

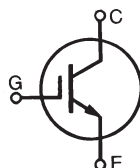
GenX3™ 1200V IGBTs

IXGA12N120A3
IXGP12N120A3
IXGH12N120A3

$V_{CES} = 1200V$
 $I_{C90} = 12A$
 $V_{CE(sat)} \leq 3.0V$

High Surge Current

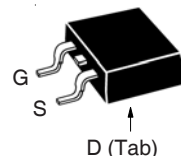
Ultra-Low V_{sat} PT IGBTs for up to 3kHz Switching



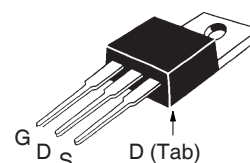
Symbol	Test Conditions	Maximum Ratings	
V_{CES}	$T_J = 25^\circ C$ to $150^\circ C$	1200	V
V_{CGR}	$T_J = 25^\circ C$ to $150^\circ C$, $R_{GE} = 1M\Omega$	1200	V
V_{GES}	Continuous	± 20	V
V_{GEM}	Transient	± 30	V
I_{C25}	$T_C = 25^\circ C$	22	A
I_{C90}	$T_C = 90^\circ C$	12	A
I_{CM}	$T_C = 25^\circ C$, 1ms	60	A
SSOA (RBSOA)	$V_{GE} = 15V$, $T_{VJ} = 125^\circ C$, $R_G = 10\Omega$ Clamped Inductive Load	$I_{CM} = 24$ $V_{CE} \leq 0.8 \cdot V_{CES}$	A
P_C	$T_C = 25^\circ C$	100	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 (0.062in.) from Case for 10s	260	$^\circ C$
F_C	Mounting Force (TO-263)	10..65 / 2.2..14.6	N/lb.
M_d	Mounting Torque (TO-220 & TO-247)	1.13 / 10	Nm/lb.in.
Weight	TO-263	2.5	g
	TO-220	3.0	g
	TO-247	6.0	g

Symbol	Test Conditions ($T_J = 25^\circ C$, Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
BV_{CES}	$I_C = 250\mu A$, $V_{GE} = 0V$	1200		V
$V_{GE(th)}$	$I_C = 250\mu A$, $V_{CE} = V_{GE}$	2.5		5.0 V
I_{CES}	$V_{CE} = V_{CES}$, $V_{GE} = 0V$ $T_J = 125^\circ C$			10 μA 275 μA
I_{GES}	$V_{CE} = 0V$, $V_{GE} = \pm 20V$			± 100 nA
$V_{CE(sat)}$	$I_C = I_{C90}$, $V_{GE} = 15V$, Note 1 $T_J = 125^\circ C$		2.40 2.75	3.0 V V

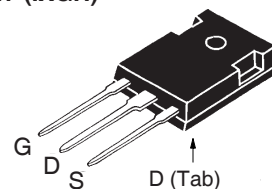
TO-263 AA (IXGA)



TO-220AB (IXGP)



TO-247 (IXGH)



G = Gate D = Drain
S = Source Tab = Drain

Features

- Optimized for Low Conduction Losses
- 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

