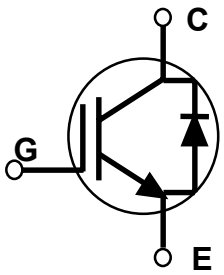
SGL60N90DG3

N-CHANNEL IGBT

FEATURES

* High Speed Switching
* Low Saturation Voltage
  : V_{CE}(sat) = 2.0 V (at Ic=60A)
* High Input Impedance
* Built in Fast Recovery Diode

TO-264



APPLICATIONS

* Home Appliance
  - Induction Heater
  - IH JAR
  - Micro Wave Oven

ABSOLUTE MAXIMUM RATINGS

Symbol	Characteristics		Rating	Unit
V_{CES}	Collector-Emitter Voltage		900	V
V_{GE}	Gate - Emitter Voltage		±25	V
I_C	Continuous Collector Current	Tc = 25℃	60	A
		Tc = 100℃	42	
$I_{CM\ (1)}$	Pulsed Collector Current		120	A
P_D	Maximum Power Dissipation	Tc = 25℃	180	W
		Tc = 100℃	72	
Tj	Operating Junction Temperature		-55 ~ 150	℃
Tstg	Storage Temperature Range			
T_L	Soldering maximum lead temperature (1/8″ from case for 10 seconds)		300	℃

Notes: (1) Repetitive rating : Pulse with limited by max. junction temperature

ELECTRICAL CHARACTERISTICS (Tc=25℃)

Symbol	Characteristics	Test Conditions	Min	Typ	Max	Units
BV_{CES}	C - E Breakdown Voltage	V_{GE} = 0V , I_C = 1㎃	900	-	-	V
$V_{GE(th)}$	G - E threshold voltage	I_C =60mA , V_{CE} = V_{GE}	4.0	5.0	7.0	V
I_{CES}	Collector cutoff Current	V_{CE} = V_{CES} , V_{GE} = 0V	-	-	1.0	mA
I_{GES}	G - E leakage Current	V_{GE} = V_{GES} , V_{CE} = 0V	-	-	500	nA
V_{CE}(sat)	Collector to Emitter saturation voltage	V_{GE} = 15V, I_C =60A	-	2.0	2.7	V
Cies	Input capacitance	V_{GE} = 0V , f = 1㎒	-	6500	-	pF
Coes	Output capacitance	V_{CE} = 10V	-	250	-	pF
Cres	Reverse transfer capacitance		-	220	-	pF
td(on)	Turn on delay time	V_{CC} = 600V , I_C = 60A	-	250	400	ns
tr	Rise time	V_{GE} = 15V	-	450	700	ns
td(off)	Turn off delay time	R_G = 51Ω	-	450	700	ns
tf	Fall time	Resistive load	-	250	400	ns
V_{EC}	Emitter-Collector Voltage	I_E = 15A	-	1.2	1.7	V
trr	Reverse recovery time	I_E = 15A, die/dt = -200A/㎲	-	0.5	2.5	㎲

THERMAL RESISTANCE

Symbol	Characteristics	Min	Typ	Max	Units
R_{θ}JC	Junction-to-Case : IGBT	-	-	0.69	℃/W
R_{θ}JC	Junction-to-Case : Diode	-	-	2.08	℃/W

