IGBT MODULE

GSA400BA60

UL;E76102(M)

SanRex IGBT Module **GSA400BA60** 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.

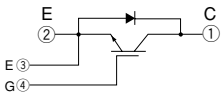
- Ic=400A　VCES=600V
- VCE(sat) =2.3V Typ
- tf=0.10 μs Typ
- Soft recovery diode

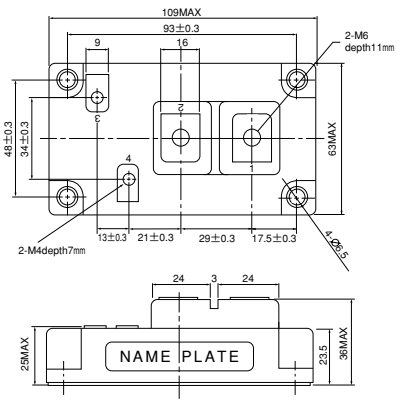
(Applications)

Inverter for motor control (VVVF)

UPS, AC servo

DC power supply, Welder





Unit：mm

■Maximum Ratings

(Tj=25℃ unless otherwise specified)

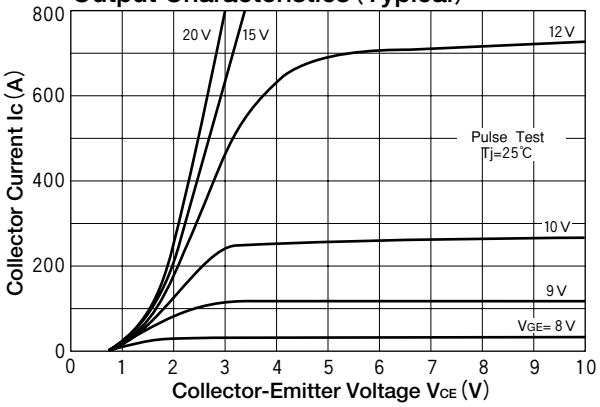
Symbol	Item		Conditions	Ratings	Unit
				GSA400BA60	
VCES	Collector-Emitter Voltage		with gate terminal shorted to emitter	600	V
VGES	Gate-Emitter Voltage		with collector shorted to emitter	±20	V
Ic	Collector Current	DC		400	A
ICP		Pulse (1 ms)		800	
−Ic	Reverse Collector Current			400	A
Pc	Total Power Dissipation		Tc=25℃	1500	W
Tj	Junction Temperature			150	℃
Tstg	Storage Temperature			−40 to +125	℃
VISO	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

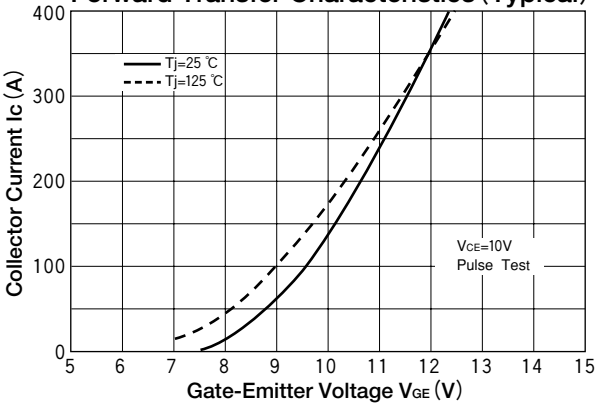
(Tj=25℃ unless otherwise specified)

Symbol	Item		Conditions	Ratings			Unit
				Min.	Typ.	Max.	
IGES	Gate Leakage Current		VGE=±20V, VCE=0V			±500	nA
ICES	Collector Cut-Off Current		VCE=600V, VGE=0V			1.0	mA
V(BR)CES	Collector-Emitter Breakdown Voltage		VGE=0V, Ic=1mA	600			V
VGE(th)	Gate Threshold Voltage		VCE=5V, Ic=40mA	3.0		7.0	V
VCE(sat)	Collector-Emitter Saturation Voltage		Ic=400A, VGE=15V		2.3	2.8	V
Cies	Input Capacitance		VCE=10V, VGE=0V, f=1MHz		32	40	nF
tr	Switching Time	Rise Time	Ic=400A, VGE=+15V/−5V Vcc=300V, RG=1.6Ω		0.10	0.20	μs
td(on)		Turn-on Delay Time			0.20	0.40	
tf		Fall Time			0.10	0.20	
td(off)		Turn-off Delay Time			0.40	0.80	
VECS	Emitter-Collector Voltage		−Ic=400A, VGE=0V		2.30	2.80	V
trr	Reverse Recovery Time		−Ic=400A, VGE=−10V, di/dt=800A/μs		0.1	0.15	μs
Rth(j-c)	Thermal Resistance		IGBT-Case			0.08	℃/W
			Diode-Case			0.20	

