

IGBT MODULE

GCA300AA120

TOP



UL;E76102 (M)

SanRex IGBT Module **GCA300AA120** is designed for high speed, high current switching applications. This Module is electrically isolated and contains two IGBTs connected in series with a fast switching, soft recovery diode ($t_{rr}=0.1 \mu s$) reverse connected across each IGBT.

● $I_C=300A$ $V_{CES}=1200V$

● $V_{CE(sat)}=3.0V$ Typ

● $t_f=0.10 \mu s$ Typ

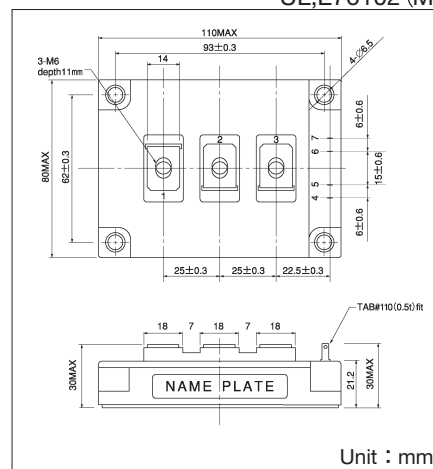
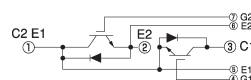
● Soft recovery diode

(Applications)

Inverter for motor control (VVVF)

UPS, AC servo

DC power supply, Welder



Maximum Ratings

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

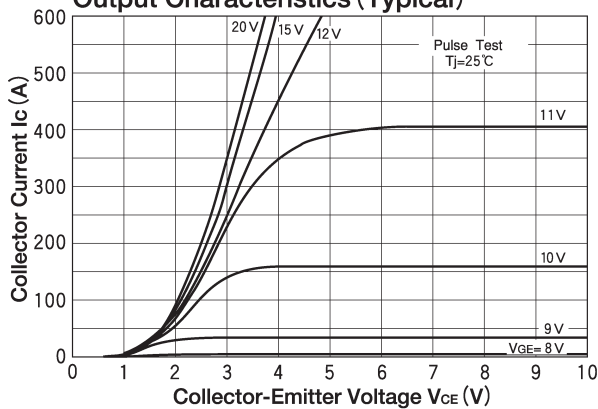
Symbol	Item		Conditions	Ratings	Unit
				GCA300AA120	
V_{CES}	Collector-Emitter Voltage		with gate terminal shorted to emitter	1200	V
V_{GES}	Gate-Emitter Voltage		with collector shorted to emitter	± 20	V
I_C	Collector Current	DC		300	A
I_{CP}		Pulse (1 ms)		600	
$-I_C$	Reverse Collector Current			300	A
P_T	Total Power Dissipation		$T_c=25^\circ C$	2100	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 (M6)	Recommended Value 2.5~3.9 (25~40)	4.7 (48)	N·m (kgf·cm)
		Terminal (M5)	Recommended Value 1.5~2.5 (15~25)	2.7 (28)	
	Mass		Typical Value	450	g

Electrical Characteristics

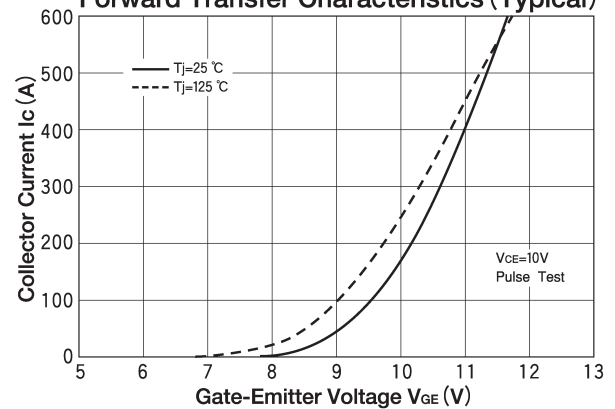
(Unless otherwise $T_j=25^\circ C$)