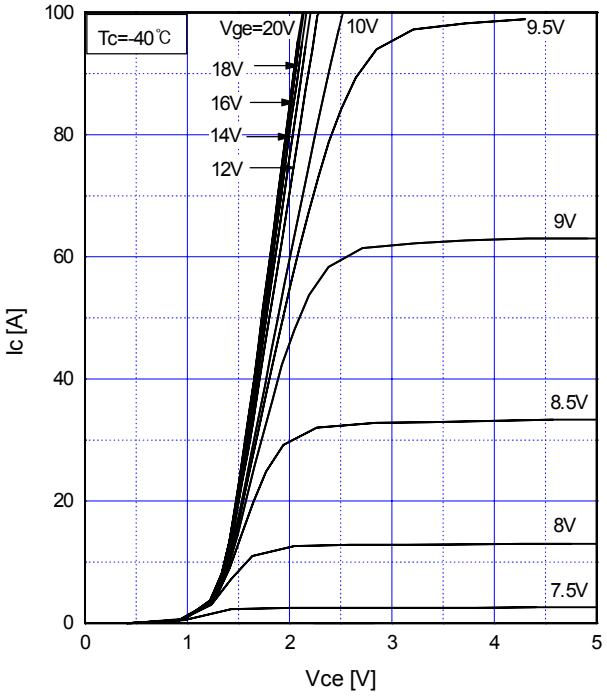


Fig.1 Typical Output Characteristics

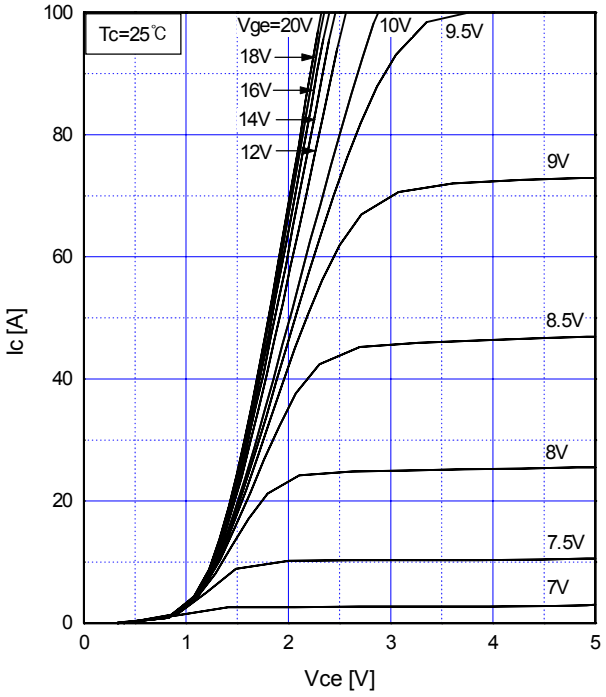


Fig.2 Typical Output Characteristics

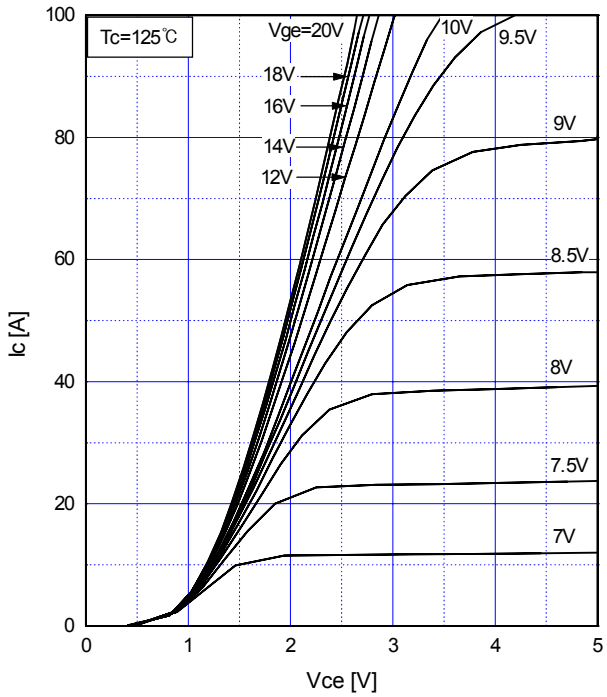


Fig.3 Typical Output Characteristics

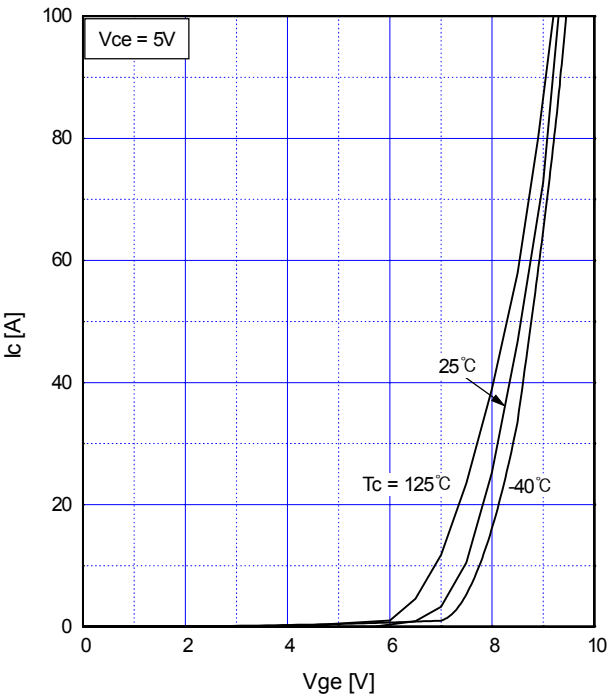


