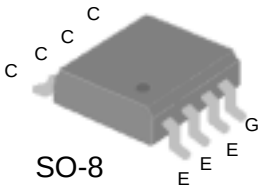
N-CHANNEL INSULATED-GATE BIPOLAR TRANSISTOR

High input impedance

High peak current capability

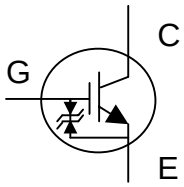
4.5V gate drive



SO-8

V_{CE} 450V

I_{CP} 150A



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{CE}	Collector-Emitter Voltage	450	V
V_{GE}	Gate-Emitter Voltage	± 6	V
V_{GEP}	Pulsed Gate-Emitter Voltage	± 8	V
I_{CP}	Pulsed Collector Current	150	A
P_D @ T_C=25°C[1]	Maximum Power Dissipation	2.5	W
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C

Electrical Characteristics @ T_j=25°C (unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
I_{GES}	Gate-Emitter Leakage Current	V_{GE}=± 6V, V_{CE}=0V	-	-	10	μA
I_{CES}	Collector-Emitter Leakage Current (Tj=25°C)	V_{CE}=450V, V_{GE}=0V	-	-	10	μA
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	V_{GE}=4.5V, I_{CP}=150A (Pulsed)	-	6	8	V
$V_{GE(th)}$	Gate Threshold Voltage	V_{CE}=V_{GE}, I_C=250uA	0.35	-	1.2	V
Q_g	Total Gate Charge	I_C=50A	-	64.5	-	nC
Q_{ge}	Gate-Emitter Charge	V_{CE}=360V	-	7	-	nC
Q_{gc}	Gate-Collector Charge	V_{GE}=5V	-	30	-	nC
$t_{d(on)}$	Turn-on Delay Time	V_{CC}=225V	-	11.5	-	ns
t_r	Rise Time	I_C=50A	-	24.5	-	ns
$t_{d(off)}$	Turn-off Delay Time	R_G=25Ω	-	150	-	ns
t_f	Fall Time	V_{GE}=5V	-	3.3	-	μs
C_{ies}	Input Capacitance	V_{GE}=0V	-	2227	-	pF
C_{oes}	Output Capacitance	V_{CE}=25V	-	200	-	pF
C_{res}	Reverse Transfer Capacitance	f=1.0MHz	-	79	-	pF
Rth_{JA}[1]	Thermal Resistance Junction-Ambient		-	-	50	°C/W

Notes:

1.Surface mounted on 1 in^2 copper pad of FR4 board ; 125°C/W when mounted on min. copper pad.

