TRANSISTOR MODULE

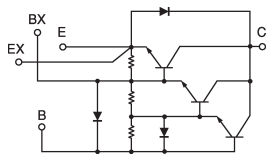
SQD300AA100

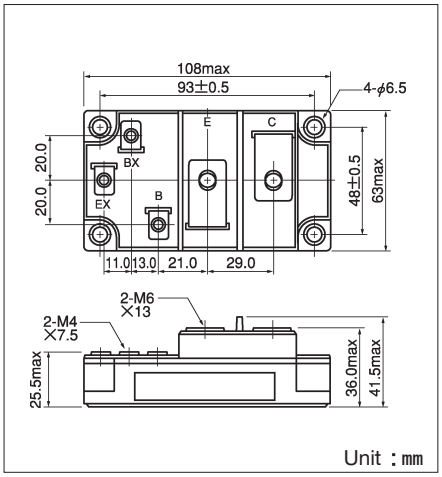
UL;E76102 (M)

SQD300AA100 is a Darlington power transistor module with a high speed, high power Darlington transistor. The transistor has a reverse paralled fast recovery diode. The mounting base of the module is electrically isolated from semiconductor elements for simple heatsink construction.

- I_C=300A, V_{CEX}=1000V
- Low saturation voltage for higher efficiency.
- High DC current gain h_{FE}
- Isolated mounting base

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





■Maximum Ratings

(Tj=25℃)

Symbol	Item		Conditions	Ratings SQD300AA100	Unit
V_{CBO}	Collector-Base Voltage			1000	V
V_{CEX}	Collector-Emitter Voltage		V_{BE}=−2V	1000	V
V_{EBO}	Emitter-Base Voltage			7	V
I_C	Collector Current			300	A
−I_C	Reverse Collector Current			300	A
I_B	Base Current			16	A
P_T	Total power dissipation		T_C=25℃	2000	W
T_j	Junction Temperature			−40～+150	℃
Tstg	Storage Temperature			−40～+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)	
		Terminal (M4)	Recommended Value 1.0～1.4 (10～14)	1.5 (15)	
	Mass		Typical Value	520	g

■Electrical Characteristics

(Tj=25℃)

Symbol	Item		Conditions	Ratings Min.	Ratings Max.	Unit
I_{CBO}	Collector Cut-off Current		V_{CB}=1000V		2.0	mA
I_{EBO}	Emitter Cut-off Current		V_{EB}=7V		800	mA
$V_{CEX(SUS)}$	Collector Emitter Sustaning Voltage		Ic=60A, I_{B2}=−12A	1000		V
h_{FE}	DC Current Gain		Ic=300A, V_{CE}=2.8V	75		
			Ic=300A, V_{CE}=5V	100		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage		Ic=300A, I_B=6A		2.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage		Ic=300A, I_B=6A		3.5	V
ton	Switching Time	On Time	Vcc=600V, Ic=300A I_{B1}=6A, I_{B2}=−6A		3.0	μs
ts		Storage Time			15.0	
tf		Fall Time			3.0	
V_{ECO}	Collector-Emitter Reverse Voltage		Ic=−300A		1.8	V
Rth(j-c)	Thermal Impedance (junction to case)		Transistor part		0.063	℃/W
			Diode part		0.3	

