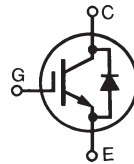


High Voltage, High Gain BiMOSFET™

IXBK55N300 IXBX55N300

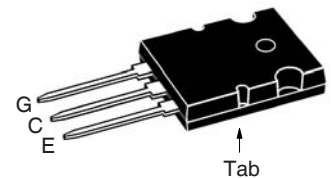
$V_{CES} = 3000V$
 $I_{C110} = 55A$
 $V_{CE(sat)} \leq 3.2V$

Monolithic Bipolar MOS Transistor

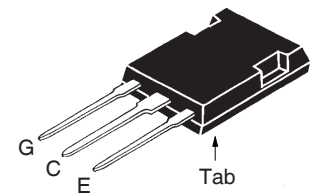


| Symbol | Test Conditions | Maximum Ratings | |
|--|--|---|--------------------------|
| V_{CES} | $T_J = 25^\circ C$ to $150^\circ C$ | 3000 | V |
| V_{CGR} | $T_J = 25^\circ C$ to $150^\circ C$, $R_{GE} = 1M\Omega$ | 3000 | V |
| V_{GES} | Continuous | ± 25 | V |
| V_{GEM} | Transient | ± 35 | V |
| I_{C25} | $T_C = 25^\circ C$ (Chip Capability) | 130 | A |
| I_{LRMS} | $T_C = 25^\circ C$ (Lead RMS Limit) | 120 | A |
| I_{C110} | $T_C = 110^\circ C$ | 55 | A |
| I_{CM} | $T_C = 25^\circ C$, 1ms | 600 | A |
| SSOA (RBSOA) | $V_{GE} = 15V$, $T_{VJ} = 125^\circ C$, $R_G = 2\Omega$ Clamped Inductive Load | $I_{CM} = 110$ @ $0.8 \cdot V_{CES}$ | A |
| T_{SC} (SCSOA) | $V_{GE} = 15V$, $T_J = 125^\circ C$, $R_G = 10\Omega$, $V_{CE} = 1250V$, Non-Repetitive | 10 | μs |
| P_C | $T_C = 25^\circ C$ | 625 | W |
| T_J | | -55 ... +150 | $^\circ C$ |
| T_{JM} | | 150 | $^\circ C$ |
| T_{stg} | | -55 ... +150 | $^\circ C$ |
| T_L T_{SOLD} | Maximum Lead Temperature for Soldering 1.6 mm (0.062 in.) from Case for 10 | 300 260 | $^\circ C$ $^\circ C$ |
| M_d F_C | Mounting Torque (TO-264) Mounting Force (PLUS247) | 1.13/10 20..120/4.5..27 | Nm/lb.in. N/lb. |
| Weight | TO-264 PLUS247 | 10 6 | g g |

TO-264 (IXBK)



PLUS247 (IXBX)



G = Gate E = Emitter
 C = Collector Tab = Collector

Features

- High Blocking Voltage
- International Standard Packages
- Low Conduction Losses
- High Current Handling Capability
- MOS Gate Turn-On
- Drive Simplicity

Advantages

- Easy to Mount
- Space Savings
- High Power Density

Applications

- Uninterruptible Power Supplies (UPS)
- Switch-Mode and Resonant-Mode Power Supplies
- Capacitor Discharge Circuits
- Laser Generators

| Symbol | Test Conditions ($T_J = 25^\circ C$, Unless Otherwise Specified) | Characteristic Values | | |
|---------------|---|-----------------------|------|--------------------|
| | | Min. | Typ. | Max. |
| BV_{CES} | $I_C = 1mA$, $V_{GE} = 0V$ | 3000 | | 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 3 mA |
| I_{GES} | $V_{CE} = 0V$, $V_{GE} = \pm 25V$ | | | ± 200 nA |
| $V_{CE(sat)}$ | $I_C = 55A$, $V_{GE} = 15V$, Note 1 $T_J = 125^\circ C$ | 2.7 3.3 | 3.2 | V V |

Symbol Test Conditions

($T_J = 25^\circ\text{C}$ Unless Otherwise Specified)

