IGBT MODULE

GSA300AA120

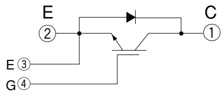
UL;E76102（M）

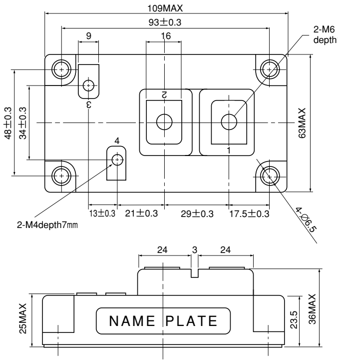
SanRex IGBT Module **GSA300AA120** is designed for high speed, high current switching applications. This Module is electrically isolated and with a fast switching, soft recovery diode (trr=0.1 μs) reverse connected across IGBT.

- I_C=300A　V_{CES}=1200V
- $V_{CE(sat)}$=3.0V Typ
- tf=0.10 μs Typ
- Soft recovery diode

（Applications）

Inverter for motor control (VVVF)
UPS, AC servo
DC power supply, Welder





Unit：mm

■Maximum Ratings

（Tj=25℃ unless otherwise specified）

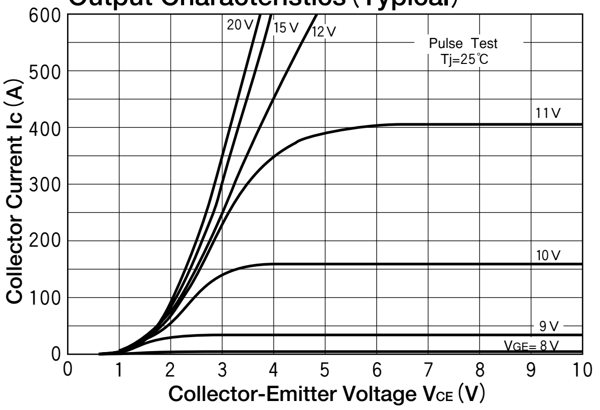
Symbol	Item		Conditions	Ratings	Unit
				GSA300AA120	
V_{CES}	Collector-Emitter Voltage		with gate terminal shorted to emitter	1200	V
V_{GES}	Gate-Emitter Voltage		with collector shorted to emitter	±20	V
I_C	Collector Current	DC		300	A
I_{CP}		Pulse（1 ms）		600	
$-I_C$	Reverse Collector Current			300	A
P_C	Total Power Dissipation		Tc=25℃	2100	W
T_j	Junction Temperature			150	℃
T_{stg}	Storage Temperature			−40 to +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)
		G（E） 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

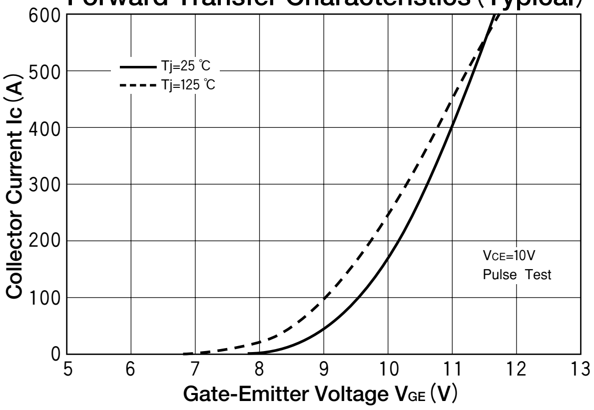
（Tj=25℃ unless otherwise specified）

Symbol	Item		Conditions	Ratings			Unit
				Min.	Typ.	Max.	
I_{GES}	Gate Leakage Current		V_{GE}=±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
Cies	Input Capacitance		V_{CE}=10V, V_{GE}=0V, f=1MHz		35	60	nF
tr	Switching Time	Rise Time	I_C=300A, V_{GE}=+15V/−5V Vcc=600V, R_G=1.0Ω		0.10	0.25	μs
td（on）		Turn-on Delay Time			0.15	0.35	
tf		Fall Time			0.10	0.35	
td（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
trr	Reverse Recovery Time		$-I_C$=300A, V_{GE}=−10V, di/dt=600A/μs		0.15	0.25	μs
Rth（j-c）	Thermal Resistance		IGBT-Case			0.06	℃/W
			Diode-Case			0.15	

