



**Advanced Power
Electronics Corp.**

AP30G40AEO

Halogen-Free Product

N-CHANNEL INSULATED GATE

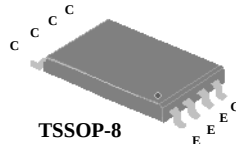
BIPOLAR TRANSISTOR

▼ $I_{CP}=130A$ @ $V_{GE}=3.3V$

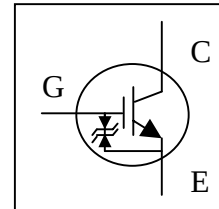
▼ Low Gate Drive

▼ Strobe Flash Applications

▼ RoHS Compliant & Halogen-Free



V_{CE}	400V
I_{CP}	130A



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{CE}	Collector-Emitter Voltage	400	V
V_{GEP}	Peak Gate-Emitter Voltage	± 6	V
I_{CP}	Pulsed Collector Current, V_{GE} @ 3.3V	130	A
$P_D@T_A=25^{\circ}C^1$	Maximum Power Dissipation	1	W
T_{STG}	Storage Temperature Range	-55 to 150	$^{\circ}C$
T_J	Junction Temperature Range	-55 to 150	$^{\circ}C$

Electrical Characteristics@ $T_J=25^{\circ}C$ (unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
I_{GES}	Gate-Emitter Leakage Current	$V_{GE}=\pm 6V$, $V_{CE}=0V$	-	-	± 30	μA
I_{CES}	Collector-Emitter Leakage Current	$V_{CE}=400V$, $V_{GE}=0V$	-	-	10	μA
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$V_{GE}=3.3V$, $I_{CP}=90A$ (Pulsed)	-	2.9	6	V
$V_{GE(th)}$	Gate Threshold Voltage	$V_{CE}=V_{GE}$, $I_C=1mA$	0.3	-	1.2	V
Q_g	Total Gate Charge	$I_C=40A$	-	57	91.2	nC
Q_{ge}	Gate-Emitter Charge	$V_{CE}=200V$	-	7	-	nC
Q_{gc}	Gate-Collector Charge	$V_{GE}=4V$	-	18	-	nC
$t_{d(on)}$	Turn-on Delay Time	$V_{CC}=320V$	-	200	-	ns
t_r	Rise Time	$I_C=130A$	-	1.3	-	μs
$t_{d(off)}$	Turn-off Delay Time	$R_G=10\Omega$	-	600	-	ns
t_f	Fall Time	$V_{GE}=3.3V$	-	1.4	-	μs
C_{ies}	Input Capacitance	$V_{GE}=0V$	-	4000	-	pF
C_{oes}	Output Capacitance	$V_{CE}=30V$	-	30	-	pF
C_{res}	Reverse Transfer Capacitance	$f=1.0MHz$	-	20	-	pF
R_{thJA}^1	Thermal Resistance Junction-Ambient		-	-	125	$^{\circ}C/W$

Notes:

1.Surface mounted on 1 in² copper pad of FR4 board, $t=10s$.

