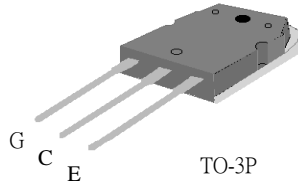


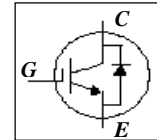


Features

- ▼ High Speed Switching
- ▼ Low Saturation Voltage
 $V_{CE(sat)}=2.9V@I_C=30A$
- ▼ CO-PAK, IGBT With FRD
- ▼ RoHS Compliant & Halogen-Free



V_{CES}	1200V
I_C	30A



Absolute Maximum Ratings

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

Notes:

1.Pulse width limited by max . junction temperature .

Thermal Data

Symbol	Parameter	Value	Units
Rthj-c(IGBT)	Thermal Resistance Junction-Case	0.6	°C/W
Rthj-c(Diode)	Thermal Resistance Junction-Case	5	°C/W
Rthj-a	Thermal Resistance Junction-Ambient	40	°C/W

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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
I_{GES}	Gate-to-Emitter Leakage Current	$V_{GE}=\pm 30V, V_{CE}=0V$	-	-	±500	nA
I_{CES}	Collector-Emitter Leakage Current	$V_{CE}=1200V, V_{GE}=0V$	-	-	1	mA
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$V_{GE}=15V, I_C=30A$	-	2.7	3.4	V
		$V_{GE}=15V, I_C=60A$	-	3.7	-	V
$V_{GE(th)}$	Gate Threshold Voltage	$V_{CE}=V_{GE}, I_C=250\mu A$	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	$R_G=5\Omega,$	-	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@ $T_J=25^{\circ}C$ (unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V_F	Forward Voltage	$I_F=8A$	-	2.5	3.2	V
t_{rr}	Reverse Recovery Time	$I_F=8A$	-	70	-	ns
Q_{rr}	Reverse Recovery Charge	$di/dt = 100 A/\mu s$	-	170	-	nC