Characteristic Values

| | | Min. | Typ. | Max. | |
|--------------|--|------|------|------|--------------------|
| g_{fs} | $I_C = 55\text{A}, V_{CE} = 10\text{V}, \text{Note 1}$ | 32 | 50 | | S |
| C_{ies} | $V_{CE} = 25\text{V}, V_{GE} = 0\text{V}, f = 1\text{MHz}$ | | 7300 | | pF |
| C_{oes} | | | 275 | | pF |
| C_{res} | | | 83 | | pF |
| Q_g | $I_C = 55\text{A}, V_{GE} = 15\text{V}, V_{CE} = 1000\text{V}$ | | 335 | | nC |
| Q_{ge} | | | 47 | | nC |
| Q_{gc} | | | 130 | | nC |
| $t_{d(on)}$ | Resistive Switching Times, $T_J = 25^\circ\text{C}$ $I_C = 110\text{A}, V_{GE} = 15\text{V}$ $V_{CE} = 1250\text{V}, R_G = 2\Omega$ | | 54 | | ns |
| t_r | | | 307 | | ns |
| $t_{d(off)}$ | | | 230 | | ns |
| t_f | | | 268 | | ns |
| $t_{d(on)}$ | Resistive Switching Times, $T_J = 125^\circ\text{C}$ $I_C = 110\text{A}, V_{GE} = 15\text{V}$ $V_{CE} = 1250\text{V}, R_G = 2\Omega$ | | 52 | | ns |
| t_r | | | 585 | | ns |
| $t_{d(off)}$ | | | 215 | | ns |
| t_f | | | 260 | | ns |
| R_{thJC} | | | | 0.20 | $^\circ\text{C/W}$ |
| R_{thCS} | | 0.15 | | | $^\circ\text{C/W}$ |

Reverse Diode

Symbol Test Conditions

($T_J = 25^\circ\text{C}$ Unless Otherwise Specified)

Characteristic Values

| | | Min. | Typ. | Max | |
|----------|--|---|------|-----|---------------|
| V_F | $I_F = 55\text{A}, V_{GE} = 0\text{V}, \text{Note 1}$ | | | 2.5 | V |
| t_{rr} | $I_F = 28\text{A}, V_{GE} = 0\text{V}, -di_F/dt = 100\text{A}/\mu\text{s}$ | | 1.9 | | μs |
| I_{RM} | | $V_R = 100\text{V}, V_{GE} = 0\text{V}$ | | 54 | |

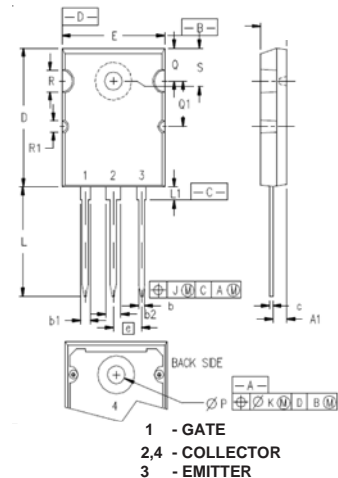
Note 1: Pulse Test, $t \leq 300\mu\text{s}$, Duty Cycle, $d \leq 2\%$.

Additional provisions for lead-to-lead isolation are required at $V_{CE} > 1200\text{V}$.

IXYS Reserves the Right to Change Limits, Test Conditions, and Dimensions.

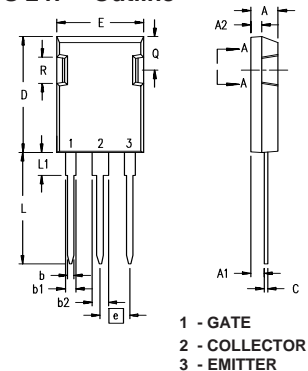
| | | | | | | | | | | |
|--|-----------|-----------|-----------|-----------|--------------|--------------|--------------|--------------|--------------|--------------|
| IXYS MOSFETs and IGBTs are covered by one or more of the following U.S. patents: | 4,835,592 | 4,931,844 | 5,049,961 | 5,237,481 | 6,162,665 | 6,404,065 B1 | 6,683,344 | 6,727,585 | 7,005,734 B2 | 7,157,338 B2 |
| | 4,850,072 | 5,017,508 | 5,063,307 | 5,381,025 | 6,259,123 B1 | 6,534,343 | 6,710,405 B2 | 6,759,692 | 7,063,975 B2 | |
| | 4,881,106 | 5,034,796 | 5,187,117 | 5,486,715 | 6,306,728 B1 | 6,583,505 | 6,710,463 | 6,771,478 B2 | 7,071,537 | |

TO-264 Outline



| SYM | INCHES | | MILLIMETERS | |
|-----|----------|-------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | .185 | .209 | 4.70 | 5.31 |
| A1 | .102 | .118 | 2.59 | 3.00 |
| b | .037 | .055 | 0.94 | 1.40 |
| b1 | .087 | .102 | 2.21 | 2.59 |
| b2 | .110 | .126 | 2.79 | 3.20 |
| c | .017 | .029 | 0.43 | 0.74 |
| D | 1.007 | 1.047 | 25.58 | 26.59 |
| E | .760 | .799 | 19.30 | 20.29 |
| e | .215 BSC | | 5.46 BSC | |
| J | .000 | .010 | 0.00 | 0.25 |
| K | .000 | .010 | 0.00 | 0.25 |
| L | .779 | .842 | 19.79 | 21.39 |
| L1 | .087 | .102 | 2.21 | 2.59 |
| ØP | .122 | .138 | 3.10 | 3.51 |
| Q | .240 | .256 | 6.10 | 6.50 |
| Q1 | .330 | .346 | 8.38 | 8.79 |
| ØR | .155 | .187 | 3.94 | 4.75 |
| ØR1 | .085 | .093 | 2.16 | 2.36 |
| S | .243 | .253 | 6.17 | 6.43 |

