

GenX3™ 300V IGBT

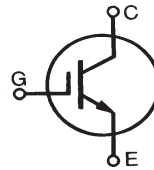
IXGK400N30A3 IXGX400N30A3

$$V_{CES} = 300V$$

$$I_{C25} = 400A$$

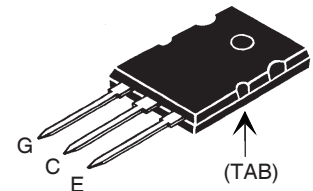
$$V_{CE(sat)} \leq 1.15V$$

Ultra-low V_{sat} PT IGBTs for up to 10kHz switching

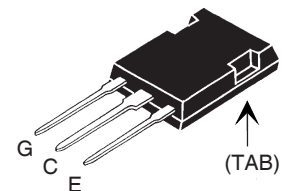


Symbol	Test Conditions	Maximum Ratings	
V_{CES}	$T_J = 25^\circ C$ to $150^\circ C$	300	V
V_{CGR}	$T_J = 25^\circ C$ to $150^\circ C$, $R_{GE} = 1M\Omega$	300	V
V_{GES}	Continuous	± 20	V
V_{GEM}	Transient	± 30	V
I_{C25}	$T_C = 25^\circ C$	400	A
I_{C110}	$T_C = 110^\circ C$	200	A
I_{LRMS}	Terminal Current Limit	75	A
I_{CM}	$T_C = 25^\circ C$, 1ms	400	A
SSOA (RBSOA)	$V_{GE} = 15V$, $T_{VJ} = 125^\circ C$, $R_G = 1\Omega$ Clamped inductive load	$I_{CM} = 400$ @ $0.8 \cdot V_{CES}$	A
P_C	$T_C = 25^\circ C$	1000	W
T_J		-55 ... +150	$^\circ C$
T_{JM}		150	$^\circ C$
T_{stg}		-55 ... +150	$^\circ C$
T_L	Maximum lead temperature for soldering	300	$^\circ C$
T_{SOLD}	1.6 mm (0.062 in.) from case for 10	260	$^\circ C$
M_d	Mounting torque (IXGK)	1.13/10	Nm/lb.in.
F_c	Mounting force (IXGX)	20..120/4.5..27	N/lb.
Weight	TO-264	10	g
	PLUS247	6	g

TO-264



PLUS247™



G = Gate E = Emitter
C = Collector TAB = Collector

Features

- Optimized for low switching losses
- Square RBSOA
- High avalanche capability
- International standard packages

Advantages

- High power density
- Low gate drive requirement

Applications

- Power Inverters
- UPS
- Motor Drives
- SMPS
- PFC Circuits
- Battery Chargers
- Welding Machines
- Lamp Ballasts
- Inrush Current Protection Circuits

Symbol	Test Conditions ($T_J = 25^\circ C$, unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
BV_{CES}	$I_C = 1mA$, $V_{GE} = 0V$	300		V
$V_{GE(th)}$	$I_C = 4mA$, $V_{CE} = V_{GE}$	3.0		5.0 V
I_{CES}	$V_{CE} = V_{CES}$ $V_{GE} = 0V$ $T_J = 125^\circ C$			50 μA 2 mA
I_{GES}	$V_{CE} = 0V$, $V_{GE} = \pm 20V$			± 400 nA
$V_{CE(sat)}$	$I_C = 100A$, $V_{GE} = 15V$, Note 1 $I_C = 400A$	1.70	1.15	V V

