Preliminary

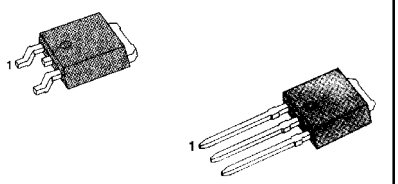
SGR20N40L / SGU20N40L

N-CHANNEL IGBT

FEATURES

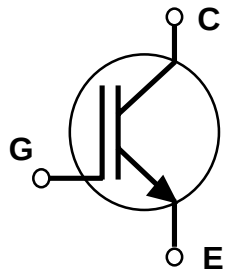
* High Input Impedance
***** High Peak Current Capability (150A)
***** Easy Gate Drive

D-PAK **I-PAK**



APPLICATIONS

*Strobe Flash



ABSOLUTE MAXIMUM RATINGS

Symbol	Characteristics	Rating	Units
V_{CES}	Collector-Emitter Voltage	450	V
V_{GES}	Gate-Emitter Voltage	±6	V
$I_{CM\ (1)}$	Pulsed Collector Current	150	A
P_C	Maximum Power Dissipation @Tc = 25℃	45	W
Tj	Operating Junction Temperature	-55 ~ 150	℃
Tstg	Storage Temperature Range	-55 ~ 150	℃
T_L	Maximum Lead Temp. For Soldering Purposes, $\frac{1}{8}$″from case for 5 seconds	300	℃

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

ELECTRICAL CHARACTERISTICS
(T_C=25℃,Unless Otherwise Specified)

Symbol	Characteristics	Test Conditions	Min	Typ	Max	Units
BV_{CES}	C - E Breakdown Voltage	V_{GE} = 0V , I_C = 1mA	450	-	-	V
$V_{GE(th)}$	G - E threshold voltage	I_C =1mA , V_{CE} = V_{GE}	0.7	1.0	1.4	V
I_{CES}	Collector cutoff Current	V_{CE} = V_{CES} , V_{GE} = 0V	-	-	10	uA
I_{GES}	G - E leakage Current	V_{GE} = ±V_{GES} , V_{CE} = 0V	-	-	±0.1	uA
V_{CE}(sat)	C - E Saturation voltage	Ic=150A, V_{GE} = 4.5V	-	-	8.0	V
Cies	Input capacitance	V_{GE} = 0V , f = 1㎒	-	4800	-	pF
Coes	Output capacitance	V_{CE} = 30V	-	60	-	pF
Cres	Reverse transfer capacitance		-	35	-	pF
td(on)	Turn on delay time	V_{CC} = 300V , I_C = 150A	-	0.3	-	uS
tr	Turn on rise time	V_{GE} = 4.5V	-	0.9	-	uS
td(off)	Turn off delay time	R_G = 30 Ω*	-	0.8	-	uS
tf	Turn off fall time	Resistive Load	-	2.0	-	uS

Notes : Recommendation of R_G Value : R_G ≥30 Ω

THERMAL RESISTANCE

Symbol	Characteristics	Min	Typ	Max	Units
R_{θ}JC	Junction-to-Case	-	-	3.0	℃/W
R_{θ}JA	Junction-to-Ambient (PCB Mount)	-	-	50	℃/W
R_{θ}CS	Junction-to-Ambient	-	-	110	℃/W

Notes : Mounted on 1” squre PCB (FR4 or G-10 Material)