Fig. 1. Output Characteristics @ $T_J = 25^\circ\text{C}$

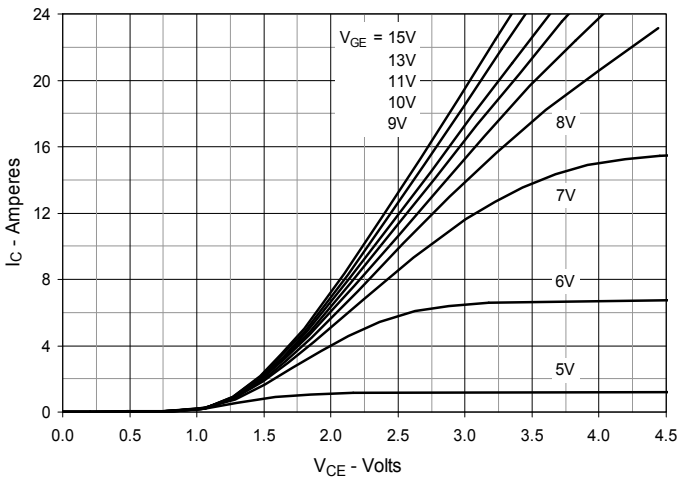


Fig. 2. Extended Output Characteristics @ $T_J = 25^\circ\text{C}$

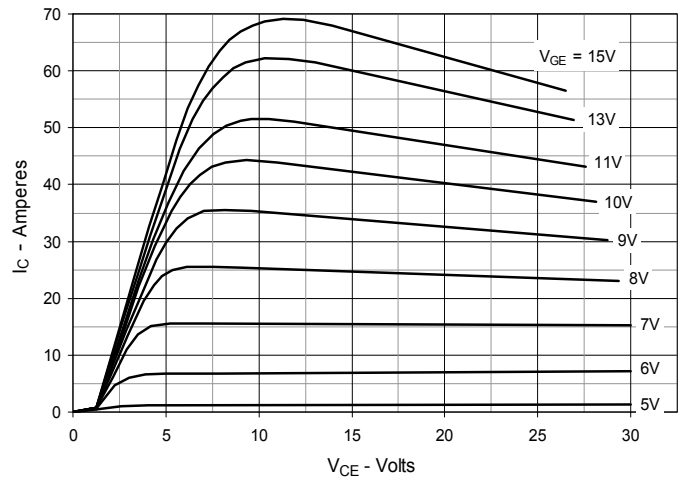


Fig. 3. Output Characteristics @ $T_J = 125^\circ\text{C}$

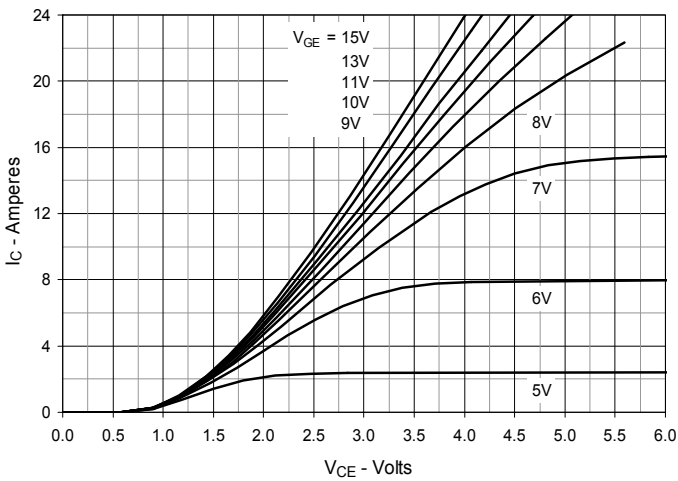