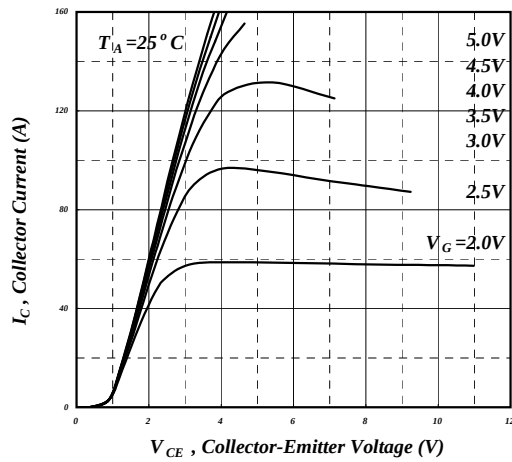


Fig 1. Typical Output Characteristics

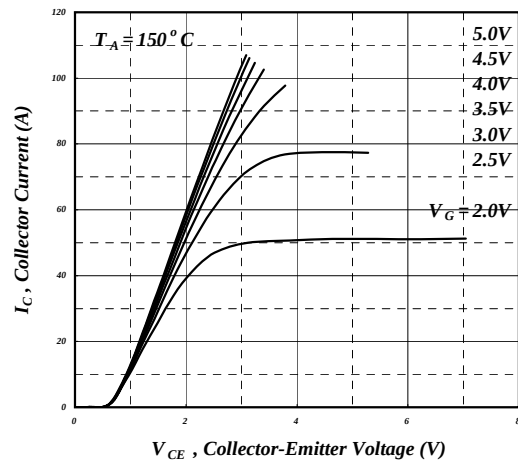


Fig 2. Typical Output Characteristics

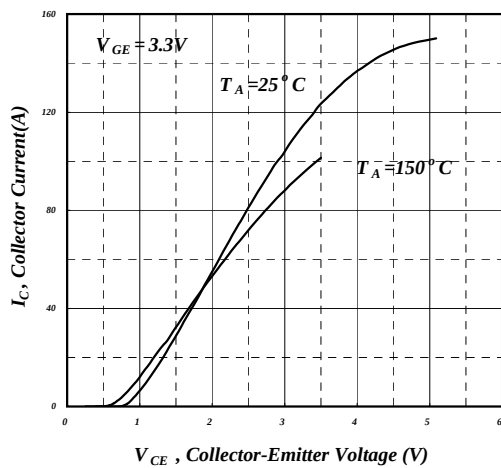


Fig 3. Typical Saturation Voltage Characteristics

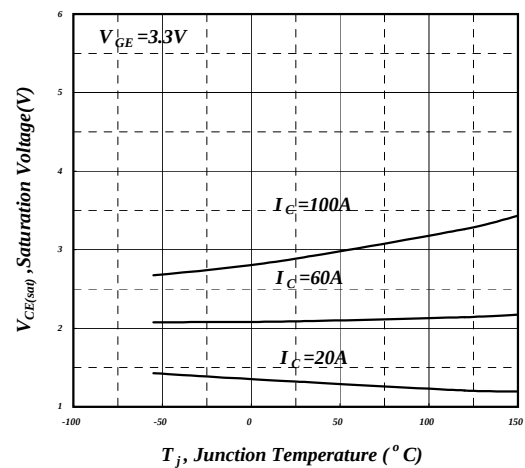


Fig 4. Collector- Emitter Saturation Voltage v.s. Junction Temperature

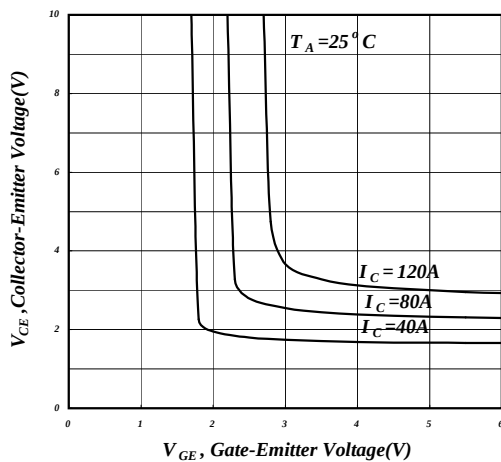


Fig 5. Collector Current v.s. Gate-Emitter Voltage

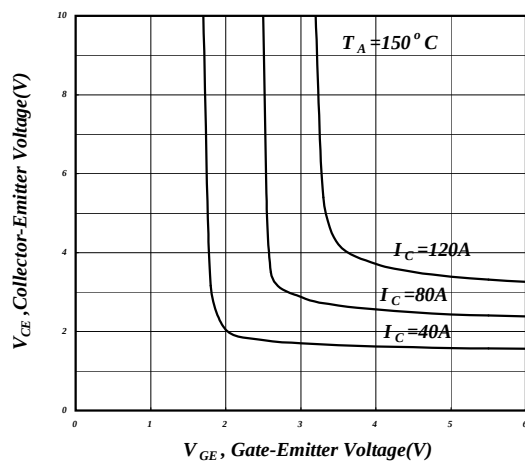


Fig 6. Collector Current v.s. Gate-Emitter Voltage