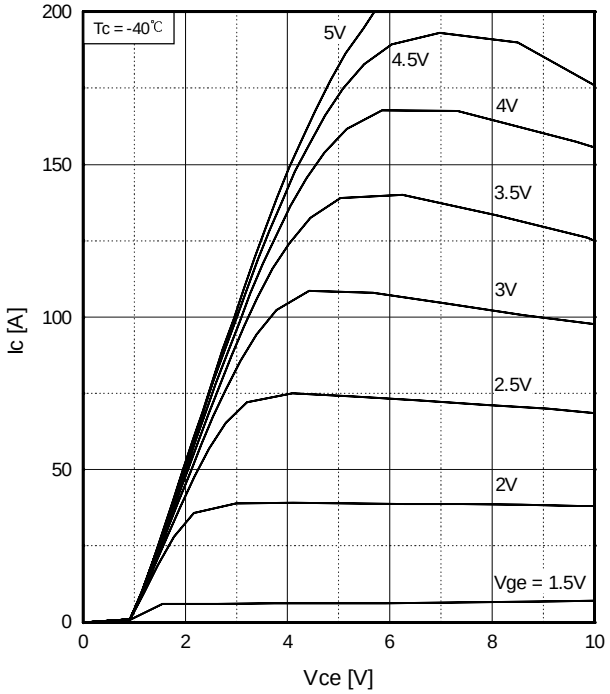


Fig.1 Typical Output Characteristics

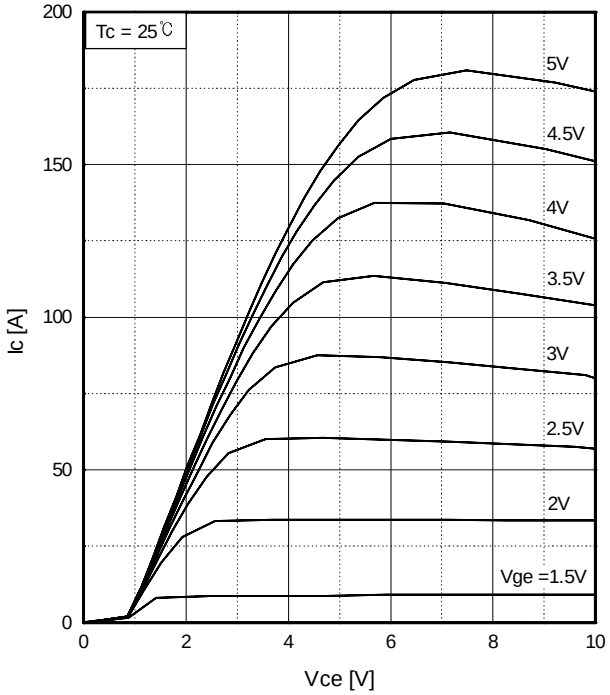


Fig.2 Typical Output Characteristics

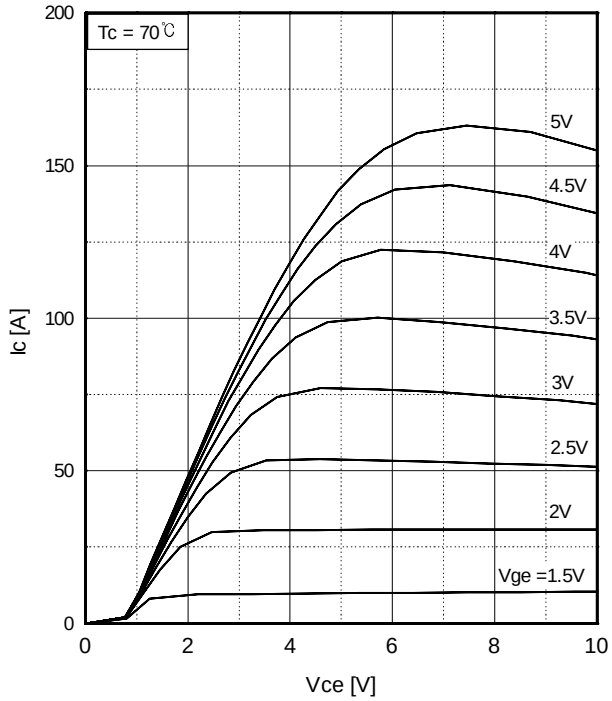


Fig.3 Typical Output Characteristics

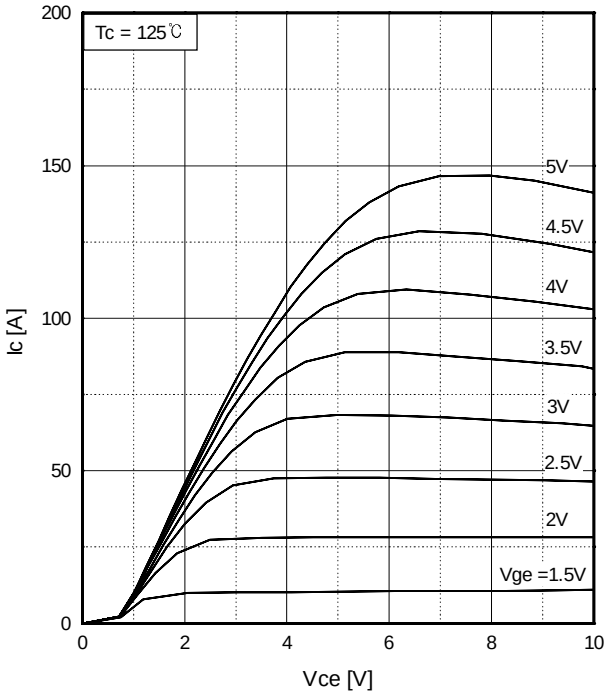