Fig. 4. Dependence of $V_{CE(sat)}$ on Junction Temperature

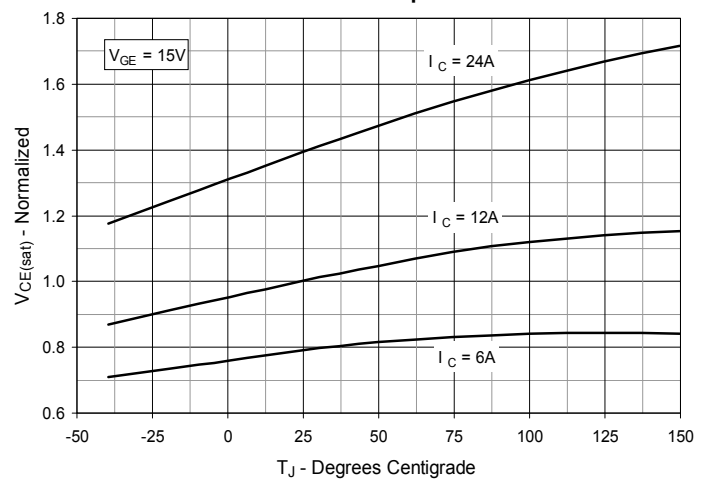


Fig. 5. Collector-to-Emitter Voltage vs. Gate-to-Emitter Voltage

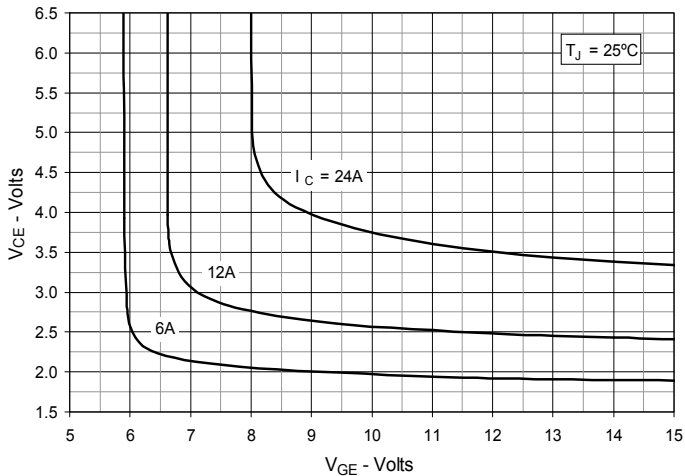


Fig. 6. Input Admittance

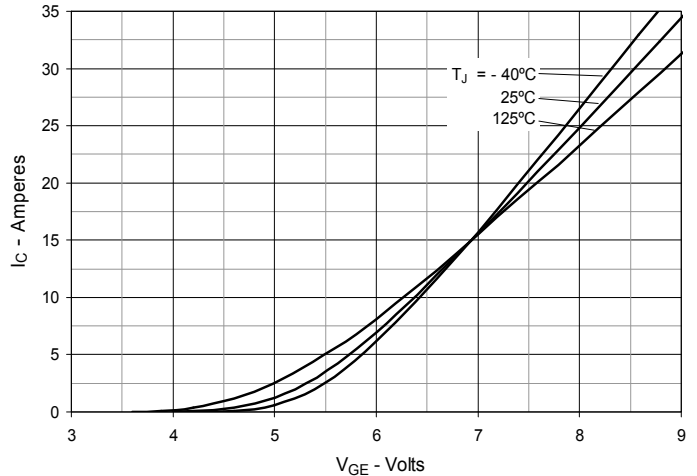


Fig. 7. Transconductance

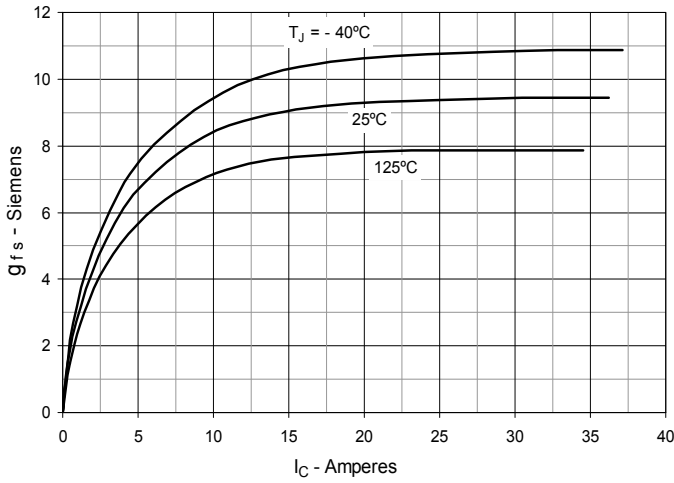


