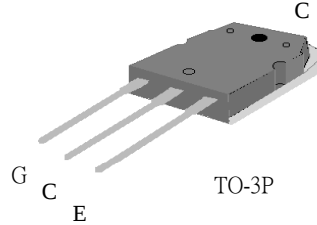


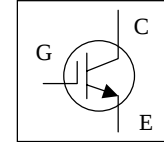


Features

- ▼ **Advanced IGBT Technology**
- ▼ **Low Saturation Voltage**
 $V_{CE(sat)}=3.15V@I_C=40A$
- ▼ **Industry Standard TO-3P Package**



V_{CES}	1200V
I_C	40A



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{CES}	Collector-Emitter Voltage	1200	V
V_{GE}	Gate-Emitter Voltage	± 20	V
$I_C@T_C=25^\circ C$	Continuous Collector Current	80	A
$I_C@T_C=100^\circ C$	Continuous Collector Current	40	A
I_{CM}	Pulsed Collector Current ¹	160	A
$P_D@T_C=25^\circ C$	Maximum Power Dissipation	208	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ C$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ C$
T_L	Maximum Lead Temp. for Soldering Purposes , 1/8" from case for 10 seconds .	300	$^\circ C$

Notes:

1. Pulse width limited by max. junction temperature .

Thermal Data

Symbol	Parameter	Value	Units
Rthj-c	Thermal Resistance Junction-Case	0.6	$^\circ C/W$
Rthj-a	Thermal Resistance Junction-Ambient	40	$^\circ C/W$

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	$V_{GE}=\pm 20V, V_{CE}=0V$	-	-	± 100	nA
I_{CES}	Collector-Emitter Leakage Current	$V_{CE}=1200V, V_{GE}=0V$	-	-	500	μA
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$V_{GE}=15V, I_C=40A$	-	3.15	3.4	V
		$V_{GE}=15V, I_C=50A$	-	3.2	3.71	V
$V_{GE(th)}$	Gate Threshold Voltage	$V_{CE}=V_{GE}, I_C=250\mu A$	3	-	7	V
Q_g	Total Gate Charge	$I_C=40A$	-	160	260	nC
Q_{ge}	Gate-Emitter Charge	$V_{CC}=500V$	-	25	-	nC
Q_{gc}	Gate-Collector Charge	$V_{GE}=15V$	-	90	-	nC
$t_{d(on)}$	Turn-on Delay Time	$V_{CC}=600V, I_C=40A,$	-	35	-	ns
t_r	Rise Time	$V_{GE}=15V,$	-	30	-	ns
$t_{d(off)}$	Turn-off Delay Time	$R_G=5\Omega,$	-	150	-	ns
t_f	Fall Time	Inductive Load	-	260	520	ns
E_{on}	Turn-On Switching Loss		-	1.7	-	mJ
E_{off}	Turn-Off Switching Loss		-	3	-	mJ
C_{ies}	Input Capacitance	$V_{GE}=0V$	-	3030	4800	pF
C_{oes}	Output Capacitance	$V_{CE}=30V$	-	205	-	pF
C_{res}	Reverse Transfer Capacitance	$f=1.0MHz$	-	15	-	pF

