

IGBT MODULE

GAE200AA120



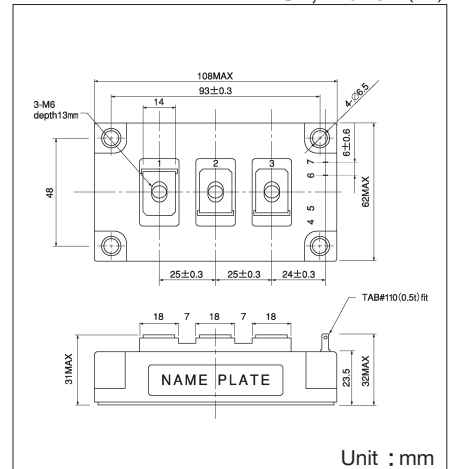
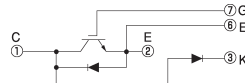
UL;E76102 (M)

SanRex IGBT Module **GAE200AA120** is designed for high speed, high current switching applications. This Module is electrically isolated and contains IGBT connected with clamp diode in series, soft recovery diode ($t_{rr}=0.1 \mu s$) reverse connected across IGBT.

- $I_C = 200A$ $V_{CES} = 1200V$
- $V_{CES(sat)} = 3.0V$ Typ
- $t_f = 0.10 \mu s$ Typ
- Soft recovery diode

(Applications)

Brake for motor control (VVVF)



Unit : mm

Maximum Ratings

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

Symbol	Item		Conditions	Ratings		Unit
				GAE200AA120		
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		200		A
I_{CP}		Pulse (1 ms)		400		
$-I_C$	Reverse Collector Current			200		A
P_T	Total Power Dissipation		$T_c = 25^\circ C$	1500		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	400		g

Electrical Characteristics

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		$V_{CE} = 10V, I_C = 20mA$	4.5		7.5	V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage		$I_C = 200A, V_{GE} = 15V$		3.0	3.4	V
C_{ies}	Input Capacitance		$V_{CE} = 10V, V_{GE} = 0V, f = 1MHz$		20	40	nF
t_r	Switching Time	Rise Time	$I_C = 200A, V_{GE} = +15V / -5V$ $V_{CC} = 600V, R_G = 1.6 \Omega$		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			0.35	0.45	
V_{ECS}	Emitter-Collector Voltage		$-I_C = 200A, V_{GE} = 0V$		2.20	3.50	V
t_{rr}	Reverse Recovery Time		$-I_C = 200A, V_{GE} = -10V, di/dt = 400A/\mu s$		0.15	0.25	μs
$R_{th(j-c)}$	Thermal Resistance		IGBT-Case			0.08	$^\circ C/W$
			Diode-Case			0.20	
V_{FM}	Forward Voltage Drop		$I_F = 200A, \text{Clamp Diode}$		2.20	3.50	V
t_{rr}	Reverse Recovery Time		$I_F = 200A, di_F/dt = -400A/\mu s, \text{Clamp Diode}$		0.15	0.25	μs
$R_{th(j-c)}$	Thermal Impedance		Clamp Diode			0.20	$^\circ C/W$