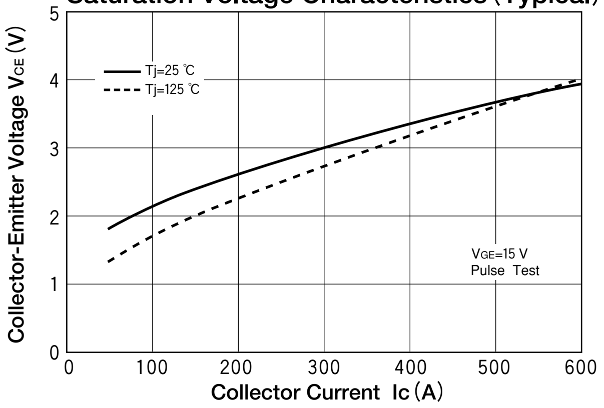
Output Characteristics (Typical)



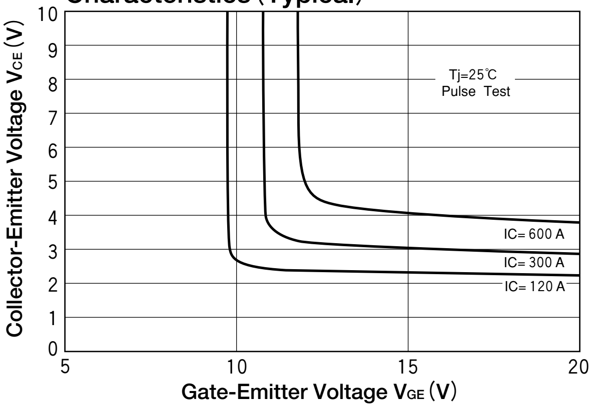
Forward Transfer Characteristics (Typical)



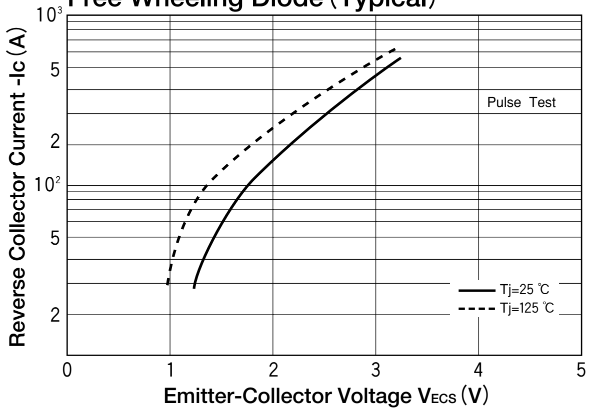
Saturation Voltage Characteristics (Typical)



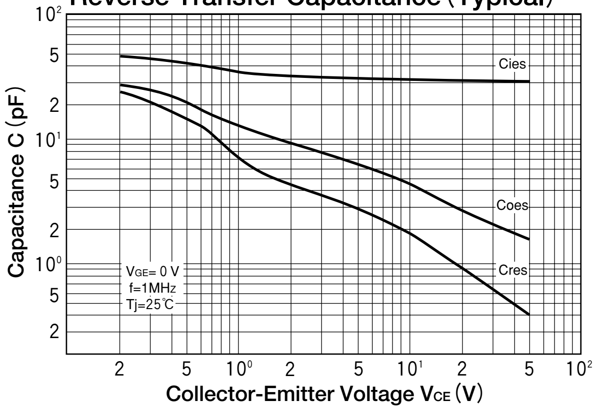
Collector-Emitter Saturation Voltage Characteristics (Typical)

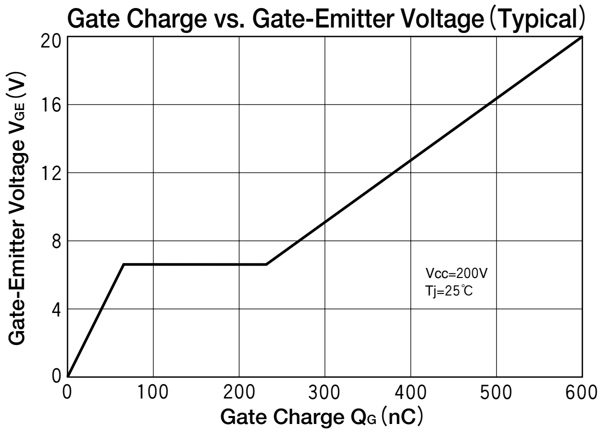


Forward Voltage of Free Wheeling Diode (Typical)