Fig. 8. Gate Charge

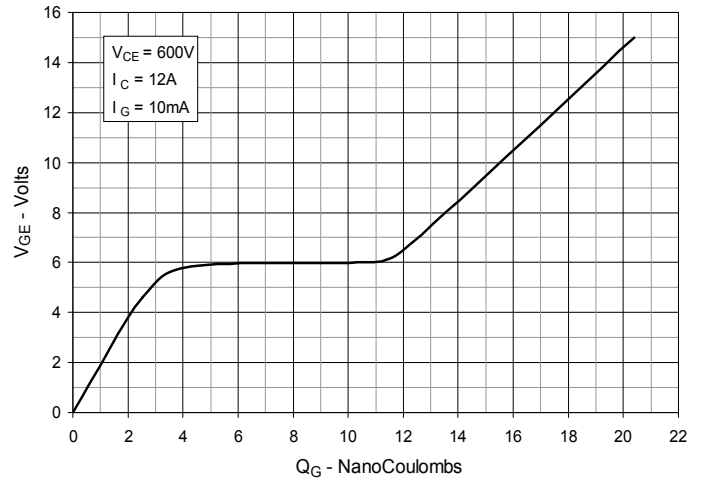


Fig. 9. Reverse-Bias Safe Operating Area

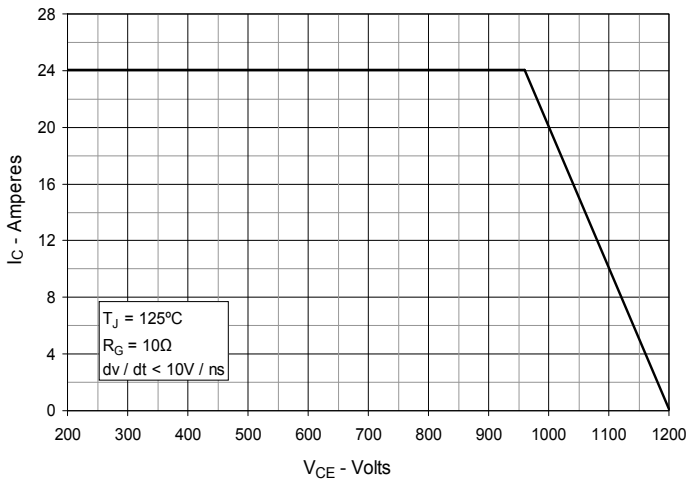


Fig. 10. Capacitance

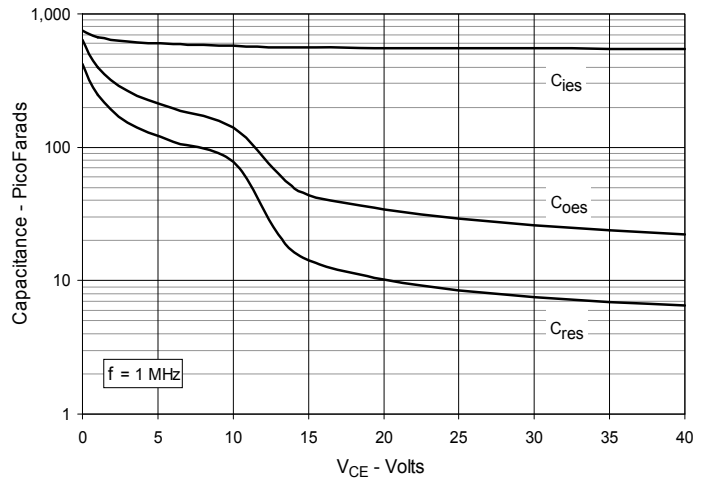


Fig. 11. Maximum Transient Thermal Impedance

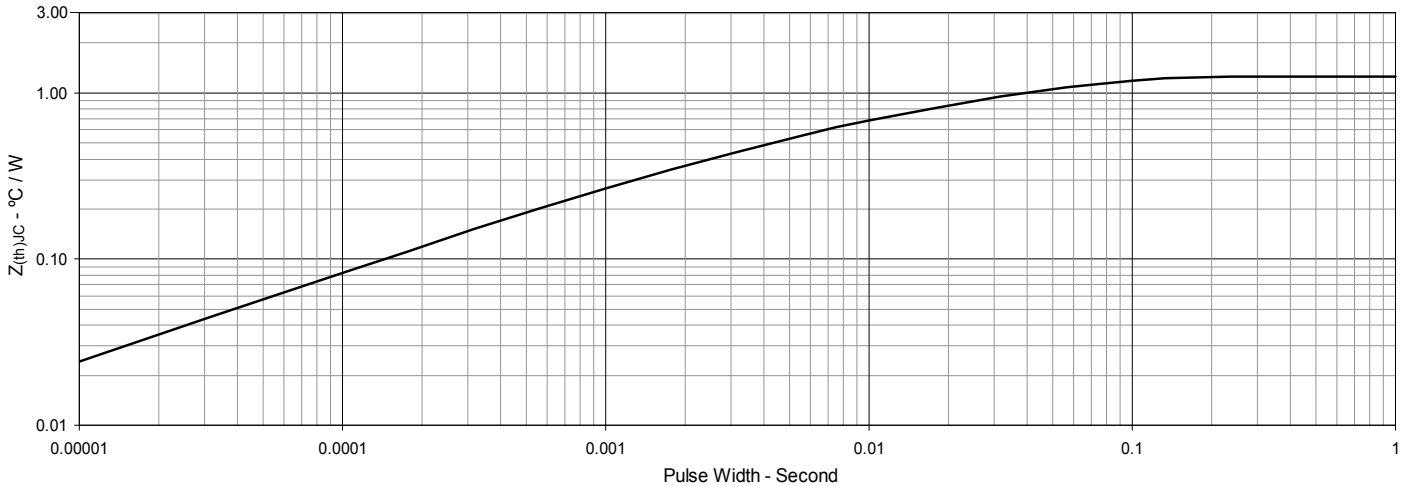


Fig. 12. Resistive Turn-on Rise Time vs. Junction Temperature

