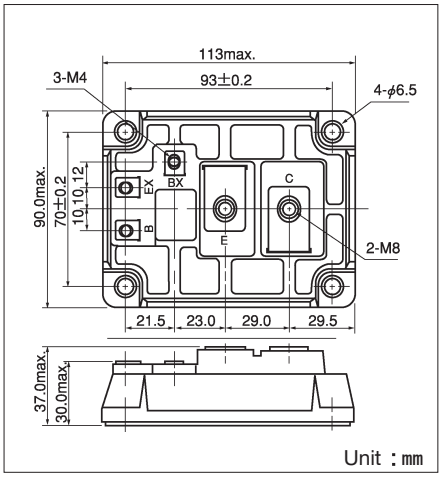
UL;E76102 (M)

SQD400AA100 is a Darlington power transistor module with a high speed, high power Darlington transistor. The 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=400A, V_{CEX}=1000V
- Low saturation voltage High DC current gain
- Isolated monuting base

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





■Maximum Ratings

(Tj=25℃)

Symbol	Item		Conditions	Ratings SQD400AA100	Unit
V_{CBO}	Collector-Base Voltage			1000	V
V_{CEX}	Collector-Emitter Voltage		V_{BE}=−2V	1200	V
$V_{CEX(SUS)}$	Collector-Emitter Sustaning Voltage		I_C=−80A, I_B=−18A	1000	V
V_{EBO}	Emitterr-Base Voltage			10	V
I_C	Collector Current			400	A
−I_C	Reverse Collector Current			400	A
I_B	Base Current			20	A
P_T	Total power dissipation		T_C=25℃	3120	W
T_j	Junction Temperature			−40～+150	℃
Tstg	Storage Temperature			−40～+125	℃
V_{ISO}	Isolation Voltage		A.C. 1minute	2500	V
	Mounting Torque	Mouting (M6)	Recommended Value 2.5～3.9 (25～40)	4.7 (48)	N·m (kgf·cm)
		Terminal (M8)	Recommended Value 8.8～10 (90～105)	11 (115)	
		Terminal (M4)	Recommended Value 1.0～1.4 (10～14)	1.5 (15)	
	Mass		Typical Value	670	g

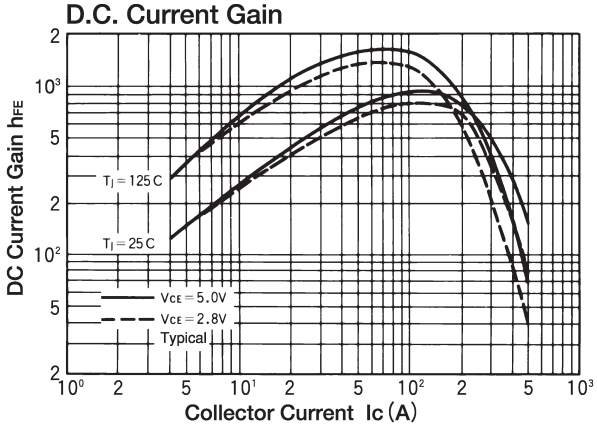
■Electrical Characteristics

(Tj=25℃)

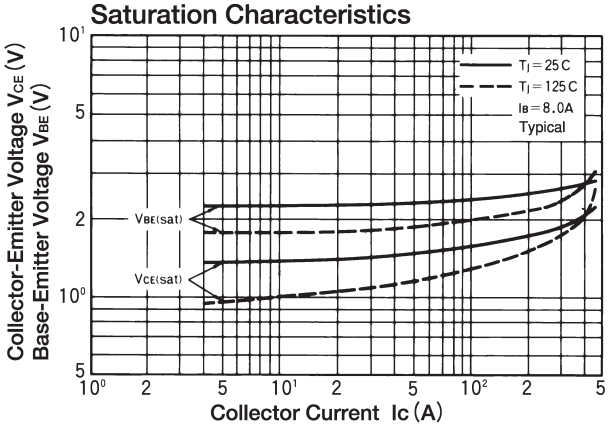
Symbol	Item		Conditions	Ratings Min.	Ratings Max.	Unit
I_{CBO}	Collector Cut-off Current		V_{CB}=1000V		3.0	mA
I_{EBO}	Emitter Cut-off Current		V_{EB}=10V		1000	mA
h_{FE}	DC Current Gain		I_C=300A, V_{CE}=2.8V	75		
			I_C=400A, V_{CE}=5V	100		
$V_{CE(sat)}$	Collector-Emitter Sturation Voltage		I_C=400A, I_B=8A		2.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage		I_C=400A, I_B=8A		3.5	V
ton	Switching Time	On Time	Vcc=600V, I_C=400A I_{B1}=8A, I_{B2}=−8A		3.0	μs
ts		Storage Time			16.0	
tf		Fall Time			3.0	
V_{ECO}	I_C=−400A		Collector-Emitter Reverse Voltage		1.8	V
Rth(j-c)	Thermal Impedance (junction to case)		Transistor part		0.04	℃/W
			Diode part		0.16	