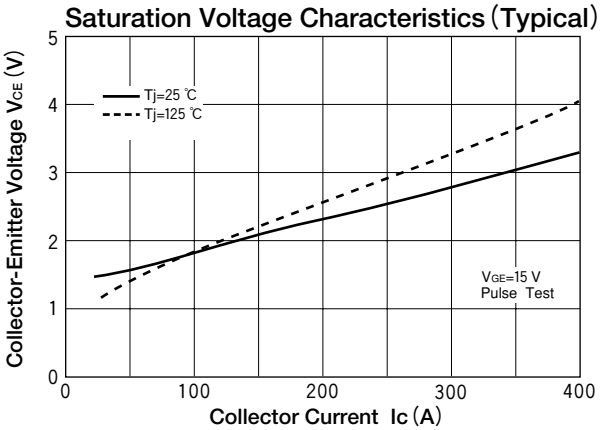
Output Characteristics (Typical)



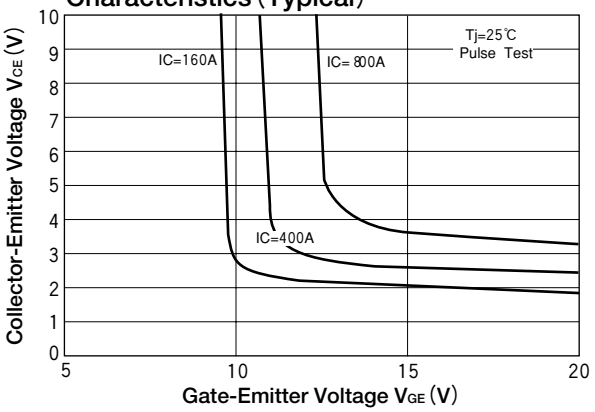
Forward Transfer Characteristics (Typical)



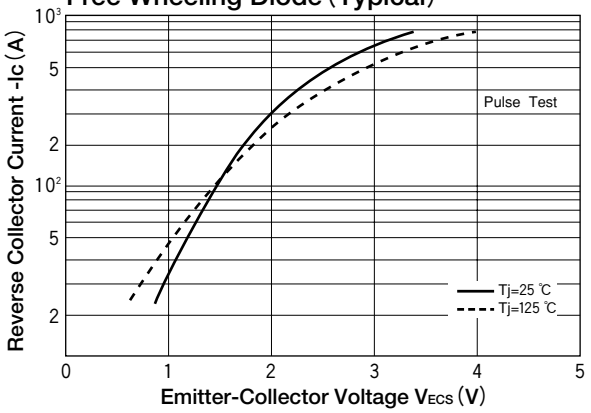
Saturation Voltage Characteristics (Typical)



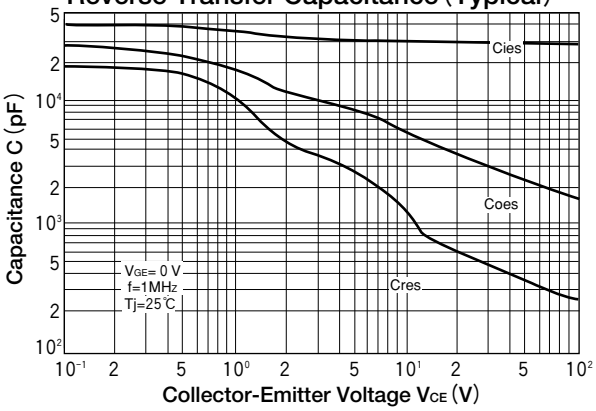
Collector-Emitter Saturation Voltage Characteristics (Typical)