Fig. 1. Output Characteristics @ 25°C

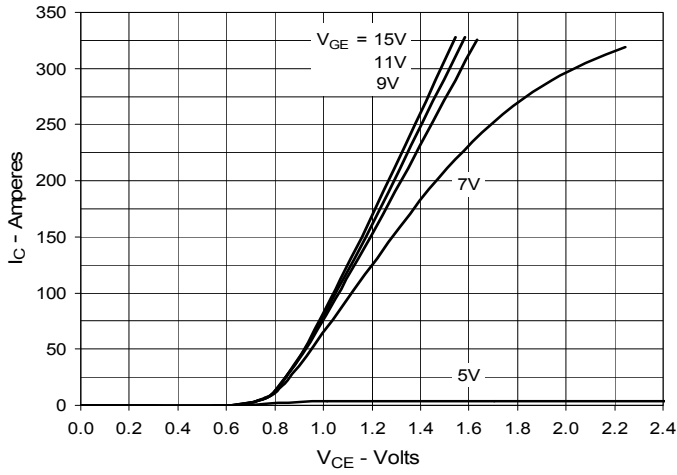


Fig. 2. Output Characteristics @ 125°C

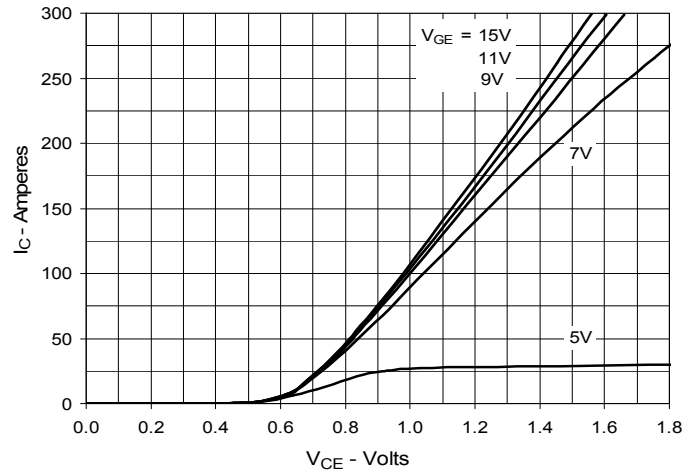


Fig. 3. Dependence of $V_{CE(sat)}$ on Junction Temperature

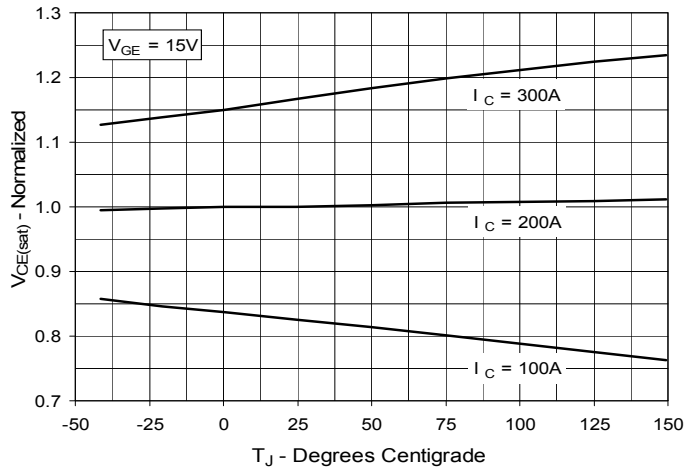


Fig. 4. Collector-to-Emitter Voltage vs. Gate-to-Emitter Voltage