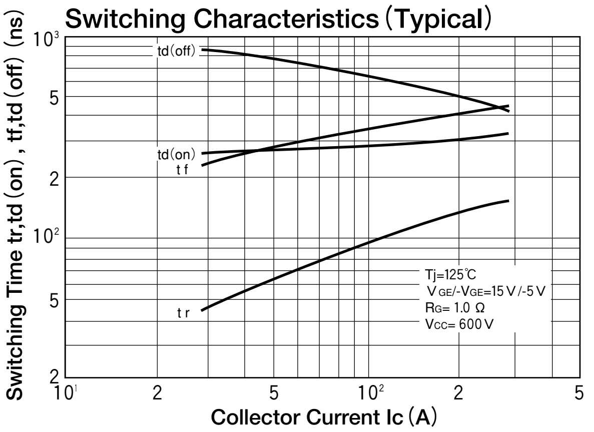


Input Capacitance, Output Capacitance, Reverse Transfer Capacitance (Typical)

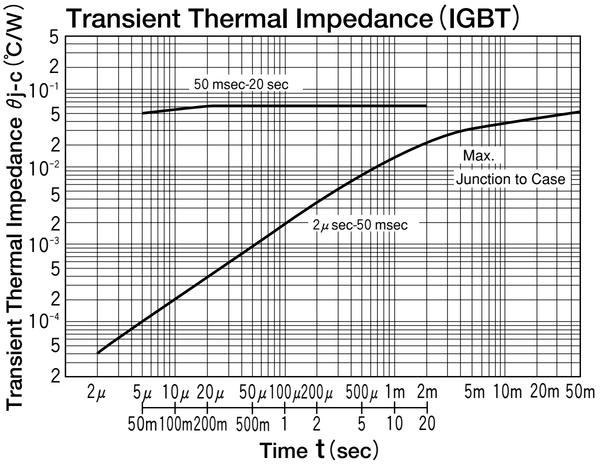




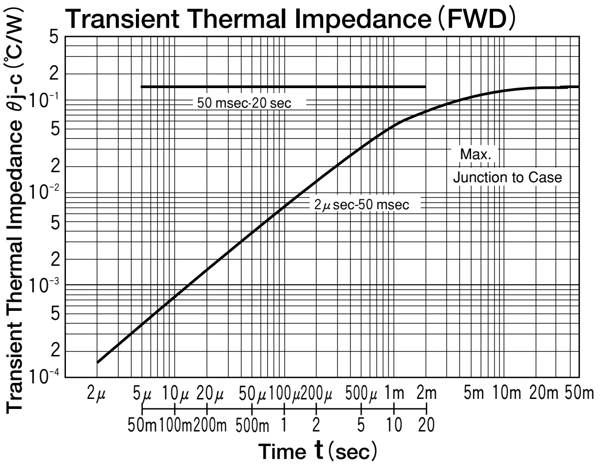
Gate Charge vs. Gate-Emitter Voltage (Typical)



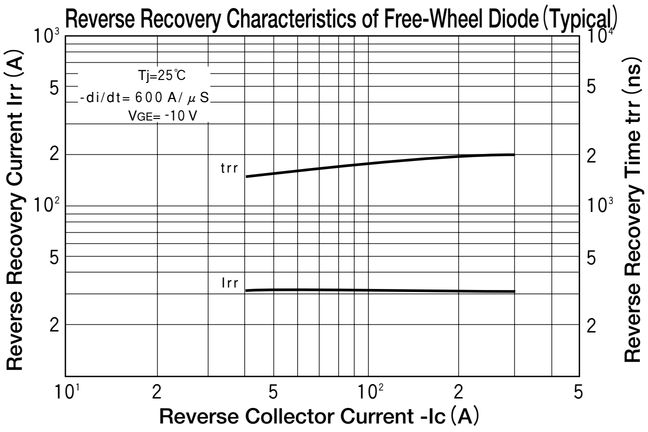
Switching Characteristics (Typical)



Transient Thermal Impedance (IGBT)



Transient Thermal Impedance (FWD)



Reverse Recovery Characteristics of Free-Wheel Diode (Typical)