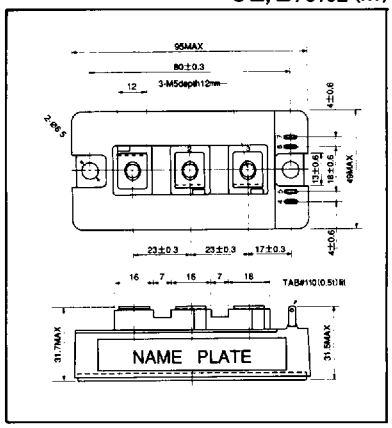
IGBT MODULE
GCA300AA60

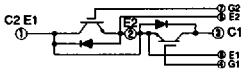
UL; E 76102 (M)

SanRex IGBT Module GCA300AA60 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 (trr = 0.1μs)

- Ic = 300A V_{CES} = 600V
- $V_{CE\ (sat)}$ = 2.8V Max
- Soft recovery diode

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





■Maximum Ratings

(Tj = 25°C)

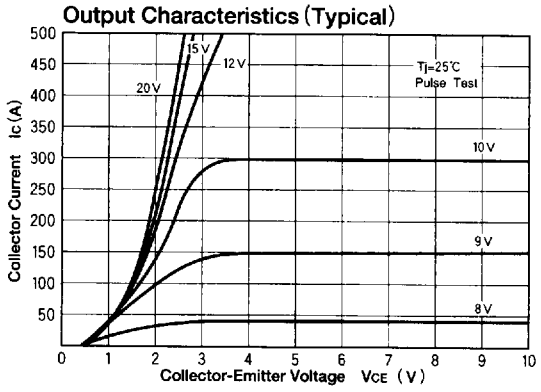
Symbol	Item		Conditions	Ratings GCA300AA60	Unit
V_{CES}	Collector-Emitter Voltage		with gate taminal shoroed to emitter	600	V
V_{GES}	Gate-Emitter Voltage		with collector shorted to emitter	±20	V
Ic	Collector Current	DC		300	A
I_{CP}		Pulse (1 ms)		600	
−Ic	Reverse Collector Current			300	A
P_T	Total Power Dissipation		Tc = 25°C	960	W
Tj	Junction Temperature			150	°C
Tstg	Storage Temperature			−40～+125	°C
V_{ISO}	Isoltion Voltage (RMS)		A.C. 1 minute	2500	V
	Mounting Torque	Mounting Base (M6)	Recomended Value 2.5～3.9	4.7	N•m
			Recomended Value 25～40	48	kgf•cm
		Terminals (M5)	Recomended Value 1.5～2.5	2.7	N•m
			Recomended Value 15～25	28	kgf•cm
	Mass		Typical value	225	g

■Electrical Characteristics

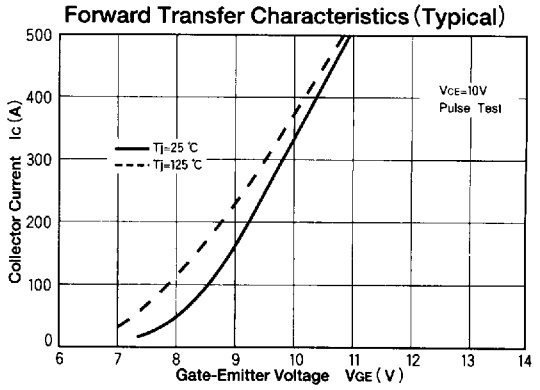
(Tj = 25°C)

Symbol	Item		Conditions	Ratings Min.	Typ.	Max.	Unit
I_{GES}	Gate Leakage Current		V_{GE} = ±20V, V_{CE} = 0V			±500	nA
I_{CES}	Collector Cut-off Current		V_{CE} = 600V, V_{GE} = 0V			2.0	mA
$V_{(BR)CES}$	Collector-Emitter Breakdown Voltage		V_{GE} = 0V, Ic = 1mA	600			V
$V_{GE(th)}$	Gate Threshold Voltage		V_{CE} = 5V, Ic = 30mA	3.0		7.0	V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage		Ic = 300A, V_{GE} = 15V		2.2	2.8	V
Cies	Input Capacitance		V_{CE} = 10V, V_{GE} = 0V, f = 1MHz		20000	30000	pF
tr	Switching Time	Rise Time	Ic = 300A, V_{GE} = +15V/−5V Vcc = 300V, R_G = 2Ω		0.10	0.20	μs
td(on)		Turn-on Delay Time			0.20	0.40	
tf		Fall Time			0.20	0.30	
td(off)		Turn-off Delay Time			0.40	0.80	
V_{ECS}	Emitter-Collector Voltage		−Ic = 300A, V_{GE} = 0V		2.30	2.80	V
trr	Reverse Recovery Time		−Ic = 300A, V_{GE} = −10V, di/dt = 400A/μs		0.1	0.15	μs
Rth(j-c)	Thermal Resistance		IGBT-Case			0.11	°C/W
			Diode-Case			0.40	

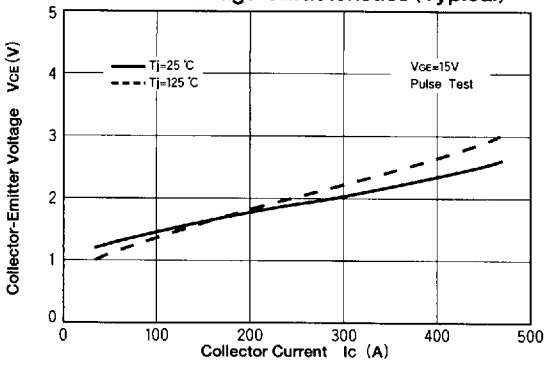
Output Characteristics (Typical)