Fig.4 Typical Output Characteristics

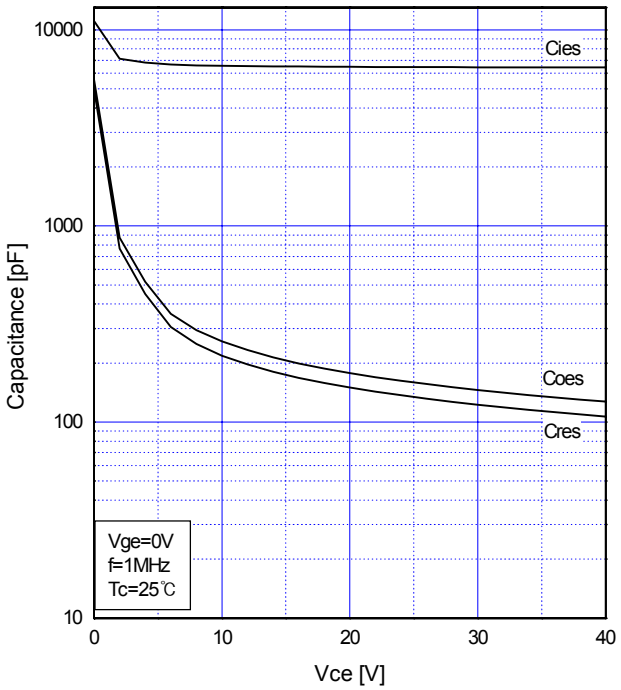


Fig.5 Typical Capacitance vs. Collector to Emitter Voltage

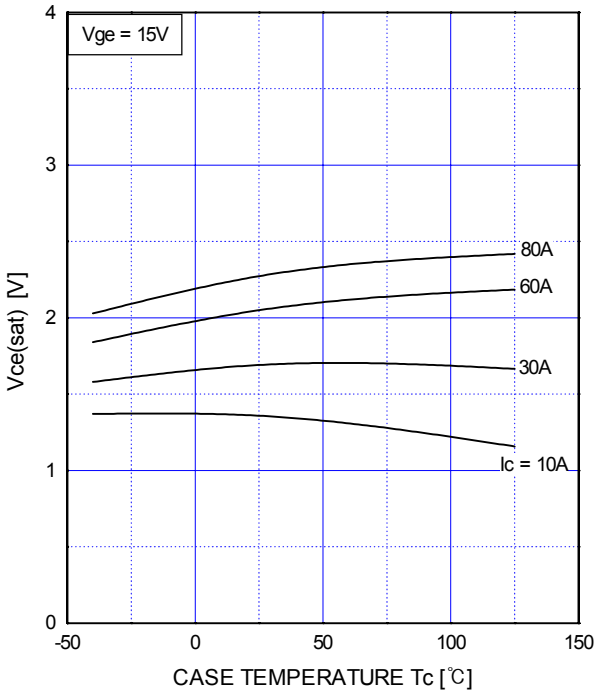


Fig.6 Collector to Emitter Saturation Voltage vs. Case Temperature