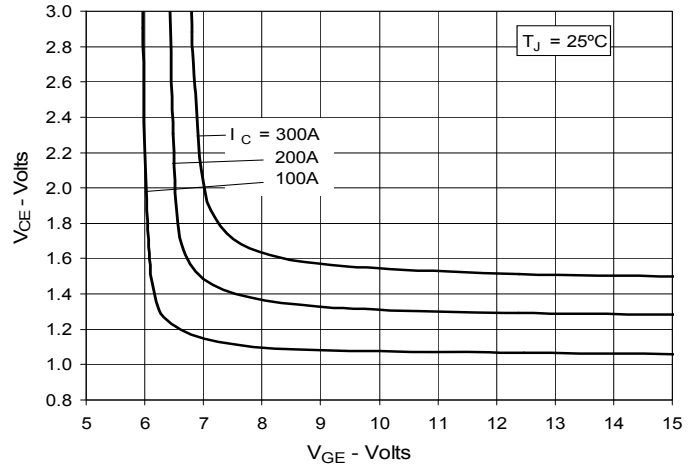


Fig. 5. Input Admittance

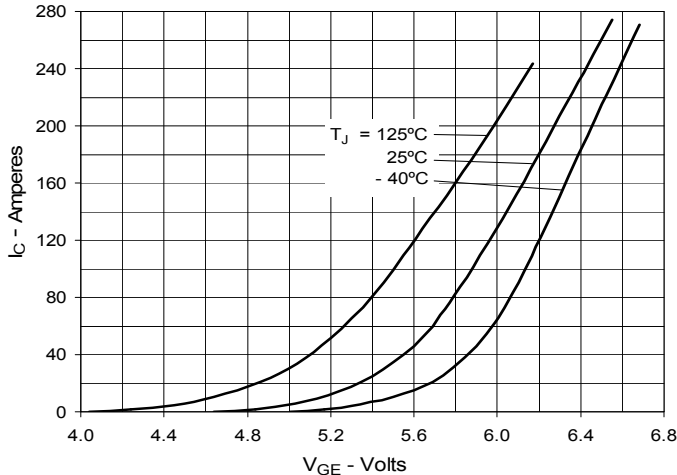


Fig. 6. Transconductance

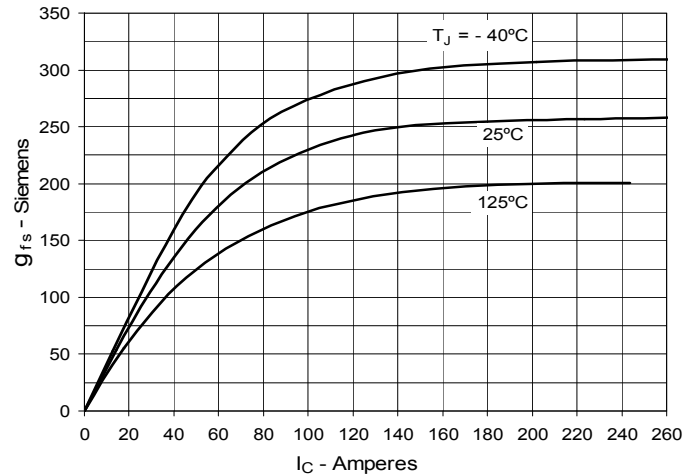


Fig. 7. Gate Charge

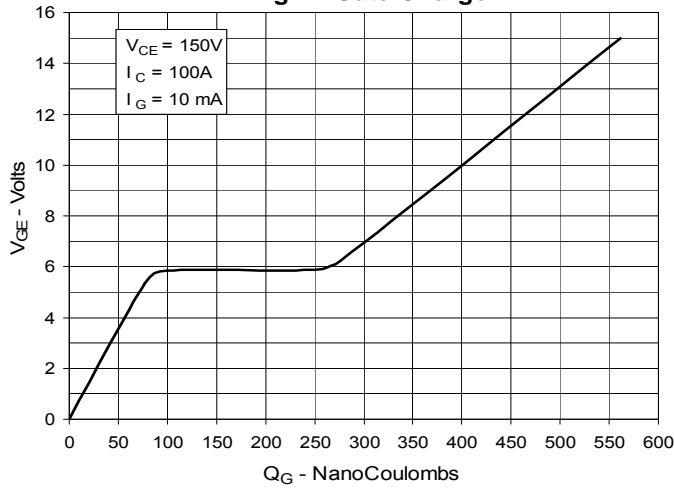


Fig. 8. Capacitance

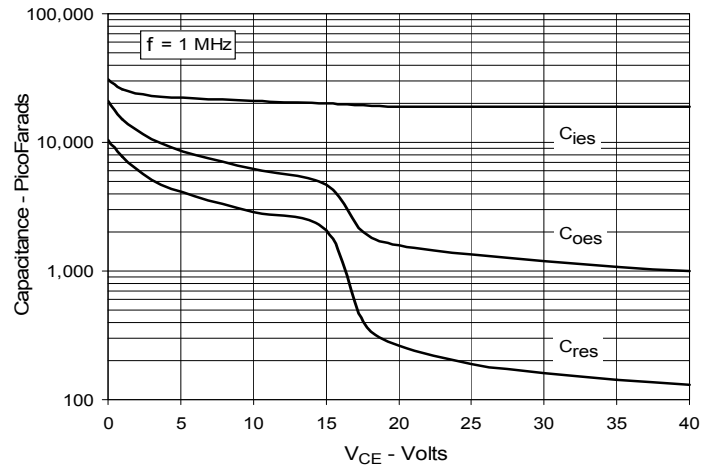


Fig. 9. Reverse-Bias Safe Operating Area

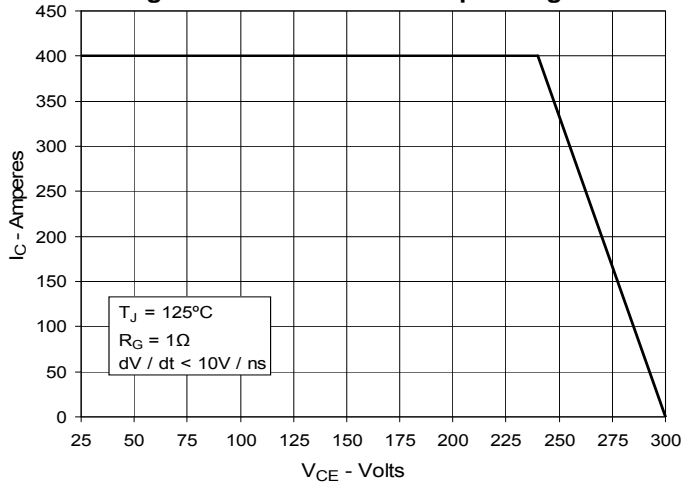


