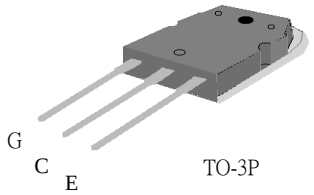
Advanced Power Electronics Corp.

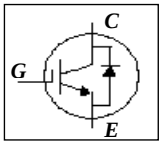
N-CHANNEL INSULATED GATE BIPOLAR TRANSISTOR WITH FRD.

Features

- ▼ High Speed Switching
- ▼ Low Saturation Voltage
  $V_{CE(sat)}$=3.0V@I_C=30A
- ▼ CO-PAK, IGBT With FRD
- ▼ RoHS Compliant & Halogen-Free



V_{CES}	1200V
I_C	30A



Absolute Maximum Ratings@T_j=25°C(unless otherwise specified)

Symbol	Parameter	Rating	Units
V_{CES}	Collector-Emitter Voltage	1200	V
V_{GE}	Gate-Emitter Voltage	±30	V
I_C@T_C=25℃	Collector Current	60	A
I_C@T_C=100℃	Collector Current	30	A
I_{CM}	Pulsed Collector Current[1]	120	A
I_F@T_C=25℃	Diode Forward Current	20	A
I_F@T_C=100℃	Diode Forward Current	10	A
I_{FM}	Diode Pulse Forward Current	40	A
P_D@T_C=25℃	Maximum Power Dissipation	208	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃
T_L	Maximum Lead Temp. for Soldering Purposes , 1/8" from case for 5 seconds .	300	℃

Notes:

1.Pulse width limited by max . junction temperature .

Thermal Data

Symbol	Parameter	Value	Units
Rthj-c(IGBT)	Thermal Resistance Junction-Case	0.6	℃/W
Rthj-c(Diode)	Thermal Resistance Junction-Case	1.5	℃/W
Rthj-a	Thermal Resistance Junction-Ambient	40	℃/W

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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
I_{GES}	Gate-to-Emitter Leakage Current	V_{GE}=±30V, V_{CE}=0V	-	-	±500	nA
I_{CES}	Collector-Emitter Leakage Current	V_{CE}=1200V, V_{GE}=0V	-	-	1	mA
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	V_{GE}=15V, I_C=30A	-	3	3.6	V
		V_{GE}=15V, I_C=60A	-	3.8	-	V
$V_{GE(th)}$	Gate Threshold Voltage	V_{CE}=V_{GE}, I_C=250uA	3	-	7	V
Q_g	Total Gate Charge	I_C=30A	-	63	100	nC
Q_{ge}	Gate-Emitter Charge	V_{CC}=500V	-	12	-	nC
Q_{gc}	Gate-Collector Charge	V_{GE}=15V	-	32	-	nC
$t_{d(on)}$	Turn-on Delay Time	V_{CC}=600V,	-	40	-	ns
t_r	Rise Time	I_c=30A,	-	45	-	ns
$t_{d(off)}$	Turn-off Delay Time	V_{GE}=15V,	-	125	-	ns
t_f	Fall Time	R_G=5Ω,	-	430	860	ns
E_{on}	Turn-On Switching Loss	Inductive Load	-	1.3	-	mJ
E_{off}	Turn-Off Switching Loss		-	3.1	-	mJ
C_{ies}	Input Capacitance	V_{GE}=0V	-	1400	2240	pF
C_{oes}	Output Capacitance	V_{CE}=30V	-	120	-	pF
C_{res}	Reverse Transfer Capacitance	f=1.0MHz	-	15	-	pF

Electrical Characteristics of Diode@T_j=25℃(unless otherwise specified)

V_F	Forward Voltage	I_F=10A	-	1.7	2.5	V
V_F	Forward Voltage	I_F=20A	-	2.1	2.9	V
t_{rr}	Reverse Recovery Time	I_F=10A	-	140	-	ns
Q_{rr}	Reverse Recovery Charge	di/dt = 100 A/μs	-	0.8	-	uC