Fig.4 Typical Output Characteristics

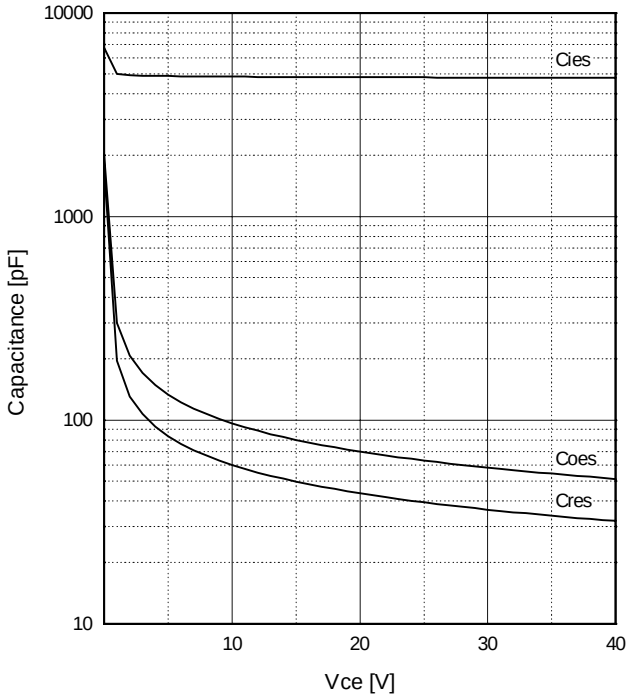


Fig.5 Typical Capacitance vs. Collector to Emitter Voltage

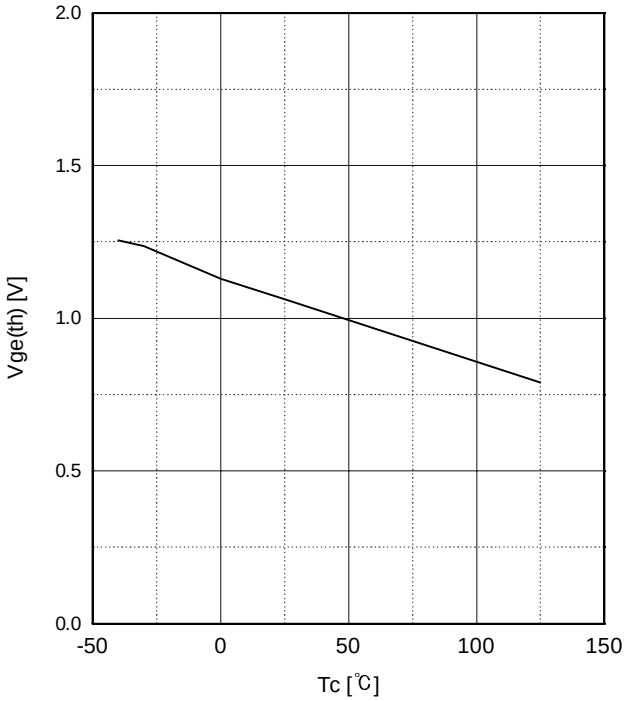


Fig.6 Gate-Emitter Threshold Voltage vs. Case Temperature

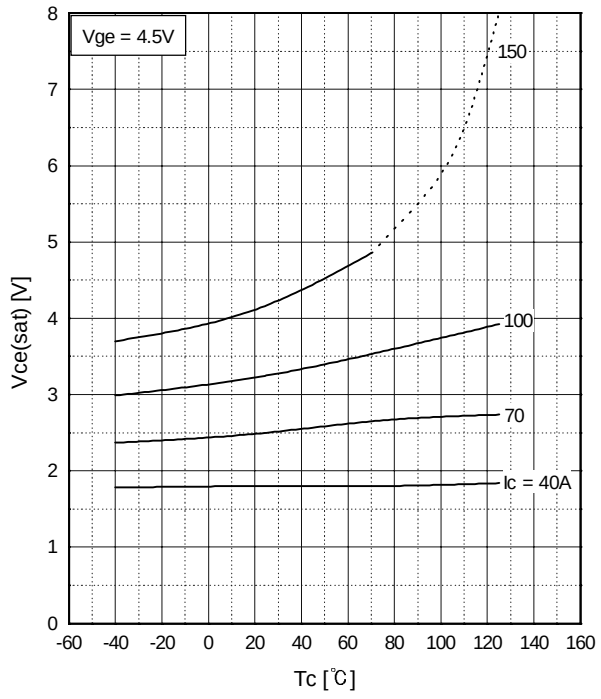