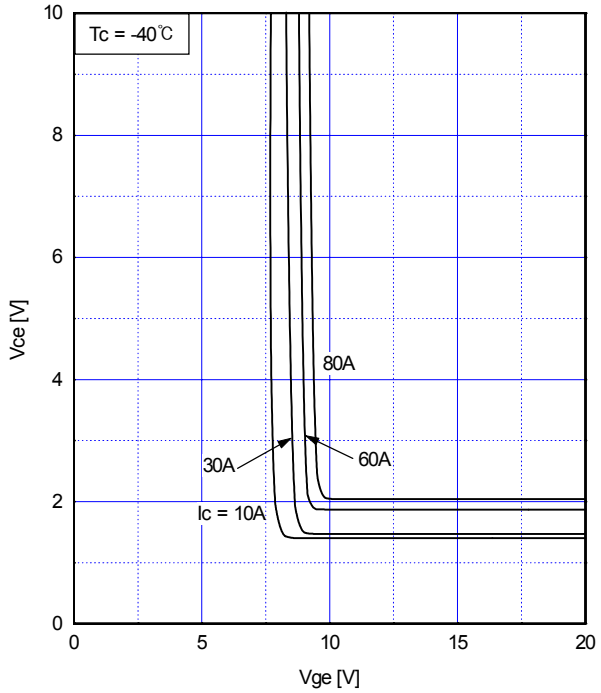


Fig.7 Collector to Emitter Voltage vs. Gate to Emitter Voltage

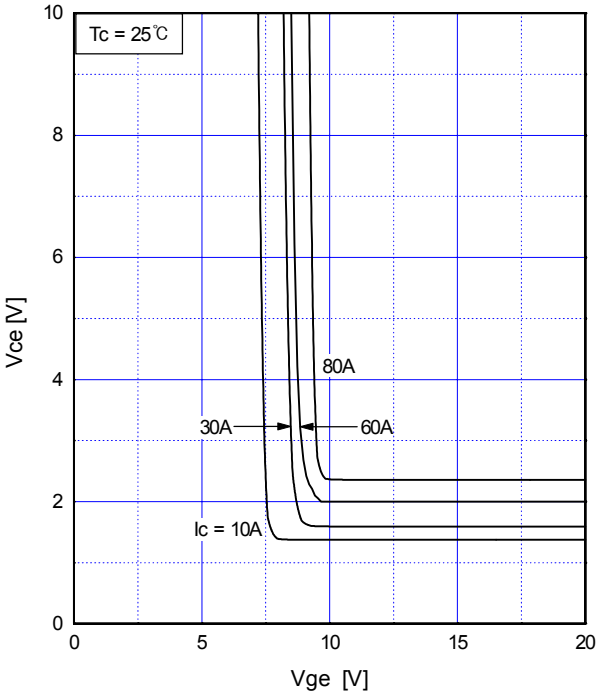


Fig.8 Collector to Emitter Voltage vs. Gate to Emitter Voltage

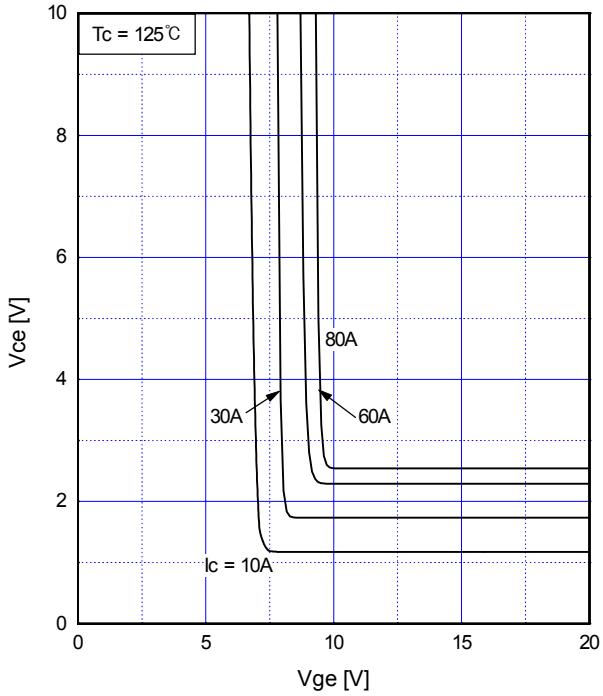