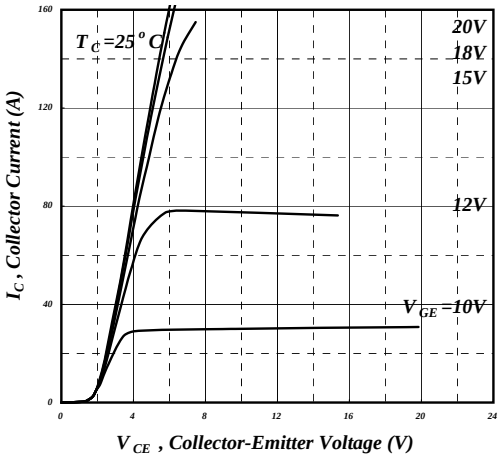


Fig 1. Typical Output Characteristics

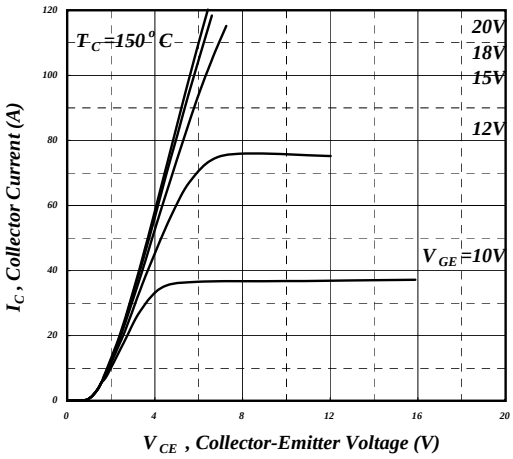


Fig 2. Typical Output Characteristics

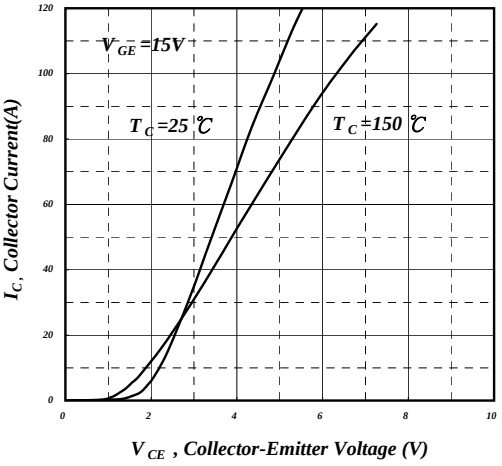


Fig 3. Typical Saturation Voltage Characteristics

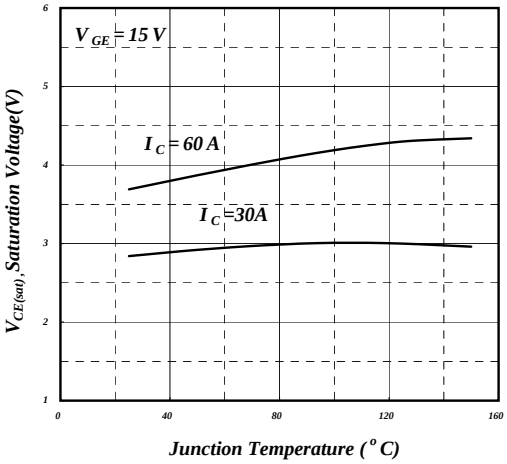


Fig 4. Typical Collector- Emitter Voltage v.s. Junction Temperature

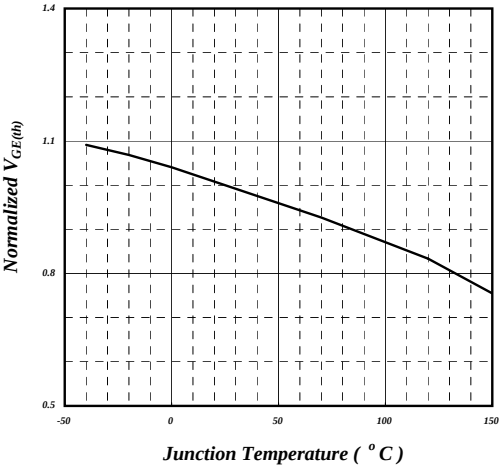


Fig 5. Gate Threshold Voltage v.s. Junction Temperature

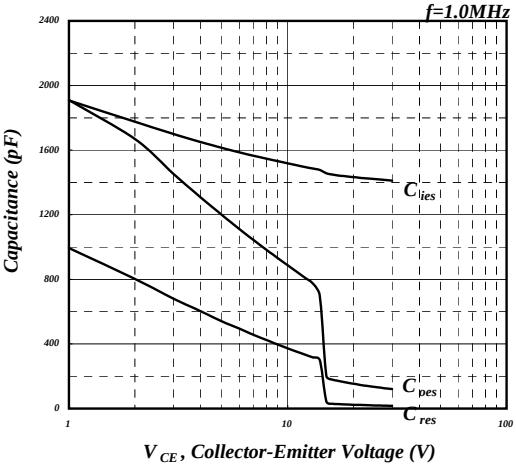