Fig. 10. Maximum Transient Thermal Impedance

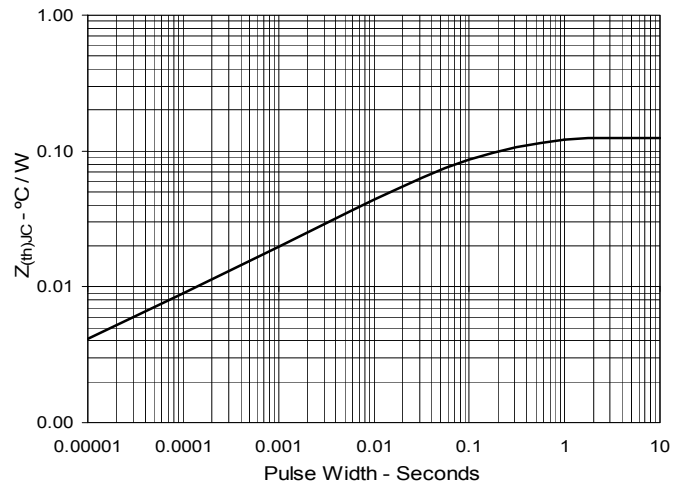


Fig. 11. Resistive Turn-on Rise Time vs. Junction Temperature

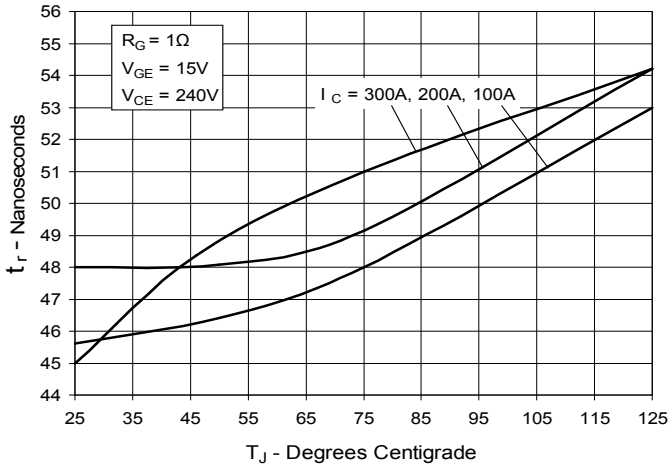


Fig. 12. Resistive Turn-on Rise Time vs. Collector Current

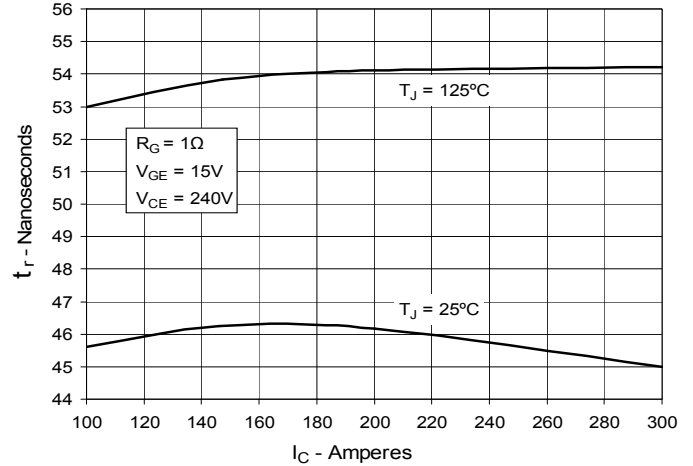


Fig. 13. Resistive Turn-on Switching Times vs. Gate Resistance

