

TRANSISTOR MODULE

SQD300AA100

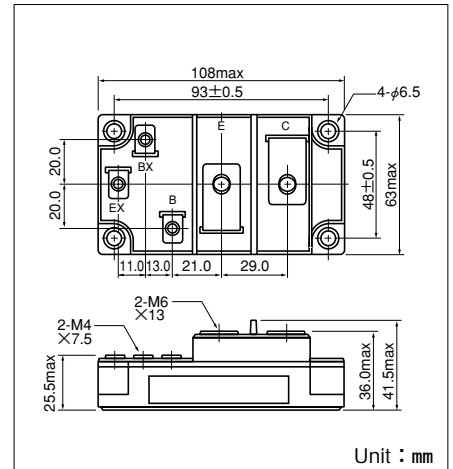
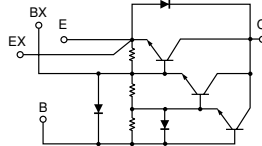
UL:E76102(M)

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)

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



Maximum Ratings

($T_j=25^{\circ}C$ unless otherwise specified)

Symbol	Item	Conditions	Ratings		Unit
			SQD300AA100		
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	$T_c=25^{\circ}C$	2000		W
T_j	Junction Temperature		-40 to +150		$^{\circ}C$
T_{stg}	Storage Temperature		-40 to +125		$^{\circ}C$
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

Symbol	Item	Conditions	Ratings		Unit
			Min.	Max.	
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	$I_C=60A$, $I_{B2}=-12A$	1000		V
h_{FE}	DC Current Gain	$I_C=300A$, $V_{CE}=2.8V$	75		
		$I_C=300A$, $V_{CE}=5V$	100		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=300A$, $I_B=6A$		2.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=300A$, $I_B=6A$		3.5	V
t_{on}	Switching Time	On Time		3.0	μs
t_s		Storage Time	$V_{CC}=600V$, $I_C=300A$ $I_{B1}=6A$, $I_{B2}=-6A$	15.0	
t_f		Fall Time		3.0	
V_{ECO}	Collector-Emitter Reverse Voltage	$I_C=-300A$		1.8	V
$R_{th(j-c)}$	Thermal Impedance (junction to case)	Transistor part		0.063	$^{\circ}C/W$
		Diode part		0.3	