Fig 6. Typical Capacitance Characterisitics

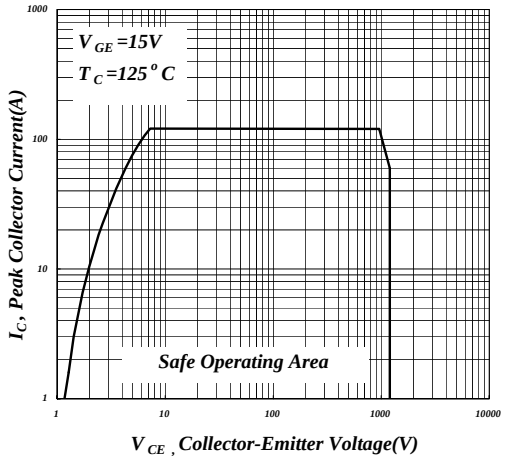


Fig 7. Turn-off SOA

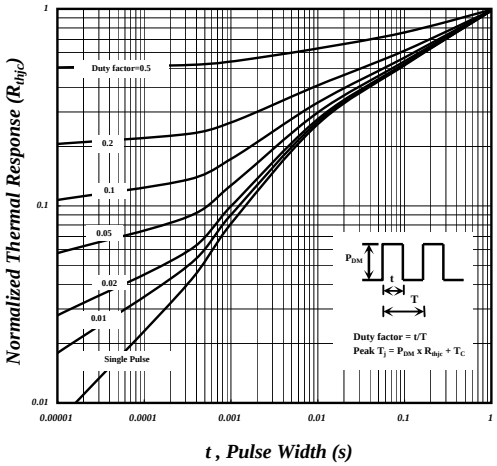


Fig 8. Effective Transient Thermal Impedance

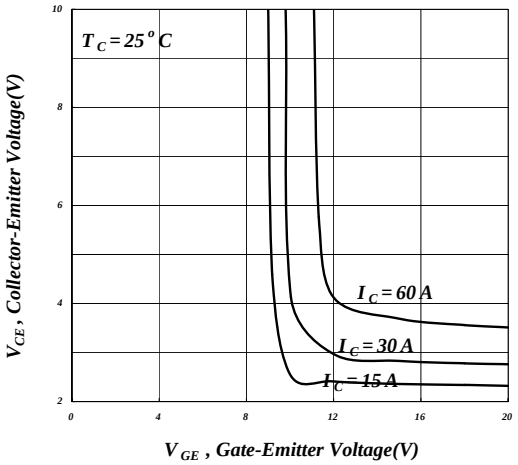


Fig 9. Saturation Voltage vs. V_{GE}

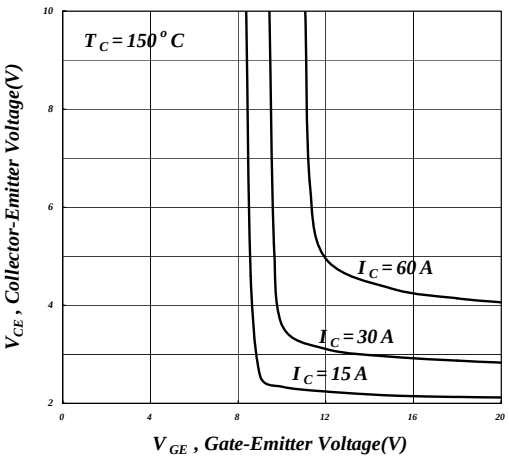


Fig 10. Saturation Voltage vs. V_{GE}

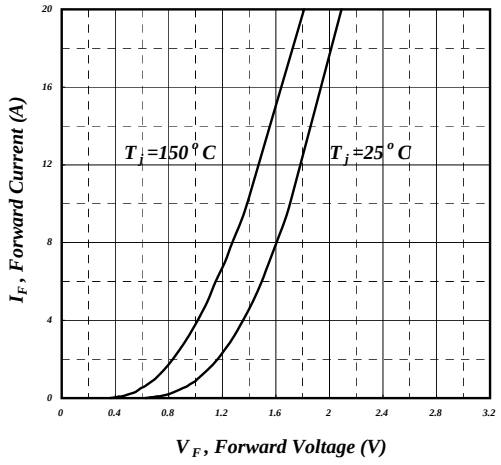


Fig11. Forward Characteristic of Diode

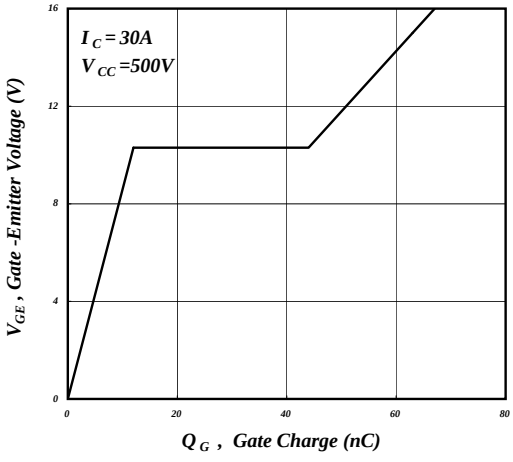


Fig 12. Gate Charge Characterisitics

MARKING INFORMATION