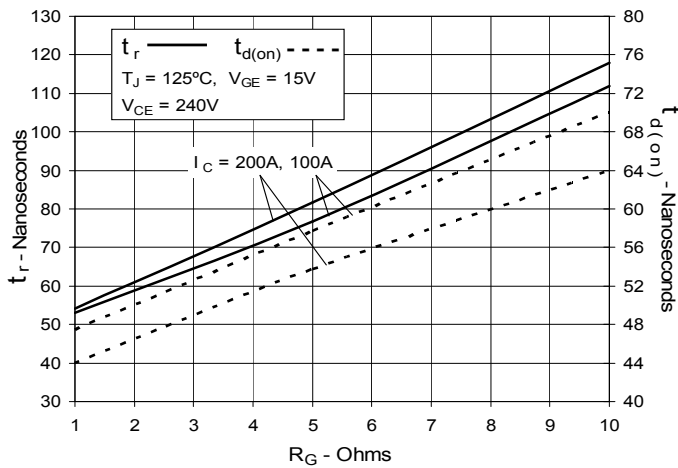


Fig. 14. Resistive Turn-off Switching Times vs. Junction Temperature

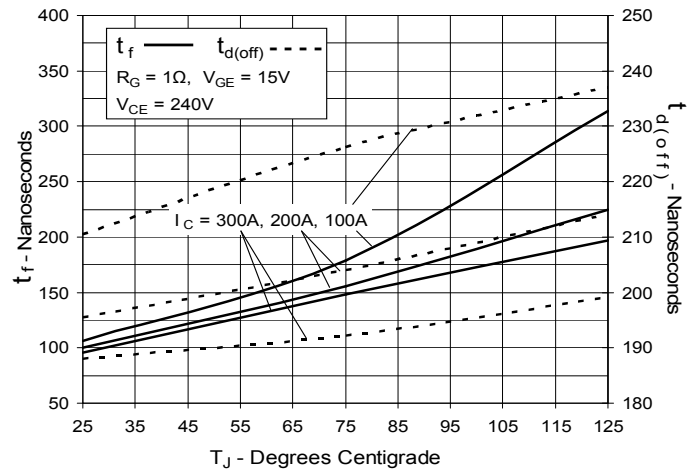


Fig. 15. Resistive Turn-off Switching Times vs. Gate Resistance

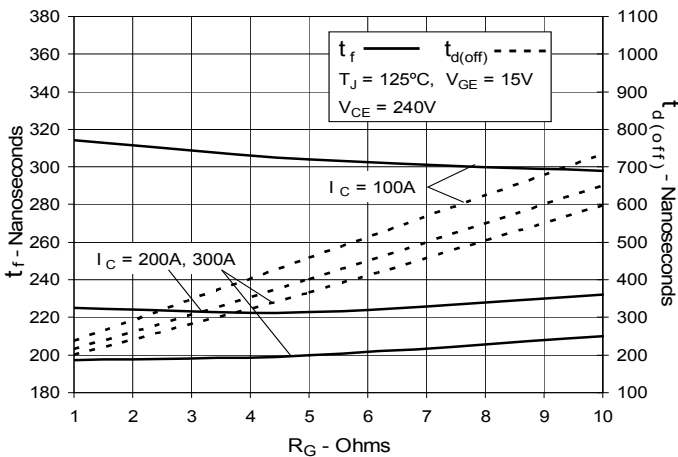


Fig. 16. Resistive Turn-off Switching Times vs. Collector Current

