

TRANSISTOR MODULE

SQD300A40/60

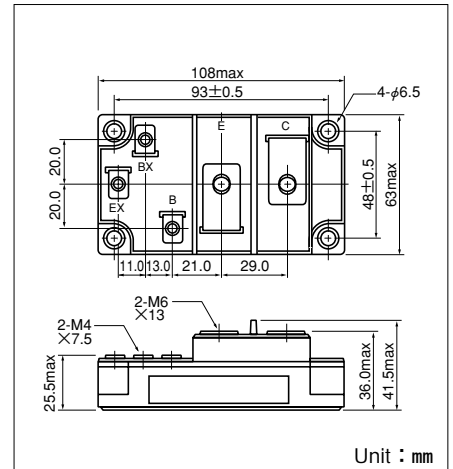
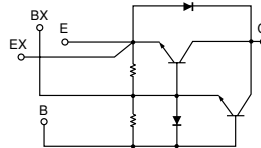
UL:E76102(M)

SQD300A is a Darlington power transistor module which 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,

- $I_C=300A$, $V_{CEX}=400/600V$
- Low saturation voltage for higher efficiency.
- High DC current gain h_{FE}
- Isolated mounting base
- $V_{EBO} 10V$ for faster switching speed.

(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
			SQD300A40	SQD300A60	
V_{CBO}	Collector-Base Voltage		400	600	V
V_{CEX}	Collector-Emitter Voltage	$V_{BE}=-2V$	400	600	V
V_{EBO}	Emitter-Base Voltage		10		V
I_C	Collector Current	() =pw $\leq 1ms$	300 (600)		A
$-I_C$	Reverse Collector Current		300		A
I_B	Base Current		18		A
P_T	Total power dissipation	$T_C=25^\circ C$	1380		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)		N·m (kgf·cm)
		Terminal (M6)	Recommended Value 2.5-3.9 (25-40)		
		Terminal (M4)	Recommended Value 1.0-1.4 (10-14)		
	Mass	Typical Value	460		g

Electrical Characteristics

Symbol	Item	Conditions	Ratings		Unit
			Min.	Max.	
I_{CBO}	Collector Cut-off Current	$V_{CB}=V_{CBO}$		3.0	mA
I_{EBO}	Emitter Cut-off Current	$V_{EB}=V_{EBO}$		1000	mA
$V_{CEO(SUS)}$	Collector Emitter Sustaning Voltage	SQD300A40 SQD300A60	$I_C=1A$		V
$V_{CEX(SUS)}$		SQD300A40 SQD300A60	$I_C=60A, I_{B2}=-10A$		V
h_{FE}	DC Current Gain	$I_C=300A, V_{CE}=2V$		75	
		$I_C=300A, V_{CE}=5V$		100	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=300A, I_B=4.0A$		2.0	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=300A, I_B=4.0A$		2.5	V
t_{on}	Switching Time	On Time		2.0	μs
t_s		Storage Time	$V_{CC}=300V, I_C=300A$ $I_{B1}=6A, I_{B2}=-6A$	12.0	
t_f		Fall Time		3.0	
V_{ECO}	Collector-Emitter Reverse Voltage	$-I_C=300A$		1.4	V
$R_{th(j-c)}$	Thermal Impedance (junction to case)	Transistor part		0.09	$^\circ C/W$
		Diode part		0.3	