Fig.7 Collector to Emitter Saturation Voltage vs. Case Temperature

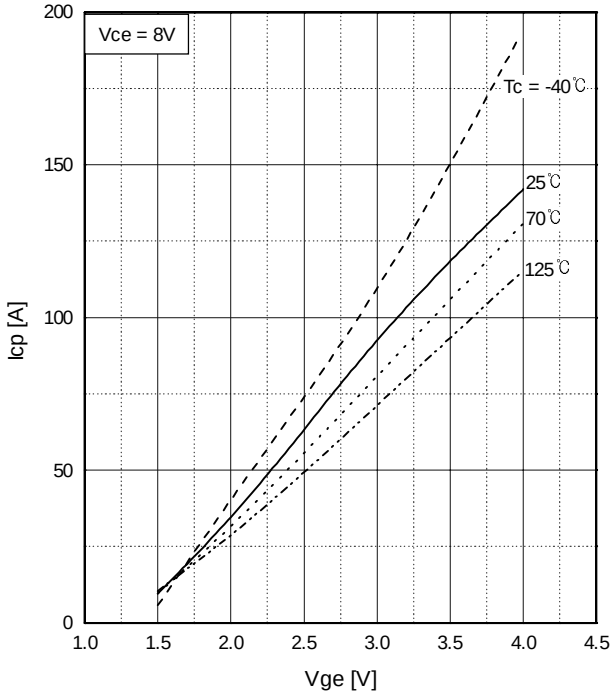


Fig.8 Typical Output Characteristics

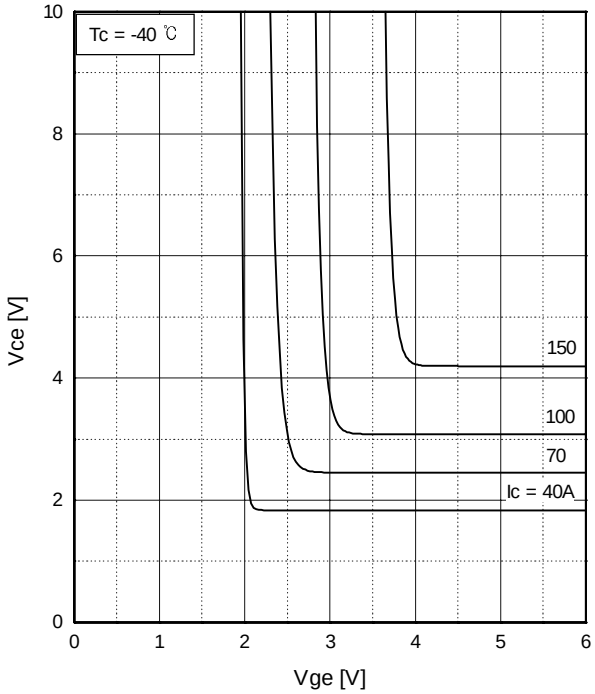


Fig.9 Collector to Emitter Voltage vs. Gate to Emitter Voltage

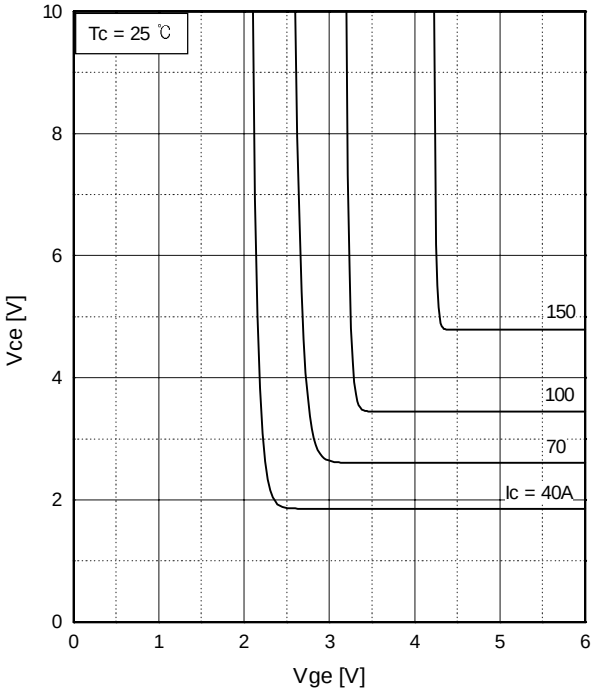


