

IGBT MODULE

GSA400AA120

TOP



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 each IGBT.

● $I_c=400A$ $V_{CES}=1200V$

● $V_{CE(sat)}=3.0V$ Typ

● $t_f=0.10 \mu s$ Typ

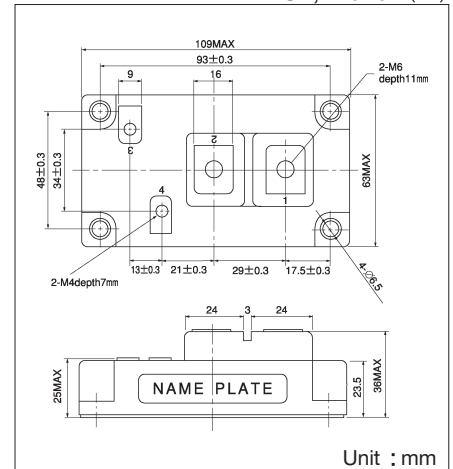
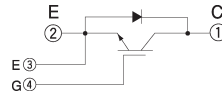
● Soft recovery diode

(Applications)

Inverter for motor control (VVF)

UPS, AC servo

DC power supply, Welder



Maximum Ratings

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

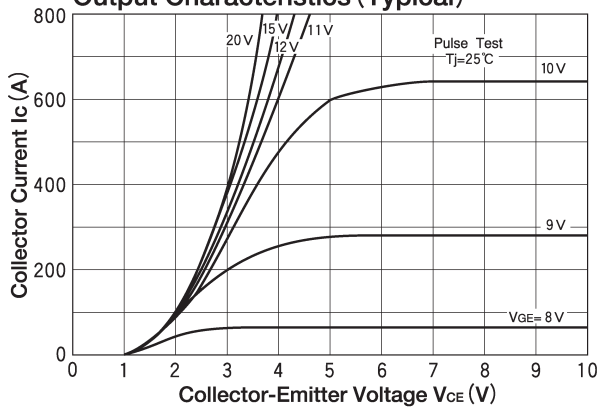
Symbol	Item		Conditions	Ratings	Unit
				GSA400AA120	
V _{CES}	Collector-Emitter Voltage		with gate terminal shorted to emitter	1200	V
V _{GES}	Gate-Emitter Voltage		with collector shorted to emitter	±20	V
I _C	Collector Current	DC		400	A
I _{CP}		Pulse (1 ms)		800	
—I _C	Reverse Collector Current			400	A
P _T	Total Power Dissipation		T _C =25℃	2800	W
T _j	Junction Temperature			150	℃
T _{stg}	Storage Temperature			—40～+125	℃
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
		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

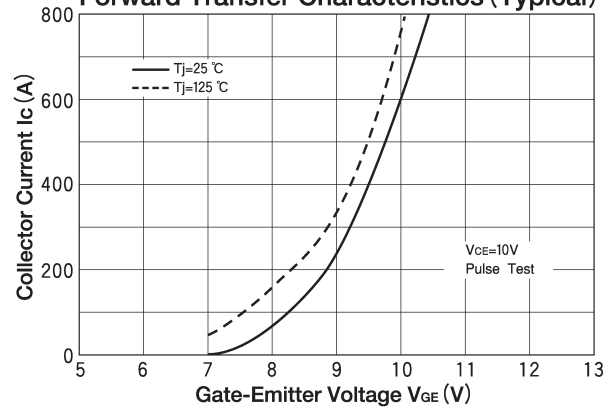
(Unless otherwise $T_j=25^\circ C$)

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		$V_{CE}=1200V$, $V_{GE}=0V$			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	

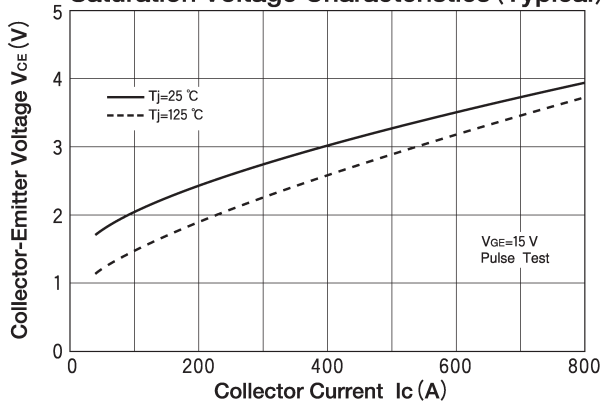
Output Characteristics (Typical)



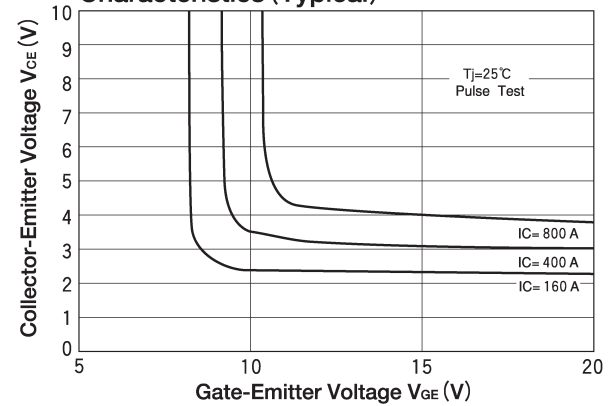
Forward Transfer Characteristics (Typical)



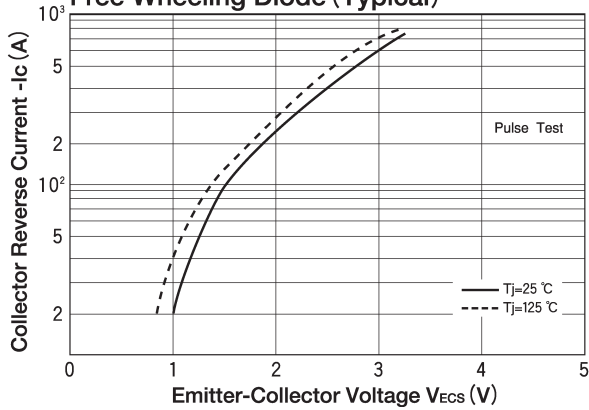
Saturation Voltage Characteristics (Typical)



Collector-Emitter Saturation Voltage Characteristics (Typical)



Forward Voltage of Free Wheeling Diode (Typical)



Input Capacitance, Output Capacitance, Transfer Capacitance (Typical)