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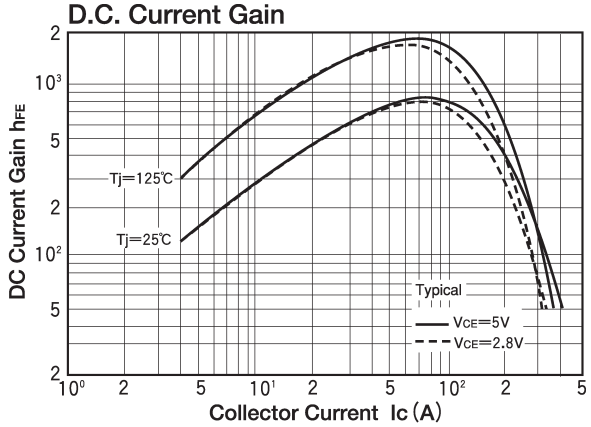
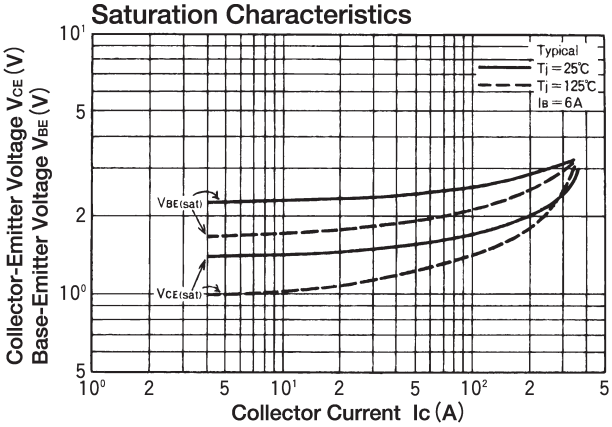
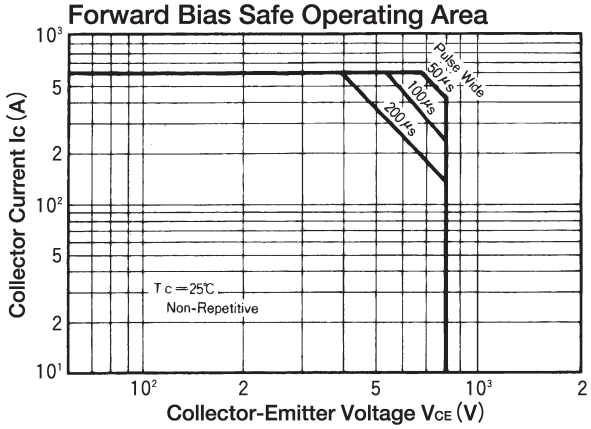
D.C. Current Gain