SanRex

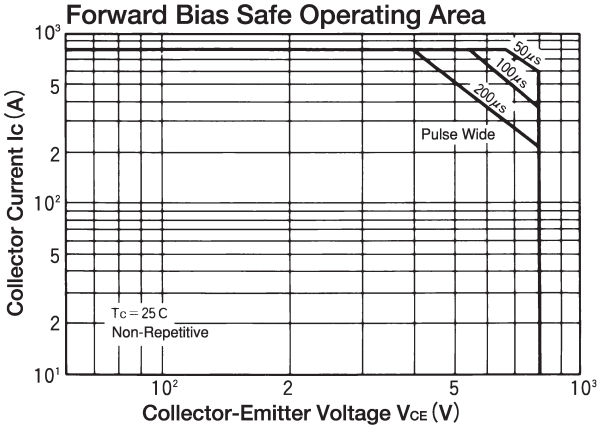
D.C. Current Gain



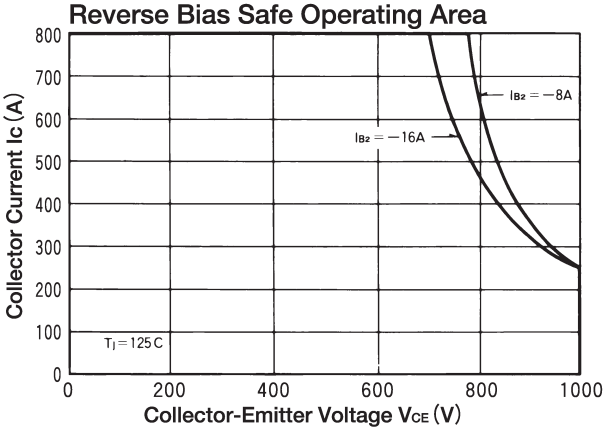
Saturation Characteristics



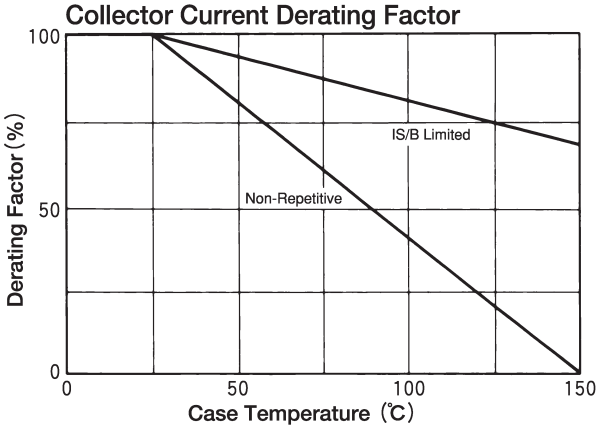
Forward Bias Safe Operating Area



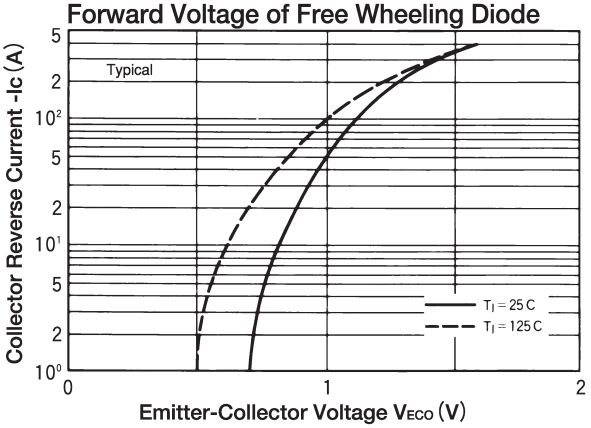
Reverse Bias Safe Operating Area



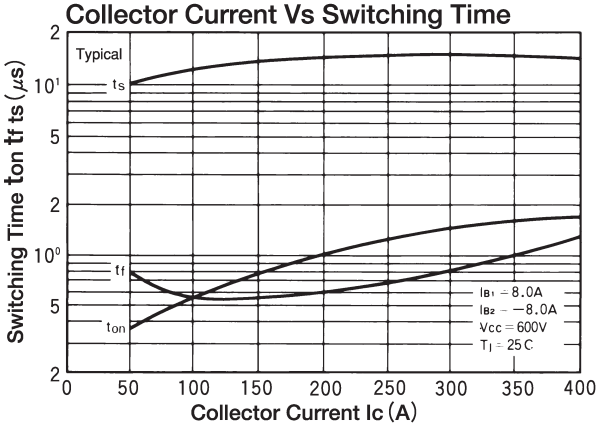
Collector Current Derating Factor



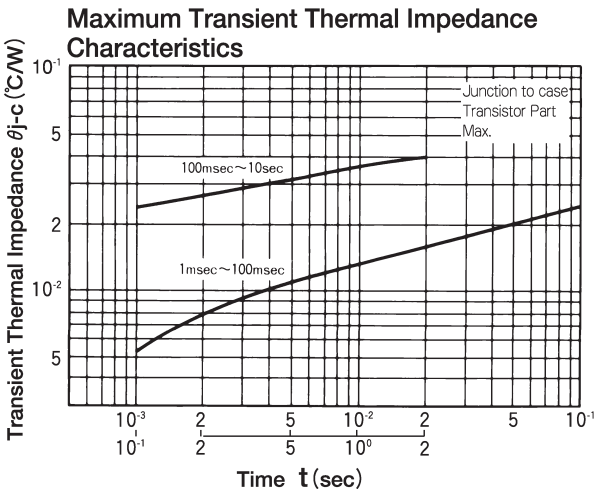
Forward Voltage of Free Wheeling Diode



Collector Current Vs Switching Time



Maximum Transient Thermal Impedance Characteristics



TRANSISTOR MODULE

SQD400AA120

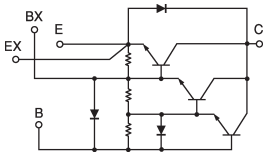
UL;E76102 (M)

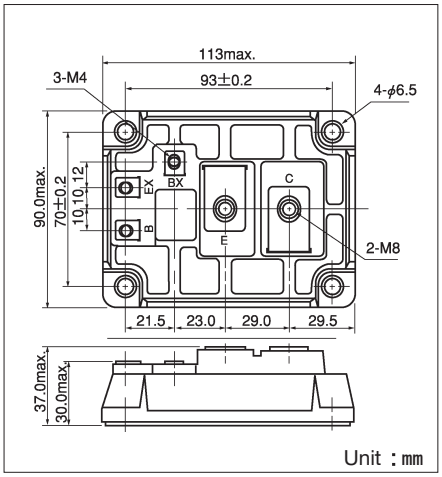
SQD400AA120 is a Darlington power transistor module with a high speed, high power Darlington transistor. The transistor has a reverse paralleled fast recovery diode. The mounting base of the module is electrically isolated from Semiconductor elements for simple heatsink construction.