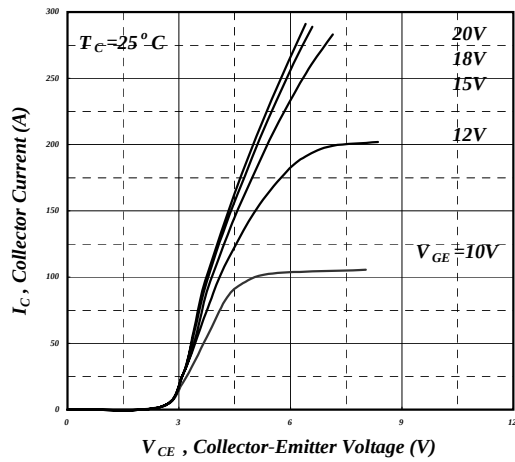


Fig 1. Typical Output Characteristics

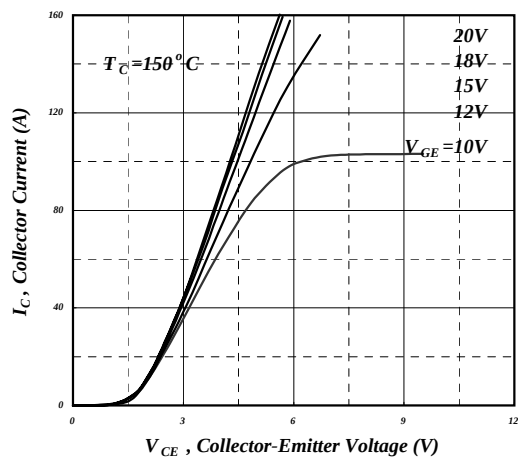


Fig 2. Typical Output Characteristics

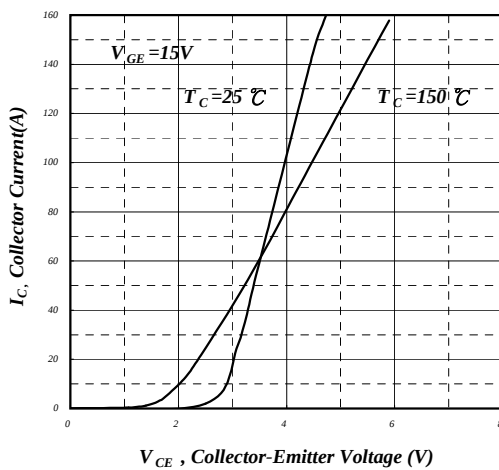


Fig 3. Typical Saturation Voltage Characteristics

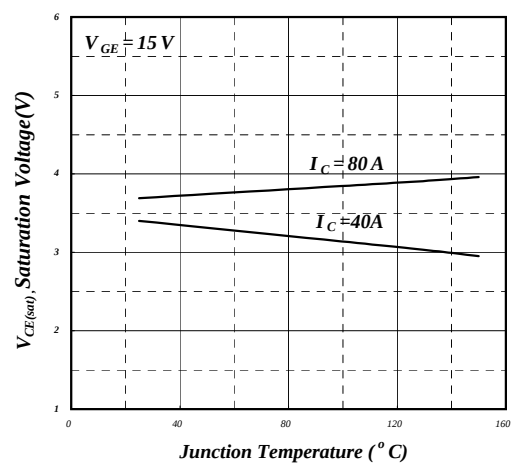


Fig 4. Typical Collector- Emitter Voltage v.s. Junction Temperature

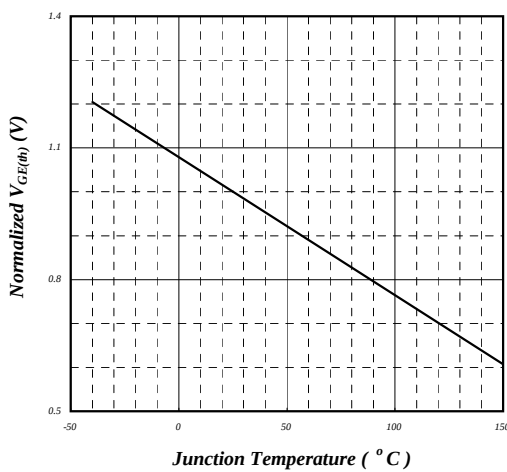


Fig 5. Gate Threshold Voltage v.s. Junction Temperature

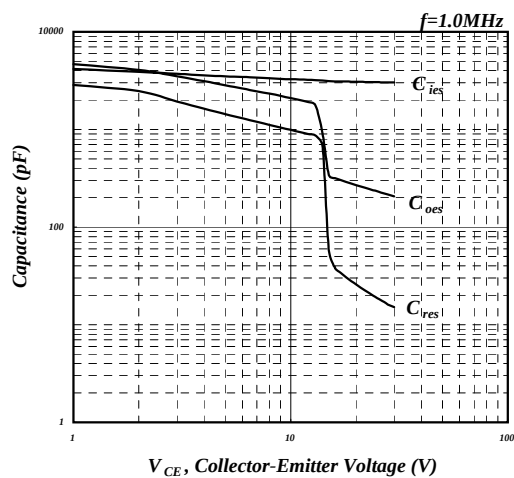


