

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 ($t_{rr}=0.1\ \mu\text{s}$) reverse connected across each IGBT.

● $I_c=300\text{A}$ $V_{CES}=1200\text{V}$

● $V_{CE(sat)}=3.0\text{V Typ}$

● $t_f=0.10\ \mu\text{s Typ}$

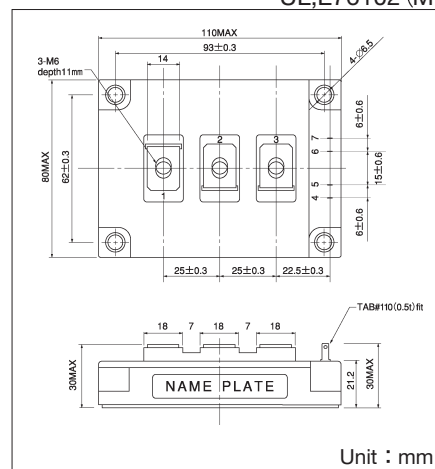
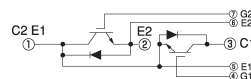
● Soft recovery diode

(Applications)

Inverter for motor control (VVVF)

UPS, AC servo

DC power supply, Welder



Unit : mm

Maximum Ratings

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

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		$T_c=25^\circ\text{C}$	2100	W
T_j	Junction Temperature			150	$^\circ\text{C}$
T_{stg}	Storage Temperature			$-40 \sim +125$	$^\circ\text{C}$
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 $T_j=25^\circ\text{C}$)

Symbol	Item		Conditions	Ratings			Unit
				Min.	Typ.	Max.	
I_{GES}	Gate Leakage Current		$V_{GE}=\pm 20\text{V}$, $V_{CE}=0\text{V}$			± 500	nA
I_{CES}	Collector Cut-Off Current		$V_{CE}=1200\text{V}$, $V_{GE}=0\text{V}$			1.0	mA
$V_{(BR)CES}$	Collector-Emitter Breakdown Voltage		$V_{GE}=0\text{V}$, $I_c=1\text{mA}$	1200			V
$V_{GE(th)}$	Gate Threshold Voltage		$V_{CE}=10\text{V}$, $I_c=30\text{mA}$	4.5		7.5	V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage		$I_c=300\text{A}$, $V_{GE}=15\text{V}$		3.0	3.4	V
C_{ies}	Input Capacitance		$V_{CE}=10\text{V}$, $V_{GE}=0\text{V}$, $f=1\text{MHz}$		30	60	nF
t_r	Switching Time	Rise Time	$I_c=300\text{A}$, $V_{GE}=+15\text{V}/-5\text{V}$ $V_{CC}=600\text{V}$, $R_G=1.0\ \Omega$		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		$-I_c=300\text{A}$, $V_{GE}=0\text{V}$		2.50	3.50	V
t_{rr}	Reverse Recovery Time		$-I_c=300\text{A}$, $V_{GE}=-10\text{V}$, $di/dt=600\text{A}/\mu\text{s}$		0.15	0.25	μs
$R_{th(j-c)}$	Thermal Resistance		IGBT-Case			0.06	$^\circ\text{C}/\text{W}$
			Diode-Case			0.15	