- I_C=400A, V_{CEX}=1200V
- Low saturation voltage for higher efficiency
- High DC current gain.
- Isolated monuting base

(**Applications**)

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





■Maximum Ratings

(Tj=25℃)

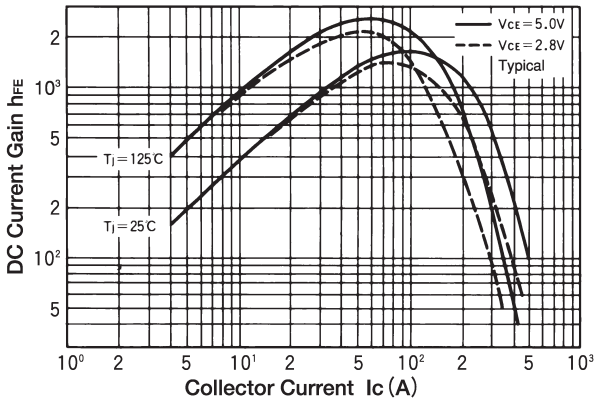
Symbol	Item		Conditions	Ratings	Unit
				SQD400AA120	
V_{CBO}	Collector-Base Voltage			1200	V
V_{CEX}	Collector-Emitter Voltage		V_{BE}=−2V	1200	V
$V_{CEX(SUS)}$	Collector-Emitter Sustaning Voltage		I_C=80A, I_{B2}=−18A	1200	V
V_{EBO}	Emitterr-Base Voltage			10	V
I_C	Collector Current			400	A
−I_C	Reverse Collector Current			400	A
I_B	Base Current			20	A
P_T	Total power dissipation		T_C=25℃	3120	W
T_j	Junction Temperature			−40～+150	℃
Tstg	Storage Temperature			−40～+125	℃
V_{ISO}	Isolation Voltage		A.C. 1minute	2500	V
	Mounting Torque	Mouting (M6)	Recommended Value 2.5～3.9 (25～40)	4.7 (48)	N·m (kgf·cm)
		Terminal (M8)	Recommended Value 8.8～10 (90～105)	11 (115)	
		Terminal (M4)	Recommended Value 1.0～1.4 (10～14)	1.5 (15)	
	Mass		Typical Value	670	g

■Electrical Characteristics

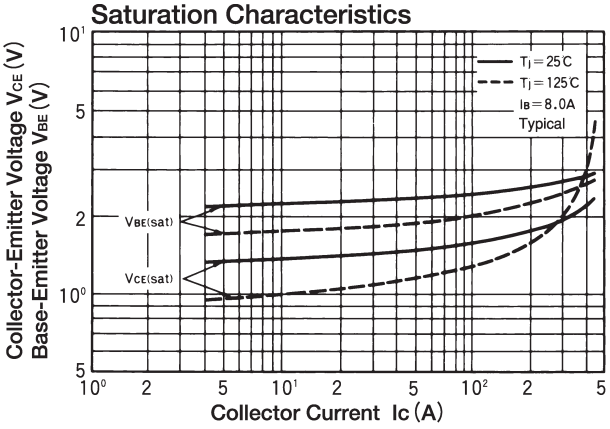
(Tj=25℃)

Symbol	Item		Conditions	Ratings		Unit
				Min.	Max	
I_{CBO}	Collector Cut-off Current		V_{CB}=1200V		5.00	mA
I_{EBO}	Emitter Cut-off Current		V_{EB}=10V		1000	mA
h_{FE}	DC Current Gain		I_C=400A, V_{CE}=2.8V	75		
			I_C=400A, V_{CE}=5V	100		
$V_{CE(sat)}$	Collector-Emitter Sturation Voltage		I_C=400A, I_B=8A		3.0	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage		I_C=400A, I_B=8A		3.5	V
ton	Switching Time	On Time	Vcc=600V, I_C=400A I_{B1}=8A, I_{B2}=−8A		3.0	μs
ts		Storage Time			17.0	
tf		Fall Time			3.0	
V_{ECO}	Collector-Emitter Reverse Voltage		I_C=−400A		1.8	V
Rth(j-c)	Thermal Impedance (junction to case)		Transistor part		0.04	℃/W
			Diode part		0.16	