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		$V_{CE}=1200V$, $V_{GE}=0V$			1.0	mA
$V_{(BR)CES}$	Collector-Emitter Breakdown Voltage		$V_{GE}=0V$, $I_C=1mA$	1200			V
$V_{GE(th)}$	Gate Threshold Voltage		$V_{CE}=10V$, $I_C=30mA$	4.5		7.5	V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage		$I_C=300A$, $V_{GE}=15V$		3.0	3.4	V
C_{ies}	Input Capacitance		$V_{CE}=10V$, $V_{GE}=0V$, $f=1MHz$		30	60	nF
t_r	Switching Time	Rise Time	$I_C=300A$, $V_{GE}=+15V/-5V$ $V_{CC}=600V$, $R_G=1.0\Omega$		0.10	0.25	μs
$t_d(on)$		Turn-on Delay Time			0.15	0.35	
t_f		Fall Time			0.10	0.35	
$t_d(off)$		Turn-off Delay Time			0.30	0.60	
V_{ECS}	Emitter-Collector Voltage		$-I_C=300A$, $V_{GE}=0V$		2.50	3.50	V
t_{rr}	Reverse Recovery Time		$-I_C=300A$, $V_{GE}=-10V$, $di/dt=600A/\mu s$		0.15	0.25	μs
$R_{th(j-c)}$	Thermal Resistance		IGBT-Case			0.06	$^\circ C/W$
			Diode-Case			0.15	

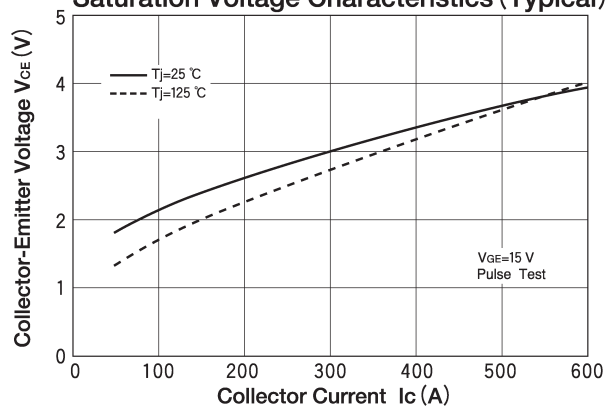
Output Characteristics (Typical)



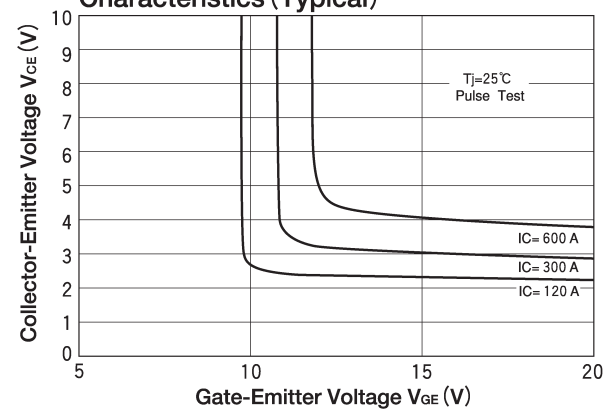
Forward Transfer Characteristics (Typical)



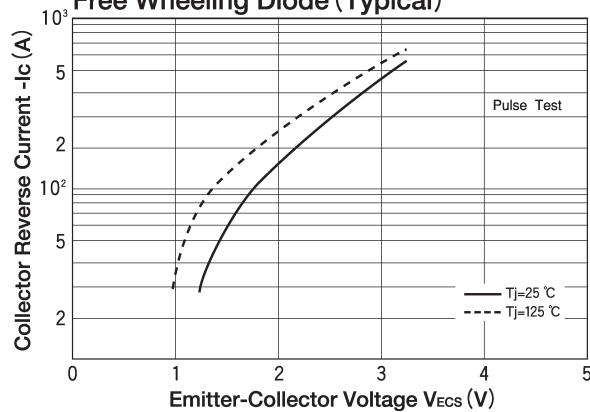
Saturation Voltage Characteristics (Typical)



Collector-Emitter Saturation Voltage Characteristics (Typical)



Forward Voltage of Free Wheeling Diode (Typical)



Input Capacitance, Output Capacitance, Transfer Capacitance (Typical)