Fig.10 Collector to Emitter Voltage vs. Gate to Emitter Voltage

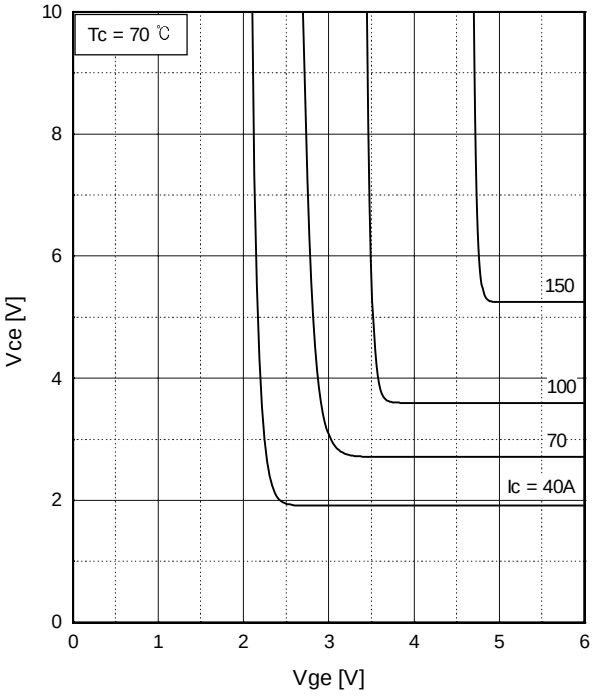


Fig.11 Collector to Emitter Voltage vs. Gate to Emitter Voltage

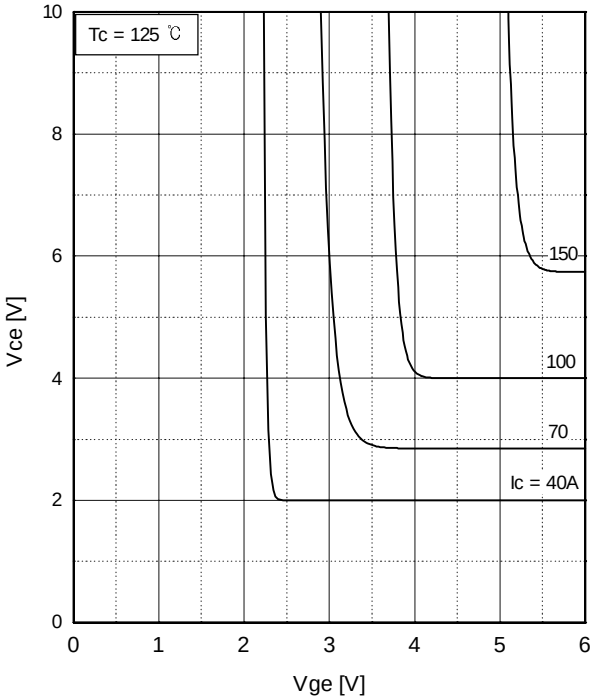


Fig.12 Collector to Emitter Voltage vs. Gate to Emitter Voltage