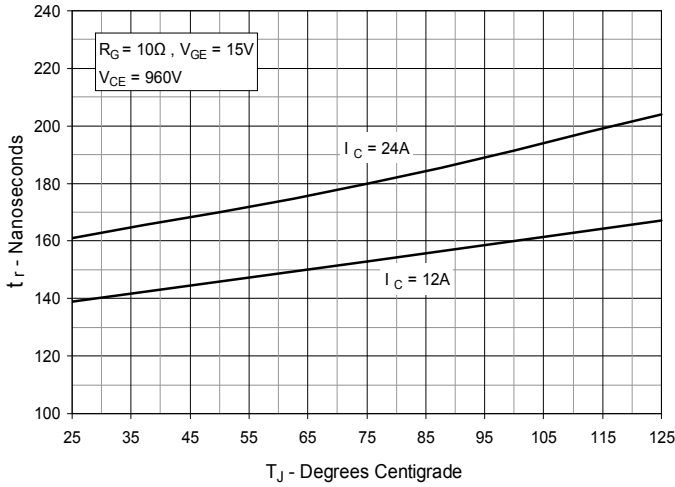


Fig. 13. Resistive Turn-on Rise Time vs. Collector Current

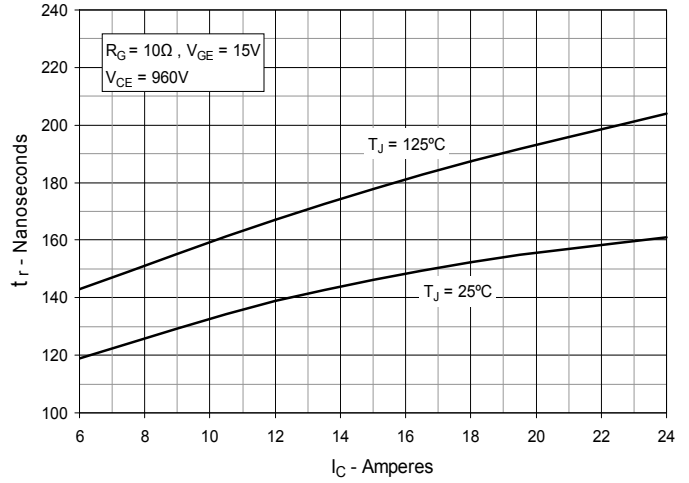


Fig. 14. Resistive Turn-on Switching Times vs. Gate Resistance

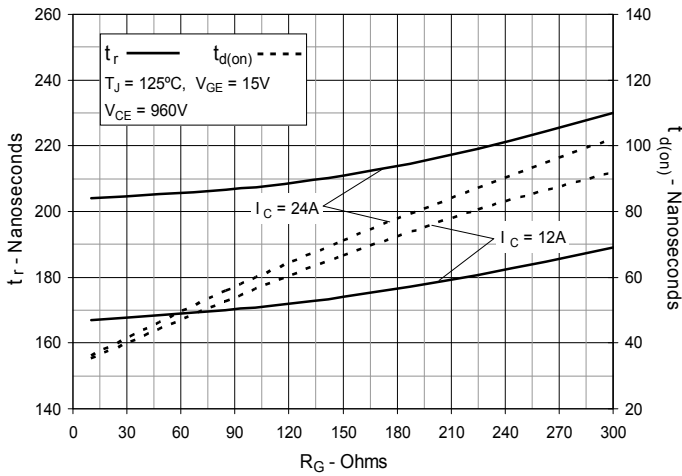


Fig. 15. Resistive Turn-off Switching Times vs. Junction Temperature