Fig.9 Collector to Emitter Voltage vs. Gate to Emitter Voltage

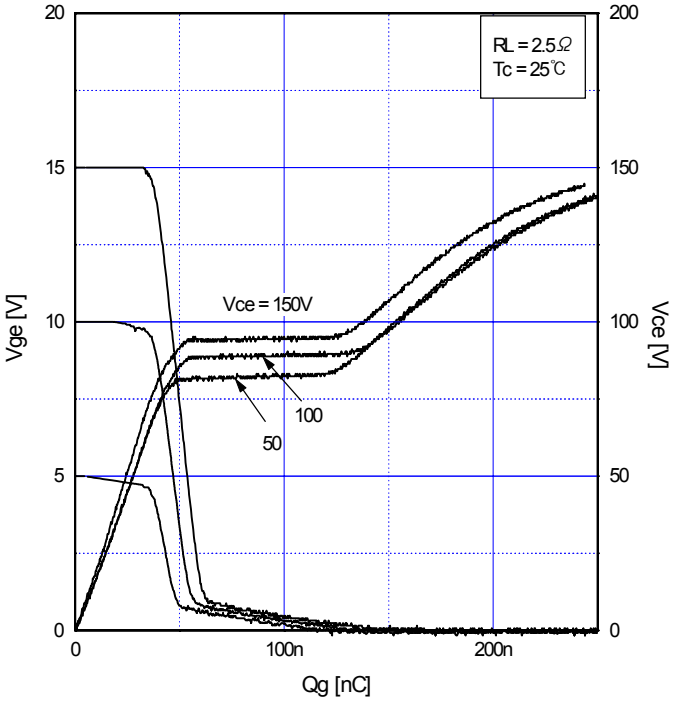


Fig.10 Gate Charge

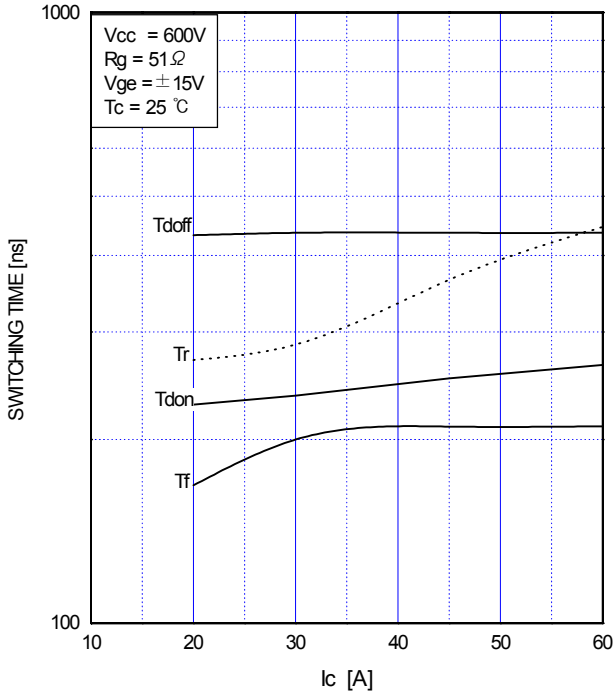


Fig.11 Collector Current vs. Switching time

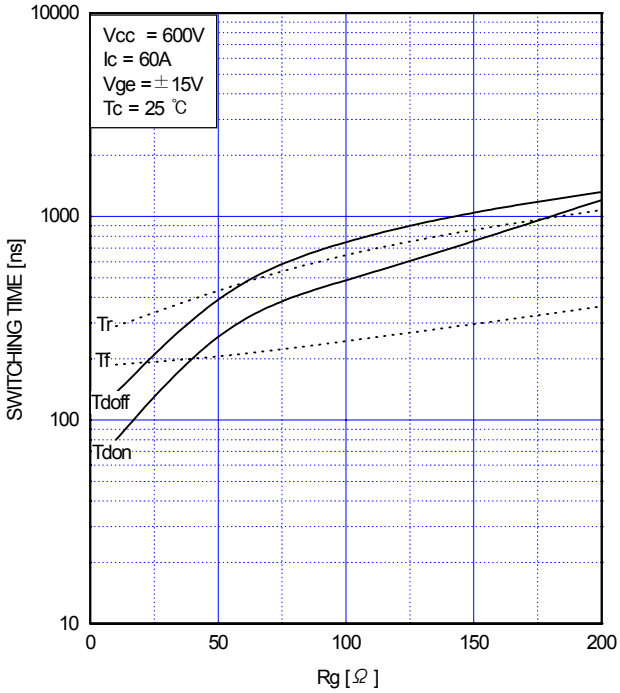