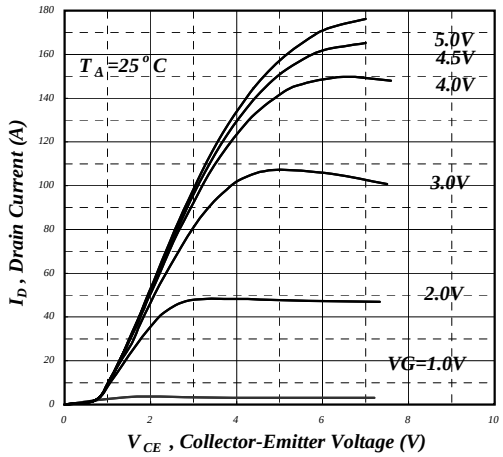


Fig 1. Typical Output Characteristics

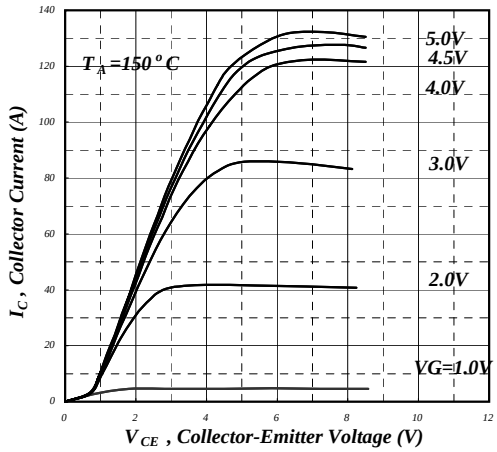


Fig 2. Typical Output Characteristics

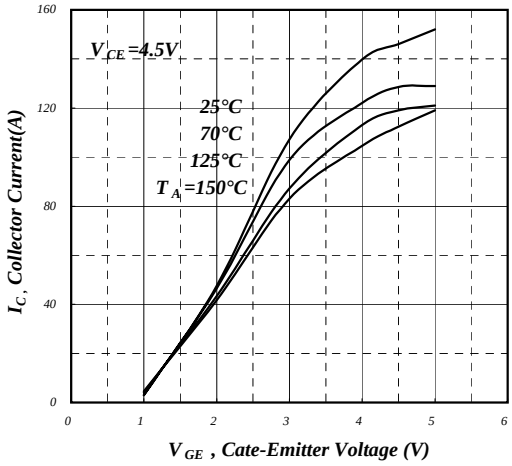


Fig 3. Collector Current vs. Gate-Emitter Voltage

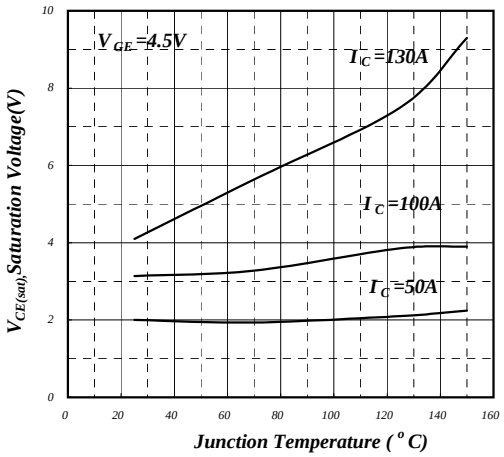


Fig 4. Collector- Emitter Saturation Voltage vs. Junction Temperature

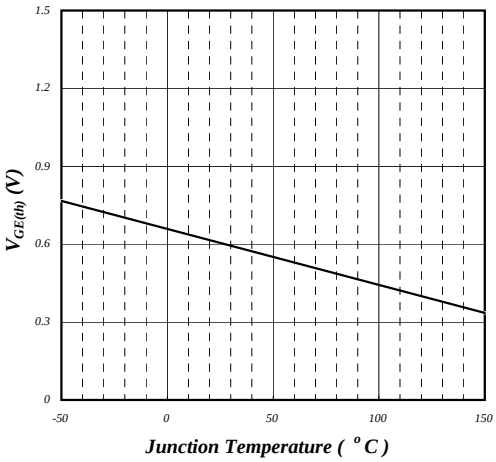


Fig 5. Gate Threshold Voltage vs. Junction Temperature

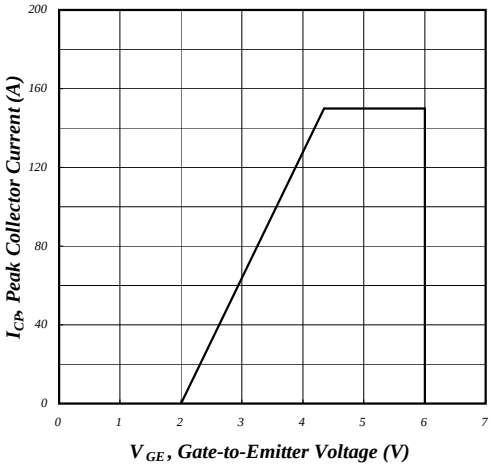