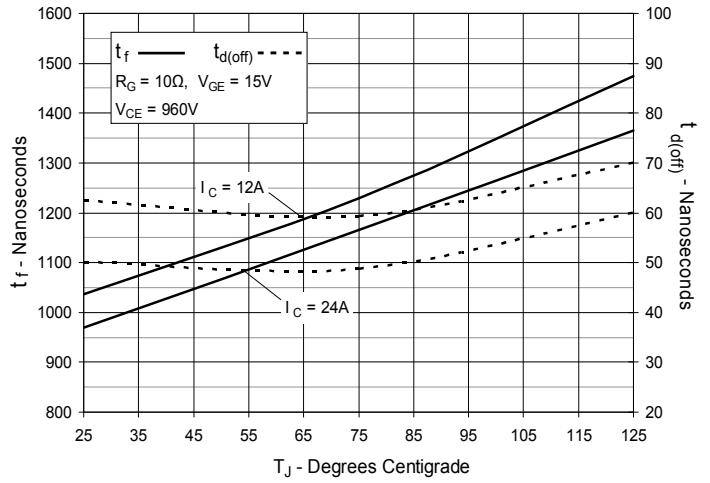


Fig. 16. Resistive Turn-off Switching Times vs. Collector Current

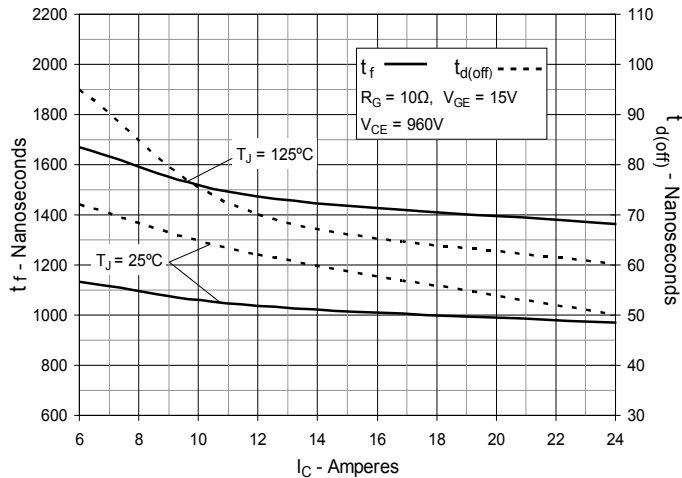
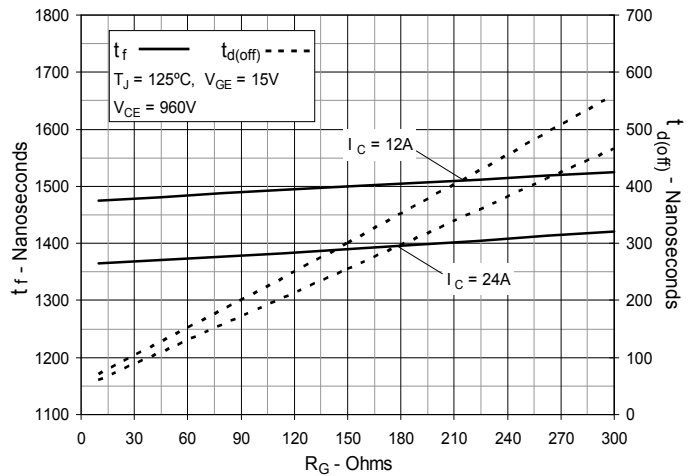


Fig. 17. Resistive Turn-off Switching Times vs. Gate Resistance





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