Fig 6. Typical Capacitance Characteristics

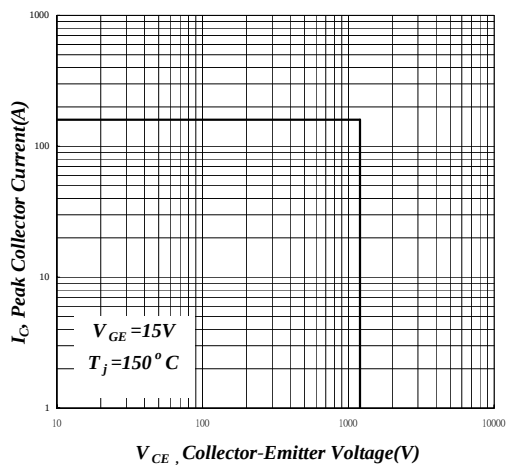


Fig 7. Revers Bias SOA

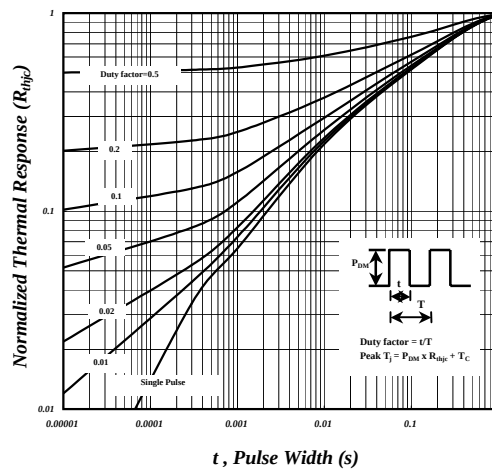


Fig 8. Effective Transient Thermal Impedance

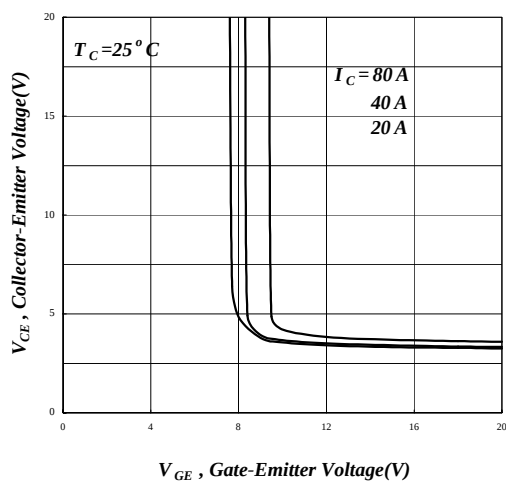


Fig 9. Saturation Voltage vs. V_{GE}

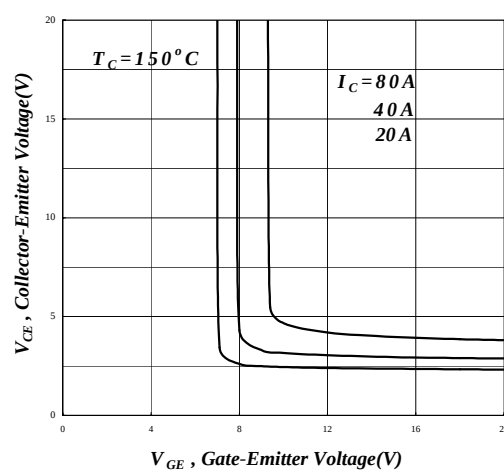


Fig 10. Saturation Voltage vs. V_{GE}

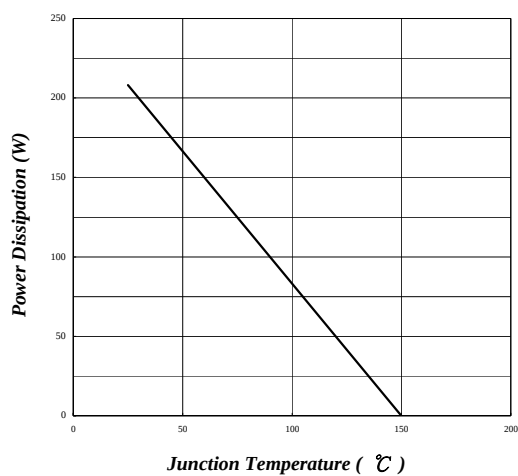


Fig11. Power Dissipation vs. Junction Temperature

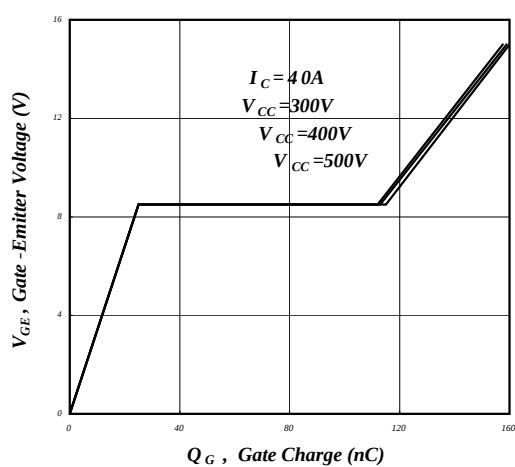


Fig 12. Gate Charge Characteristics