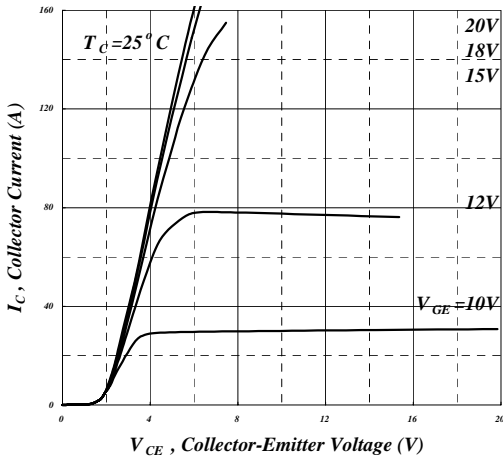


Fig 1. Typical Output Characteristics

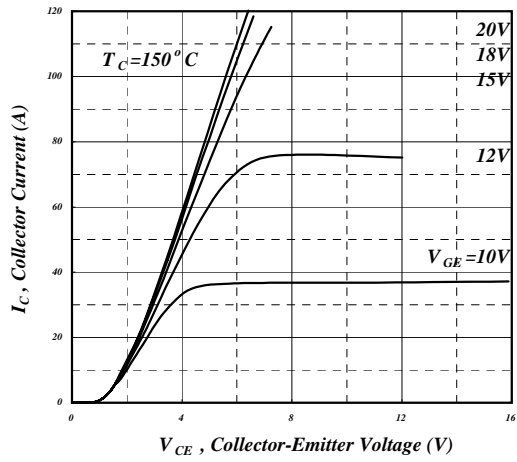


Fig 2. Typical Output Characteristics

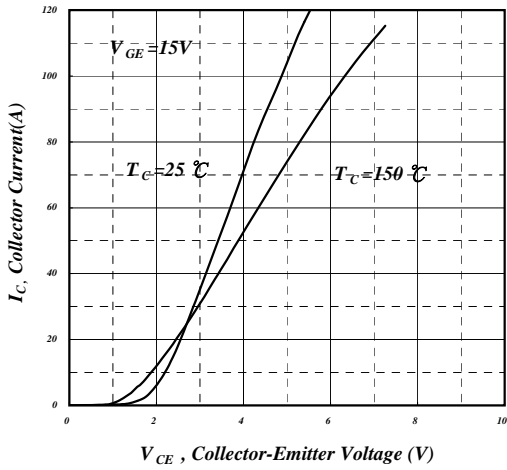


Fig 3. Typical Saturation Voltage Characteristics

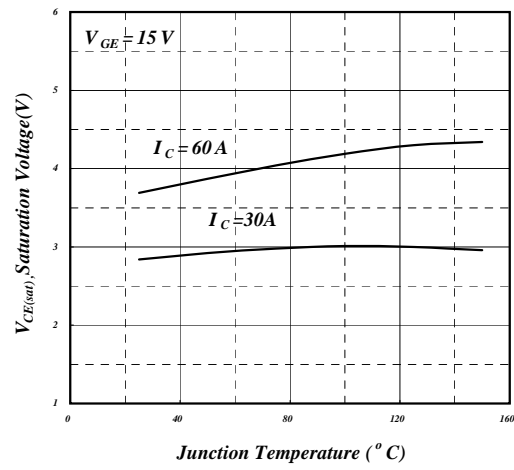


Fig 4. Typical Collector- Emitter Voltage v.s. Junction Temperature

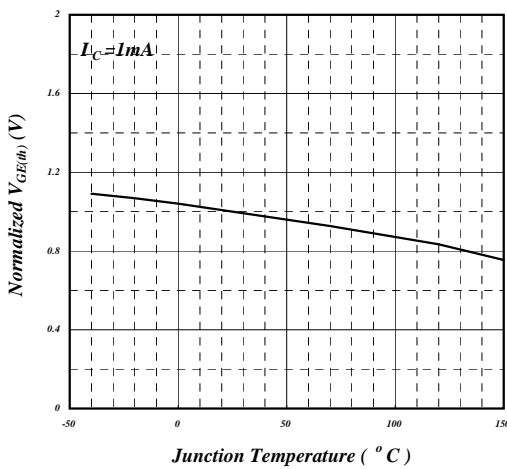


Fig 5. Gate Threshold Voltage v.s. Junction Temperature

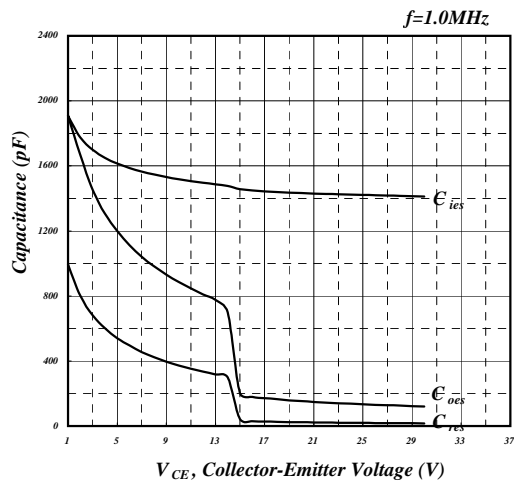


Fig 6. Typical Capacitance Characteristics