Fig.12 Gate Resistance vs. Switching time

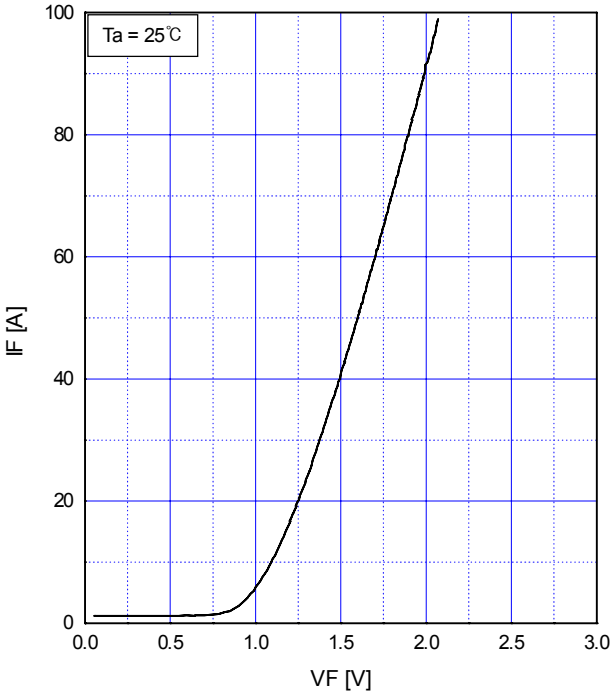


Fig.13 Emitter to Collector Forward Voltage Characteristics

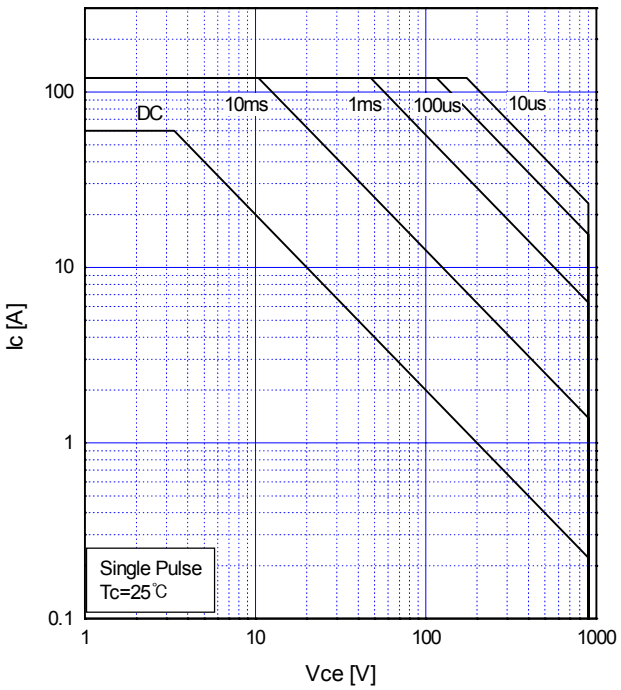


Fig.14 Safe Operating Area

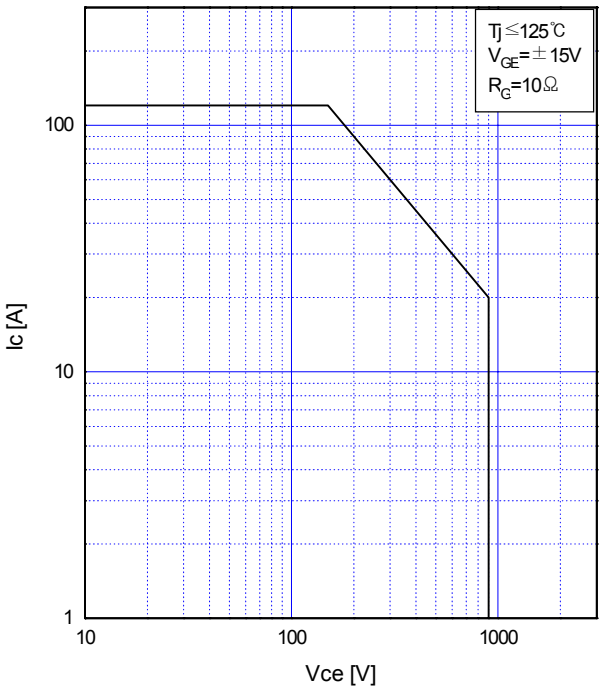


Fig.15 Reverse Bias SOA