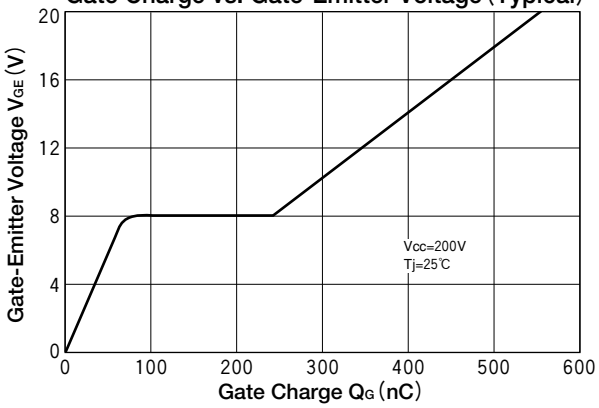
Forward Voltage of Free Wheeling Diode (Typical)



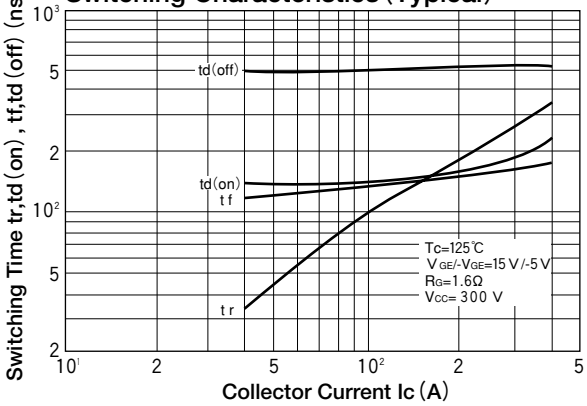
Input Capacitance, Output Capacitance, Reverse Transfer Capacitance (Typical)



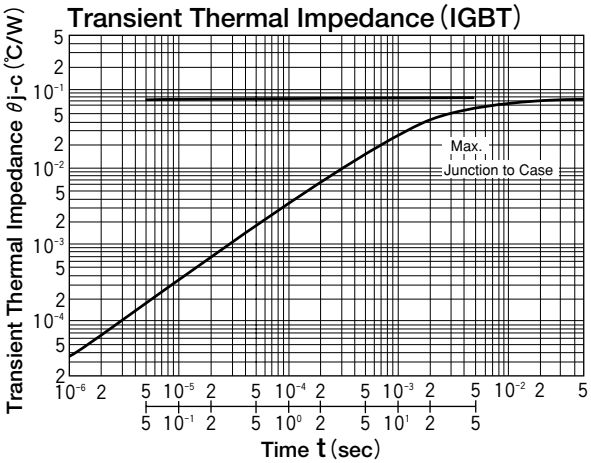
Gate Charge vs. Gate-Emitter Voltage (Typical)



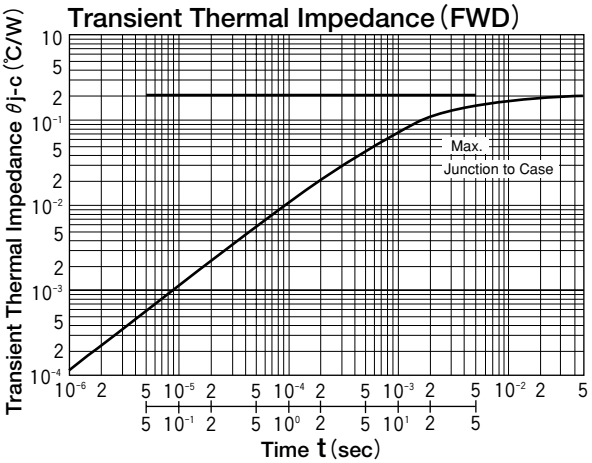
Switching Characteristics (Typical)



Transient Thermal Impedance (IGBT)



Transient Thermal Impedance (FWD)



Reverse Recovery Characteristics of Free-Wheel Diode (Typical)