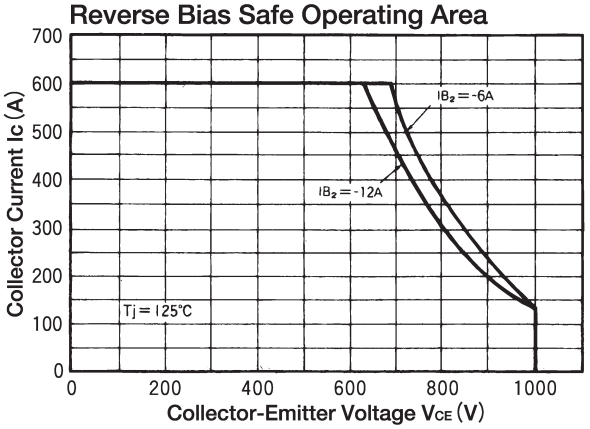
Saturation Characteristics



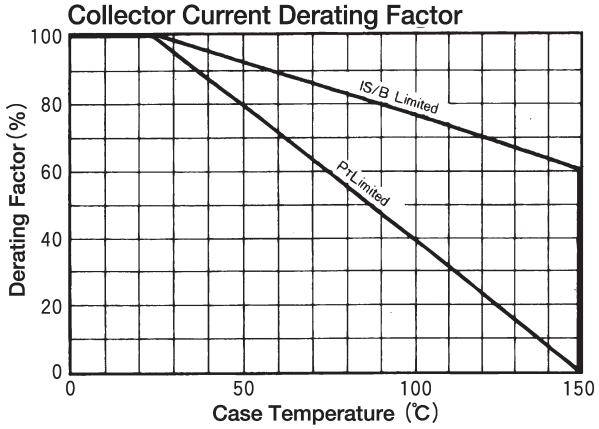
Forward Bias Safe Operating Area



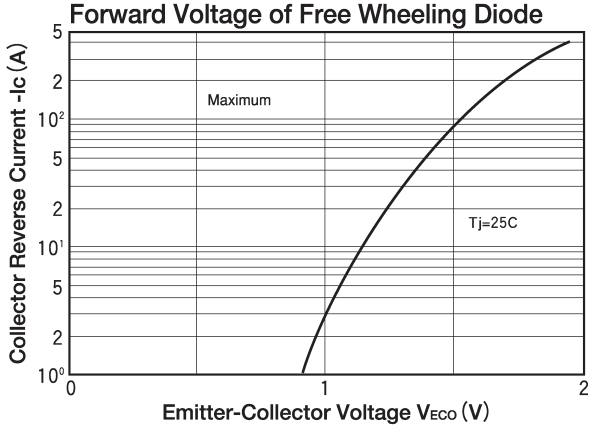
Reverse Bias Safe Operating Area



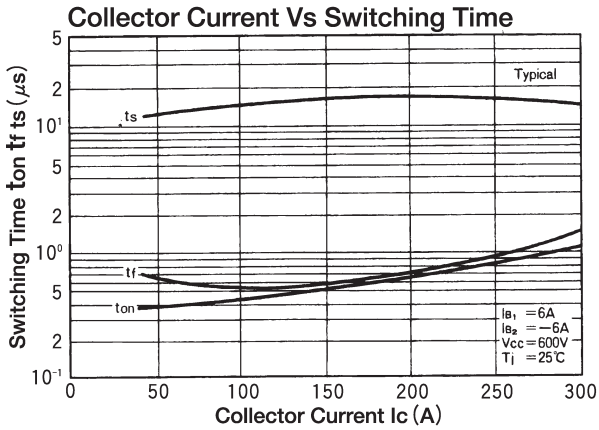
Collector Current Derating Factor



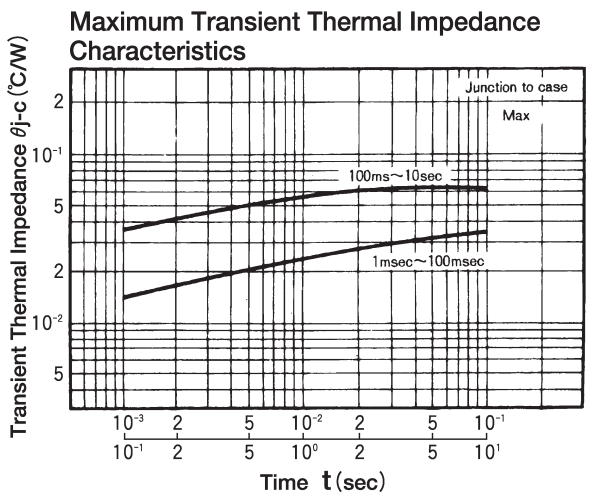
Forward Voltage of Free Wheeling Diode



Collector Current Vs Switching Time



Maximum Transient Thermal Impedance Characteristics



TRANSISTOR MODULE

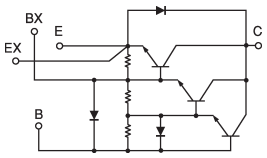
SQD300AA120

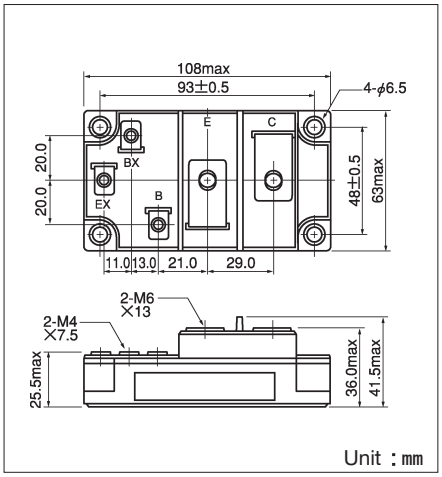
UL;E76102 (M)

SQD300AA120 is a Darlington power transistor module with a high speed, high power Darlington transistor. The transistor has a reverse paralled fast recovery diode. The mounting base of the module is electrically isolated from semiconductor elements for simple heatsink construction.