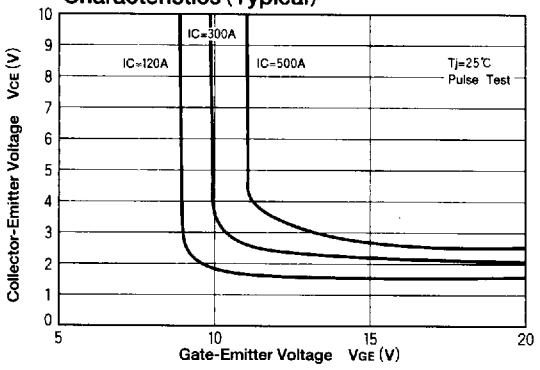
Forward Transfer Characteristics (Typical)



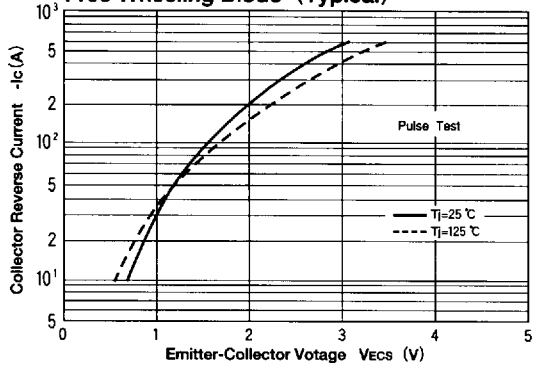
Saturation Voltage Chracteristics (Typical)



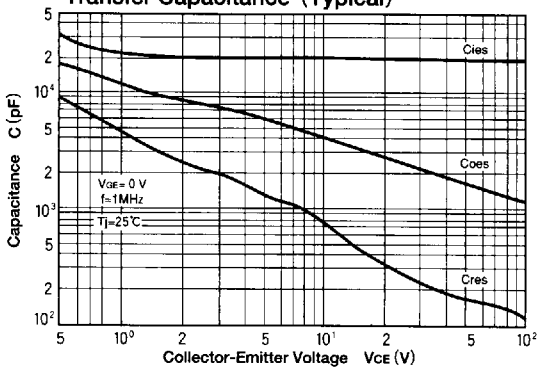
Collector-Emitter Saturation Voltage Characteristics (Typical)



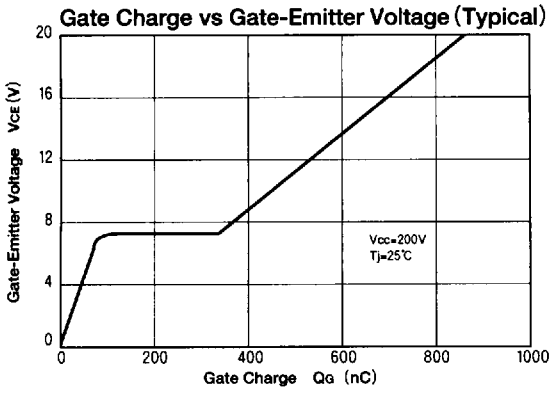
Forward Voltage of Free Wheeling Diode (Typical)



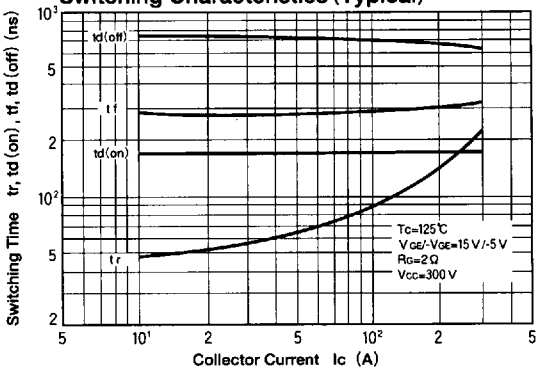
Input Capacitance, Output Capacitance, Transfer Capacitance (Typical)



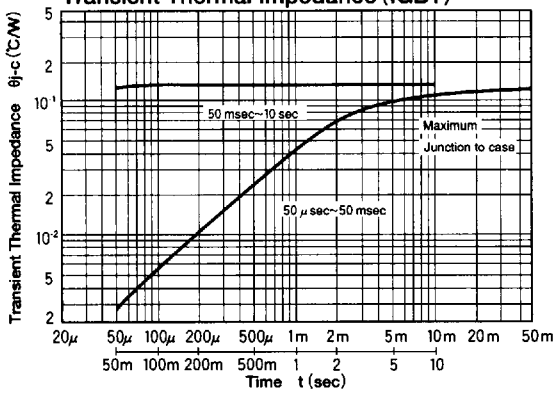
Gate Charge vs Gate-Emitter Voltage (Typical)



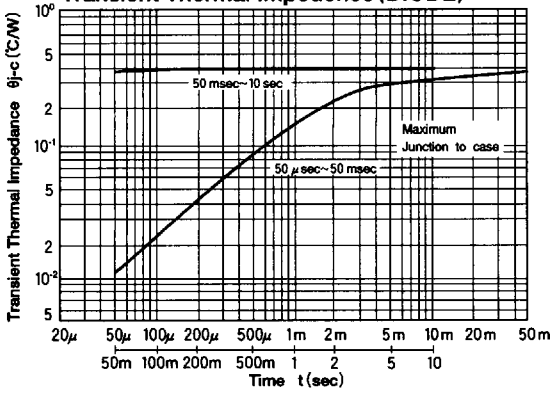
Switching Characteristics (Typical)



Transient Thermal Impedance (IGBT)



Transient Thermal Impedence (DIODE)



Reverse Recovery Characteristics of Free-Wheel Diode (Typical)