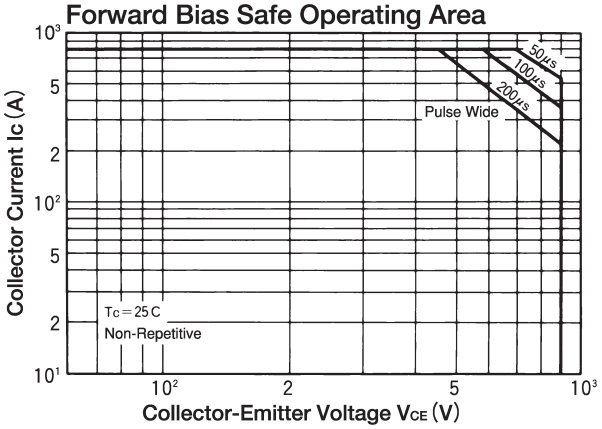
D.C. Current Gain



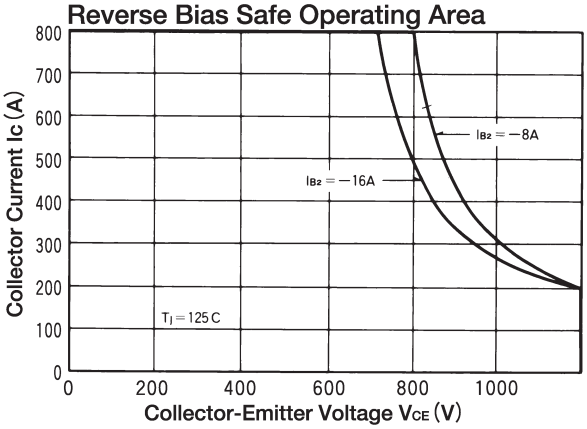
Saturation Characteristics



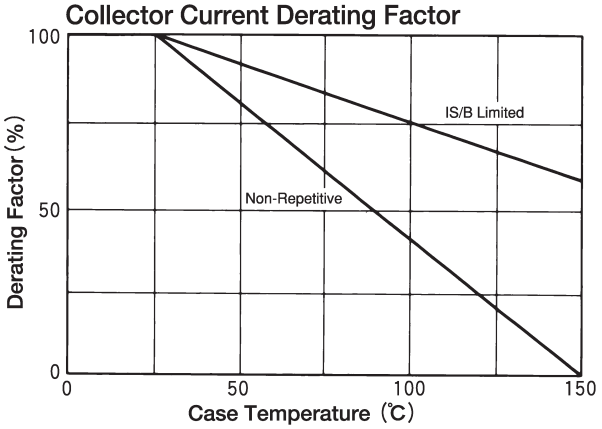
Forward Bias Safe Operating Area



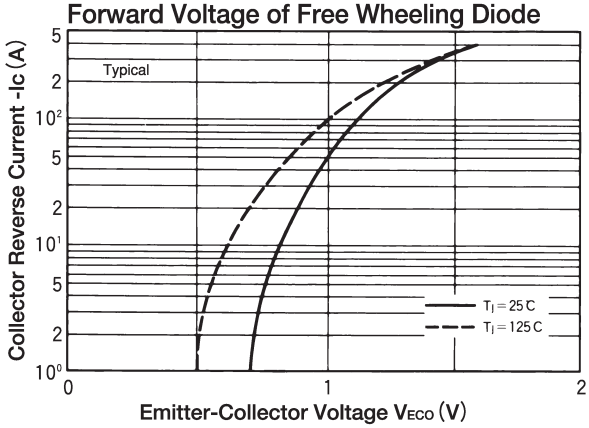
Reverse Bias Safe Operating Area



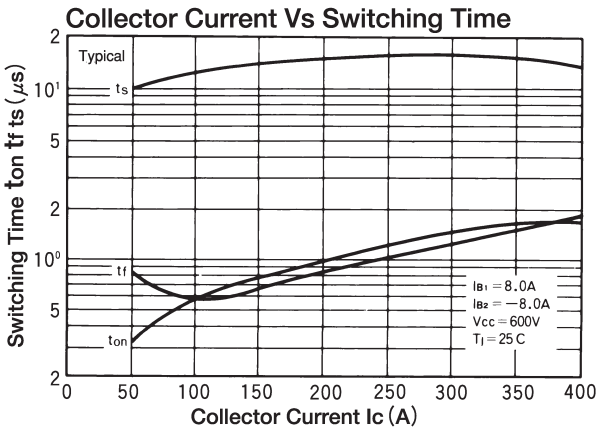
Collector Current Derating Factor



Forward Voltage of Free Wheeling Diode



Collector Current Vs Switching Time



Maximum Transient Thermal Impedance Characteristics