- I_C=300A, V_{CEX}=1200V
- Low saturation voltage for higher efficiency.
- High DC current gain h_{FE}
- Isolated mounting base

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





■Maximum Ratings

(Tj=25℃)

Symbol	Item		Conditions	Ratings SQD300AA120	Unit
V_{CBO}	Collector-Base Voltage			1200	V
V_{CEX}	Collector-Emitter Voltage		V_{BE}=−2V	1200	V
V_{EBO}	Emitter-Base Voltage			10	V
I_C	Collector Current			300	A
−I_C	Reverse Collector Current			300	A
I_B	Base Current			16	A
P_T	Total power dissipation		T_C=25℃	2000	W
T_j	Junction Temperature			−40～+150	℃
Tstg	Storage Temperature			−40～+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	470	g

■Electrical Characteristics

(Tj=25℃)

Symbol	Item		Conditions	Ratings Min.	Ratings Max.	Unit
I_{CBO}	Collector Cut-off Current		V_{CB}=1200V		4.0	mA
I_{EBO}	Emitter Cut-off Current		V_{EB}=10V		1200	mA
$V_{CEX(SUS)}$	Collector Emitter Sustaning Voltage		Ic=60A, I_{B2}=−12A	1200		V
h_{FE}	DC Current Gain		Ic=300A, V_{CE}=5V	75		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage		Ic=300A, I_B=6A		3.0	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage		Ic=300A, I_B=6A		3.5	V
ton	Switching Time	On Time	Vcc=600V, Ic=300A I_{B1}=6A, I_{B2}=−6A		3.0	μs
ts		Storage Time			15.0	
tf		Fall Time			3.0	
V_{ECO}	Collector-Emitter Reverse Voltage		Ic=−300A		1.8	V
Rth(j-c)	Thermal Impedance (junction to case)		Transistor part		0.063	℃/W
			Dioe part		0.3	

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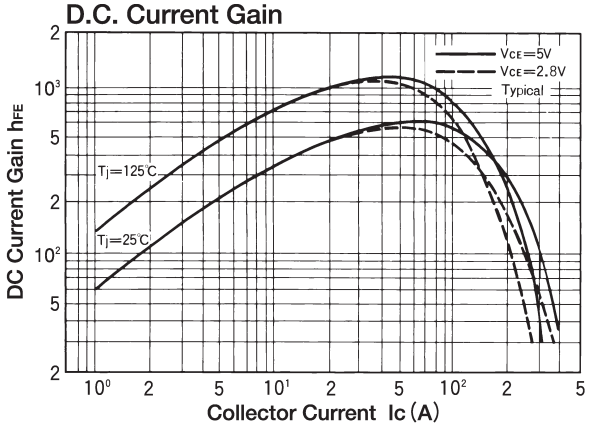
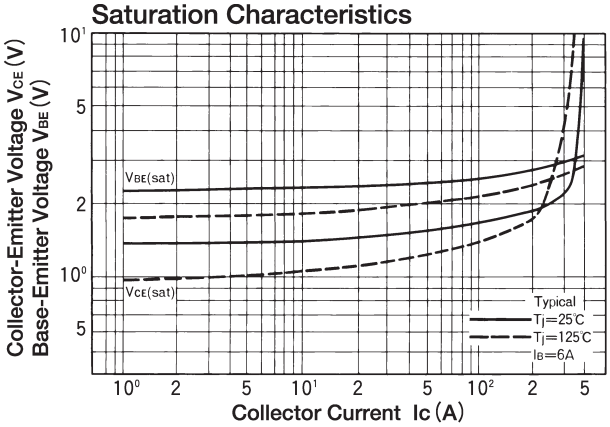
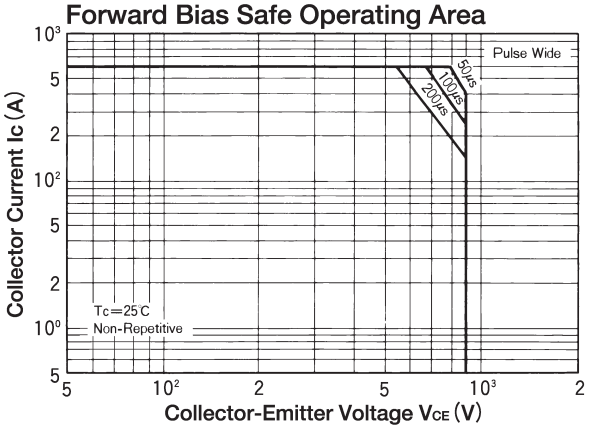
D.C. Current Gain