Fig 6. Minimum Gate Drive Area

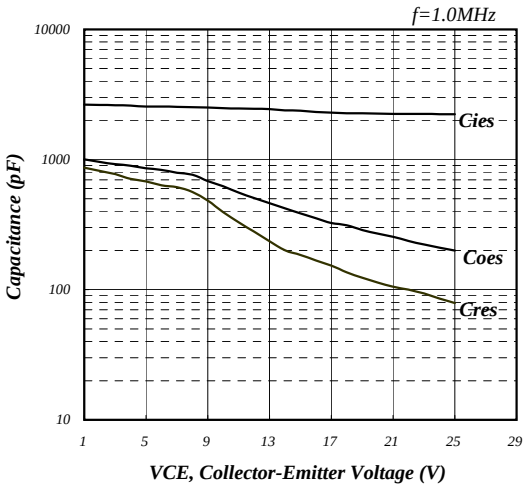


Fig 7. Typical Capacitance Characterisitics

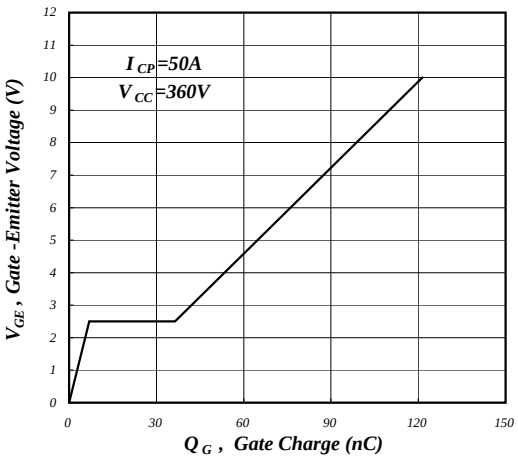


Fig 8. Gate Charge Waveform

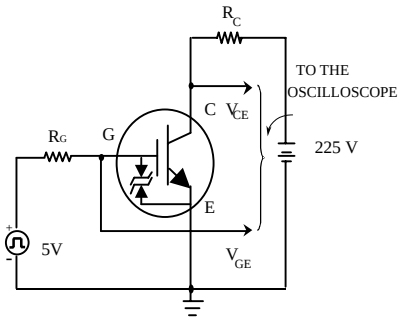


Fig 9. Switching Time Test Circuit

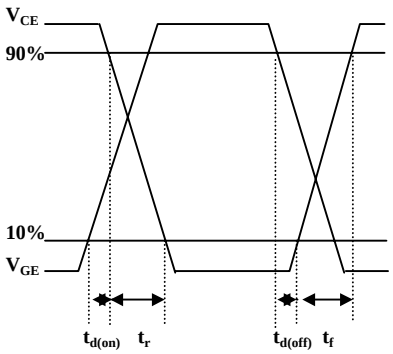


Fig 10. Switching Time Waveform

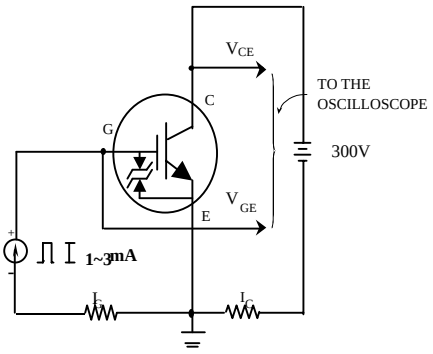


Fig 11. Gate Charge Test Circuit

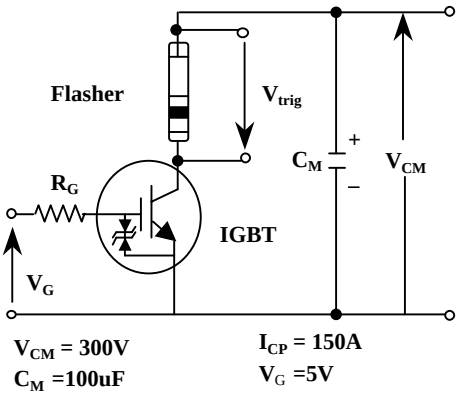


Fig 12. Application Test Circuit