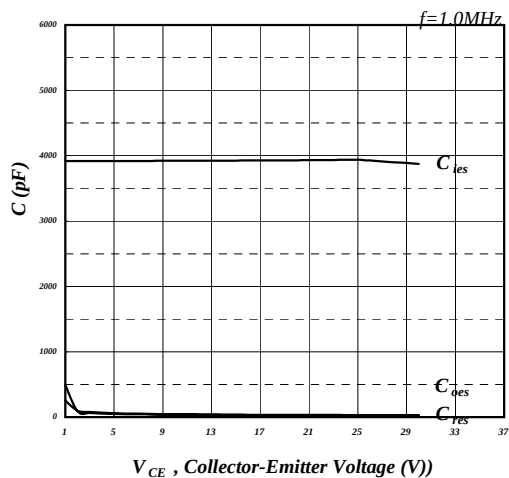


Fig 7. Typical Capacitance Characteristics

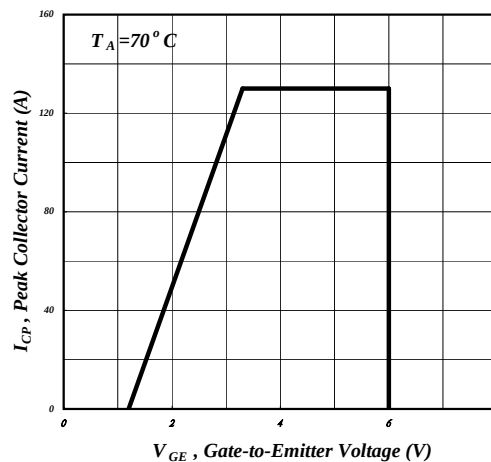


Fig 8. Maximum Pulse Collector Current

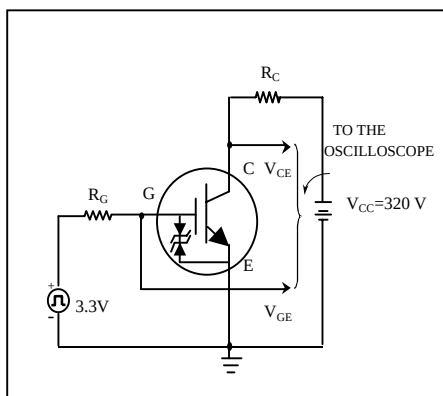


Fig 9. Switching Time Test Circuit

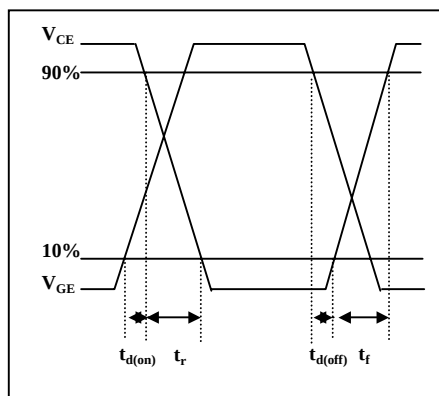


Fig 10. Switching Time Waveform

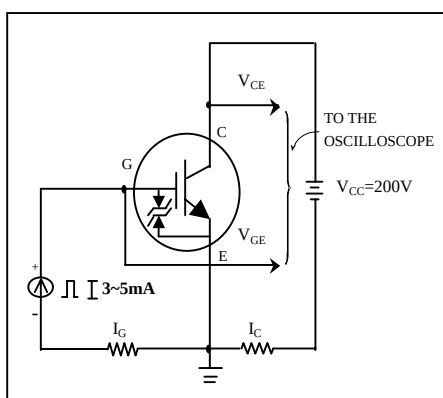


Fig 11. Gate Charge Test Circuit

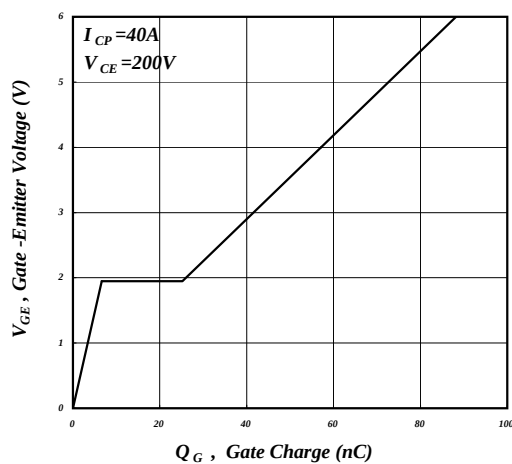


Fig 12. Gate Charge Waveform



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MARKING INFORMATION

