

IGBT MODULE

GSA400AA120



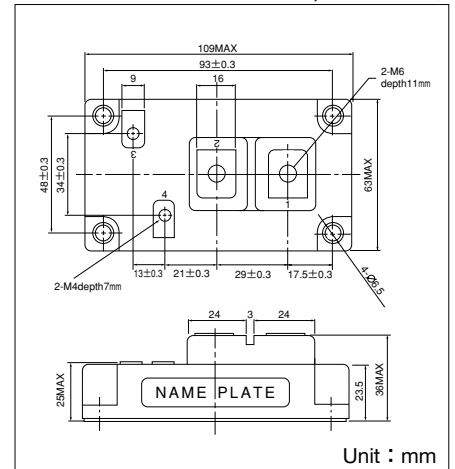
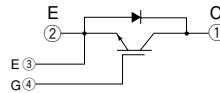
UL;E76102 (M)

SanRex IGBT Module **GSA400AA120** 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 IGBT.

- $I_c=400A$ $V_{CES}=1200V$
- $V_{CE(sat)}=3.0V$ Typ
- $t_f=0.15 \mu s$ Typ
- Soft recovery diode

(Applications)

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



Maximum Ratings

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

Symbol	Item		Conditions	Ratings			Unit
				GSA400AA120			
V_{CES}	Collector-Emitter Voltage		with gate terminal shorted to emitter	1200			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_c	Total Power Dissipation		$T_c=25^\circ C$	2800			W
T_j	Junction Temperature			150			$^\circ C$
T_{stg}	Storage Temperature			-40 to +125			$^\circ C$
V_{ISO}	Isolation Voltage (R.M.S.)		A.C. 1 minute	2500			V
	Mounting Torque	Mounting (M6)	Recommended Value 2.5-3.9	4.7		N·m	
			Recommended Value 25-40	48		(kgf·cm)	
		Main Terminal (M6)	Recommended Value 2.5-3.9	4.7		N·m	
			Recommended Value 25-40	48		(kgf·cm)	
		G (E) Terminal (M4)	Recommended Value 1.0-1.4	1.5		N·m	
			Recommended Value 10-14	15		(kgf·cm)	
	Mass	Typical Value	400			g	

Electrical Characteristics

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

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		$V_{CE}=1200V, V_{GE}=0V$			2.0	mA
$V_{(BR)CES}$	Collector-Emitter Breakdown Voltage		$V_{GE}=0V, I_c=2mA$	1200			V
$V_{GE(th)}$	Gate Threshold Voltage		$V_{CE}=10V, I_c=40mA$	4.5		7.5	V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage		$I_c=400A, V_{GE}=15V$		3.0	3.4	V
C_{ies}	Input Capacitance		$V_{CE}=10V, V_{GE}=0V, f=1MHz$		35	80	nF
t_r	Switching Time	Rise Time	$I_c=400A, V_{GE}=+15V/-5V$ $V_{CC}=600V, R_G=0.78\Omega$		0.20	0.30	μs
$t_{d(on)}$		Turn-on Delay Time			0.25	0.35	
t_f		Fall Time			0.15	0.35	
$t_{d(off)}$		Turn-off Delay Time			0.50	0.70	
V_{ECS}	Emitter-Collector Voltage		$-I_c=400A, V_{GE}=0V$		2.40	3.50	V
t_{rr}	Reverse Recovery Time		$-I_c=400A, V_{GE}=-10V, di/dt=800A/\mu s$		0.15	0.25	μs
$R_{th(j-c)}$	Thermal Resistance		IGBT-Case			0.04	$^\circ C/W$
			Diode-Case			0.10	

