

IGBT MODULE

GCA300AA120



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.

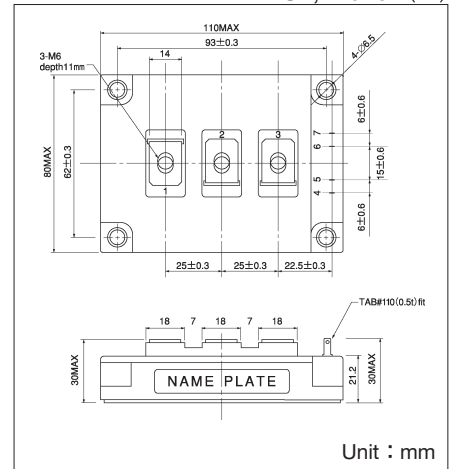
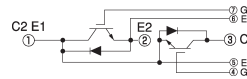
- $I_c=300A$ $V_{CES}=1200V$
- $V_{CE(sat)}=3.0V$ Typ
- $t_f=0.10 \mu s$ Typ
- Soft recovery diode

(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)		N·m (kgf·cm)
		Terminal (M5)	Recommended Value 1.5~2.5 (15~25)		
	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	$V_{GE}=0V, I_c=1 \text{ mA}$	1200			V	
$V_{GE(th)}$	Gate Threshold Voltage	$V_{CE}=10V, I_c=30 \text{ mA}$	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	$V_{CE}=10V, V_{GE}=0V, f=1 \text{ MHz}$		30	60	nF	
t_r	Switching Time	Rise Time		0.10	0.25	μs	
$t_{d(on)}$		Turn-on Delay Time	$I_c=300A, V_{GE}=+15V/-5V$ $V_{CC}=600V, R_G=1.0 \Omega$		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		