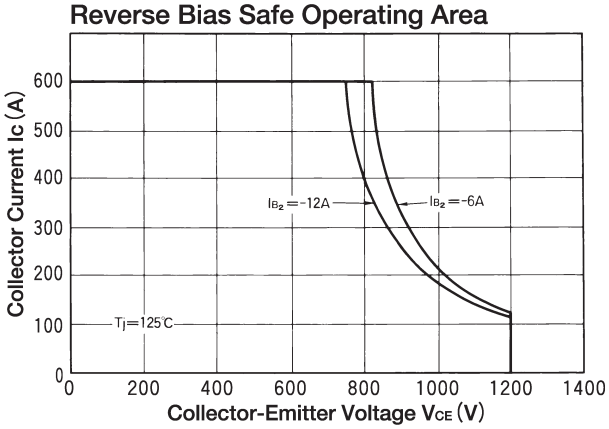
Saturation Characteristics



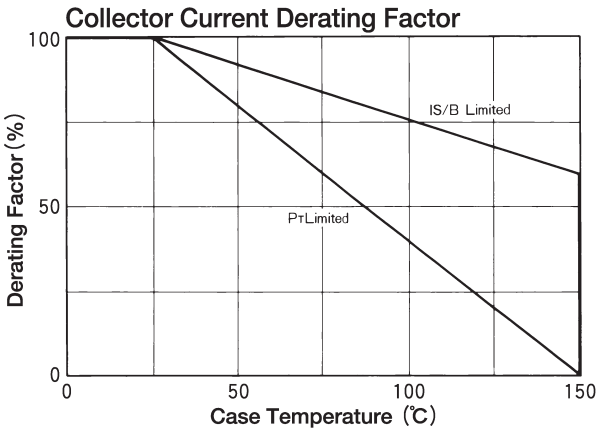
Forward Bias Safe Operating Area



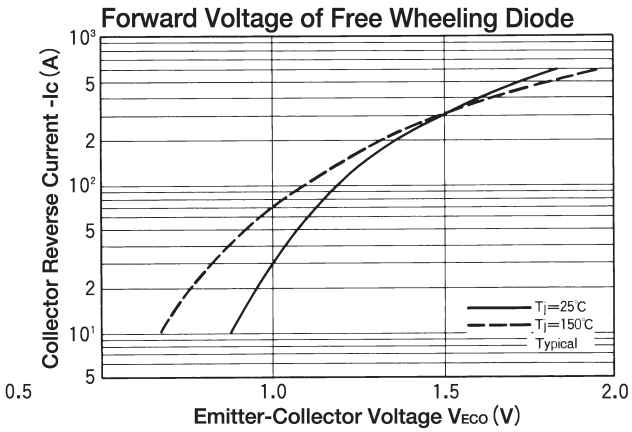
Reverse Bias Safe Operating Area



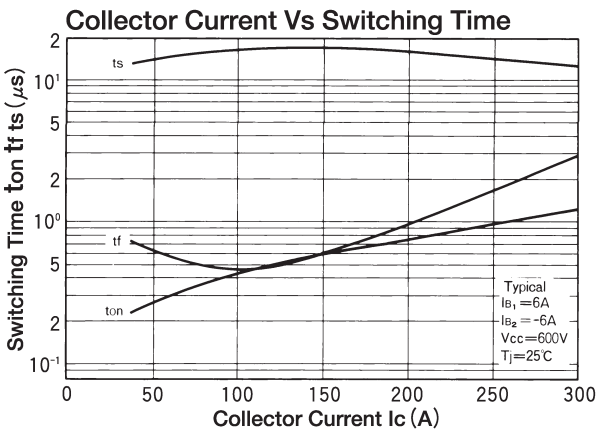
Collector Current Derating Factor



Forward Voltage of Free Wheeling Diode



Collector Current Vs Switching Time



Maximum Transient Thermal Impedance Characteristics