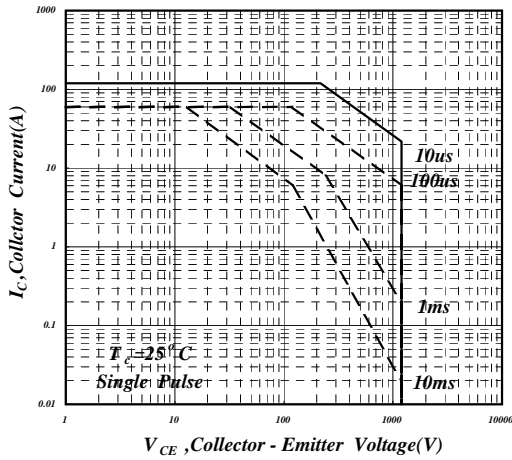


Fig 7. SOA Characteristics

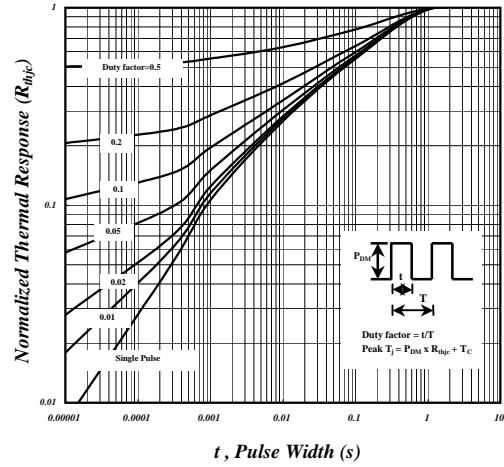


Fig 8. Effective Transient Thermal Impedance

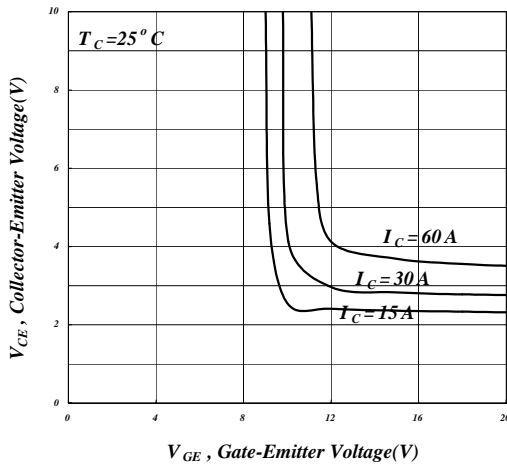


Fig 9. Saturation Voltage vs. V_{GE}

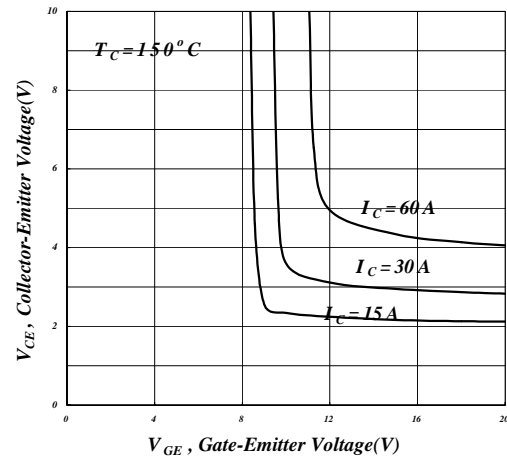


Fig 10. Saturation Voltage vs. V_{GE}

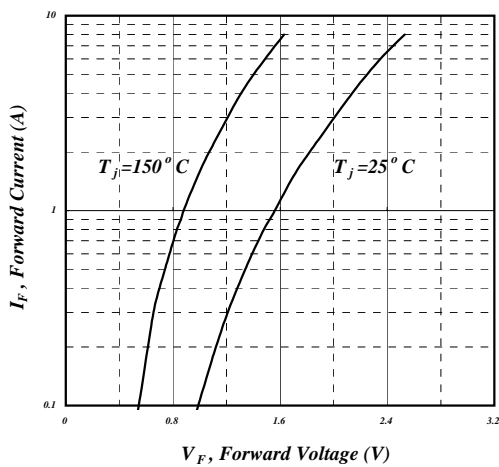


Fig11. Forward Characteristic of Diode

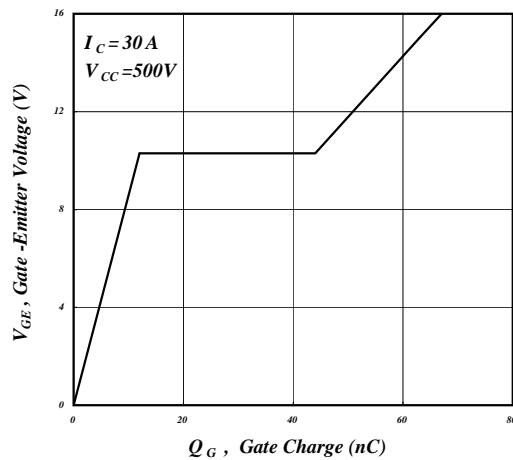


Fig 12. Gate Charge Characteristics

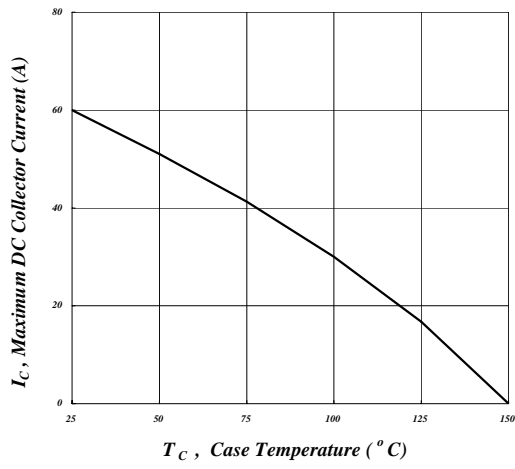


Fig 13. Maximum Collector Current VS. Case Temperature