

IGBT MODULE

GSA400BA60



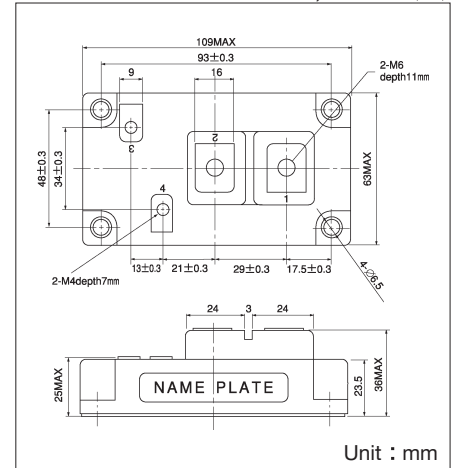
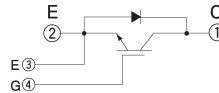
UL;E76102 (M)

SanRex IGBT Module **GSA400BA60** is designed for high speed, high current switching applications. This Module is electrically isolated and with a fast switching, soft recovery diode ($t_{rr}=0.1 \mu s$) reverse connected across each IGBT.

- $I_c=400A$ $V_{CES}=600V$
- $V_{CE(sat)}=2.3V$ Typ
- $t_f=0.10 \mu s$ Typ
- Soft recovery diode

(Applications)

- Inverter for motor control (VVVF)
- UPS, AC servo
- DC power supply, Welder



Maximum Ratings

(Unless otherwise $T_j=25^\circ C$)

Symbol	Item		Conditions	Ratings		Unit
				GSA400BA60		
V_{CES}	Collector-Emitter Voltage		with gate terminal shorted to emitter	600		V
V_{GES}	Gate-Emitter Voltage		with collector shorted to emitter	± 20		V
I_c	Collector Current	DC		400		A
I_{CP}		Pulse (1 ms)		800		
$-I_c$	Reverse Collector Current			400		A
P_T	Total Power Dissipation		$T_c=25^\circ C$	1500		W
T_j	Junction Temperature			150		$^\circ C$
T_{stg}	Storage Temperature			$-40 \sim +125$		$^\circ C$
V_{ISO}	Isolation Voltage (R.M.S.)		A.C. 1 minute	2500		V
	Mounting Torque	Mounting Base (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	400		g

Electrical Characteristics

(Unless otherwise $T_j=25^\circ C$)

Symbol	Item		Conditions	Ratings			Unit
				Min.	Typ.	Max.	
I_{GES}	Gate Leakage Current		$V_{GE}=\pm 20V, V_{CE}=0V$			± 500	nA
I_{CES}	Collector Cut-Off Current		$V_{CE}=600V, V_{GE}=0V$			1.0	mA
$V_{(BR)CES}$	Collector-Emitter Breakdown Voltage		$V_{GE}=0V, I_c=1mA$	600			V
$V_{GE(th)}$	Gate Threshold Voltage		$V_{CE}=5V, I_c=40mA$	3.0		7.0	V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage		$I_c=400A, V_{GE}=15V$		2.3	2.8	V
C_{ies}	Input Capacitance		$V_{CE}=10V, V_{GE}=0V, f=1MHz$		32	40	nF
t_r	Switching Time	Rise Time	$I_c=400A, V_{GE}=+15V/-5V$ $V_{CC}=300V, R_G=1.6\Omega$		0.10	0.20	μs
$t_{d(on)}$		Turn-on Delay Time			0.20	0.40	
t_f		Fall Time			0.10	0.20	
$t_{d(off)}$		Turn-off Delay Time			0.40	0.80	
V_{ECS}	Emitter-Collector Voltage		$-I_c=400A, V_{GE}=0V$		2.30	2.80	V
t_{rr}	Reverse Recovery Time		$-I_c=400A, V_{GE}=-10V, di/dt=800A/\mu s$		0.1	0.15	μs
$R_{th(j-c)}$	Thermal Resistance		IGBT-Case			0.08	$^\circ C/W$
			Diode-Case			0.20	