PLUS 247™ Outline



| Dim. | Millimeter | | Inches | |
|----------------|------------|-------|----------|-------|
| | Min. | Max. | Min. | Max. |
| A | 4.83 | 5.21 | .190 | .205 |
| A ₁ | 2.29 | 2.54 | .090 | .100 |
| A ₂ | 1.91 | 2.16 | .075 | .085 |
| b | 1.14 | 1.40 | .045 | .055 |
| b ₁ | 1.91 | 2.13 | .075 | .084 |
| b ₂ | 2.92 | 3.12 | .115 | .123 |
| C | 0.61 | 0.80 | .024 | .031 |
| D | 20.80 | 21.34 | .819 | .840 |
| E | 15.75 | 16.13 | .620 | .635 |
| e | 5.45 BSC | | .215 BSC | |
| L | 19.81 | 20.32 | .780 | .800 |
| L1 | 3.81 | 4.32 | .150 | .170 |
| Q | 5.59 | 6.20 | .220 | 0.244 |
| R | 4.32 | 4.83 | .170 | .190 |

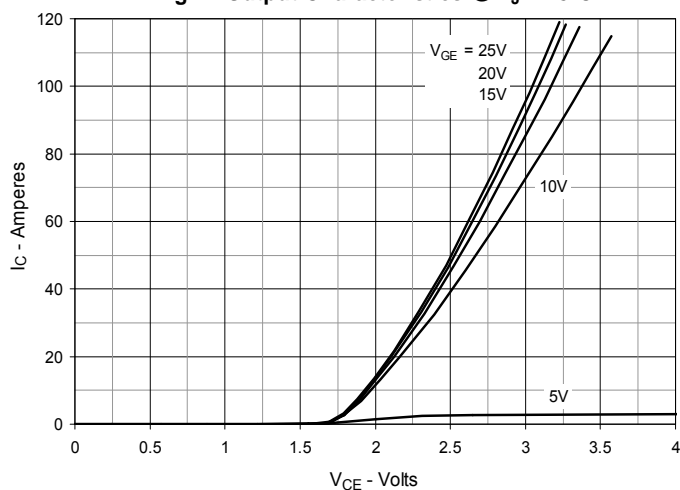
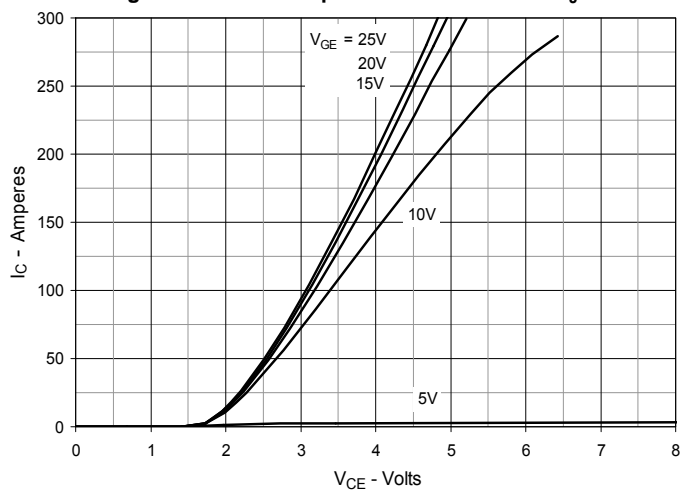
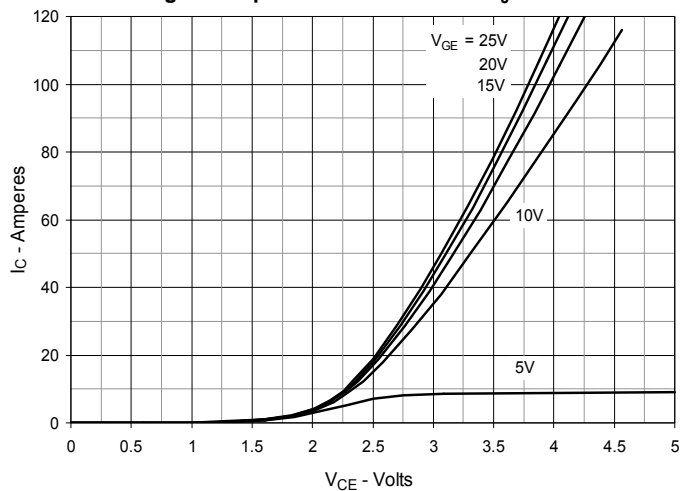
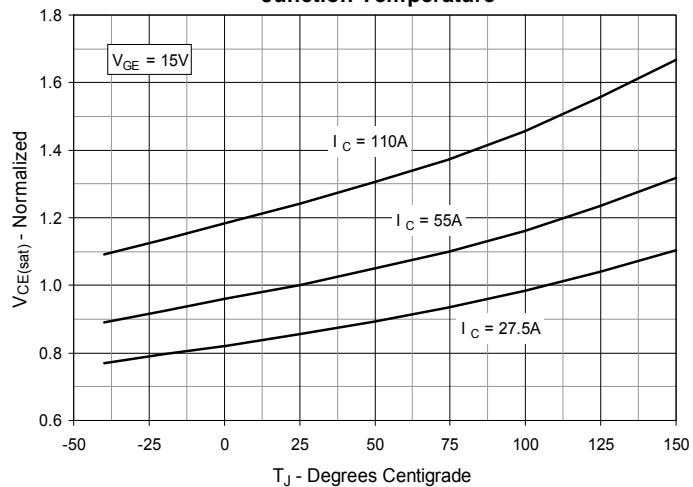
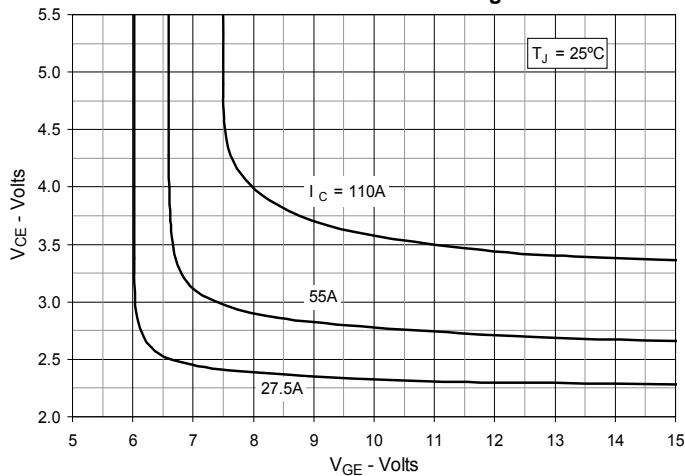
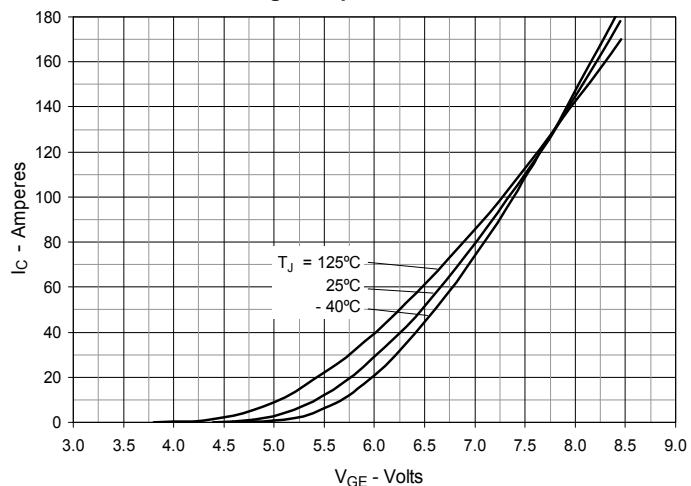
Fig. 1. Output Characteristics @ $T_J = 25^\circ\text{C}$

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


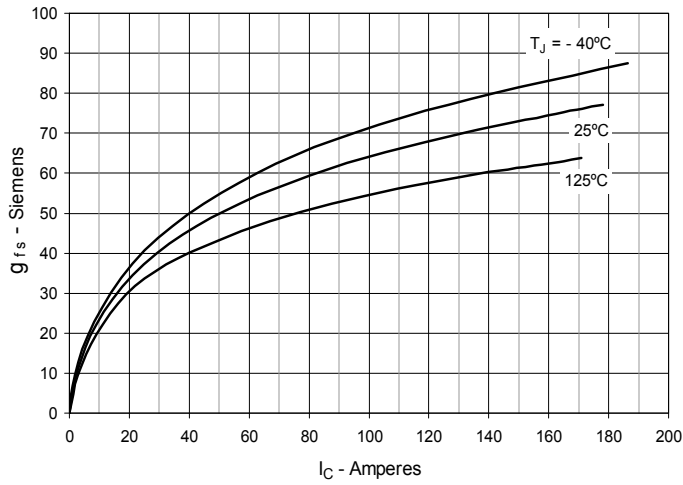
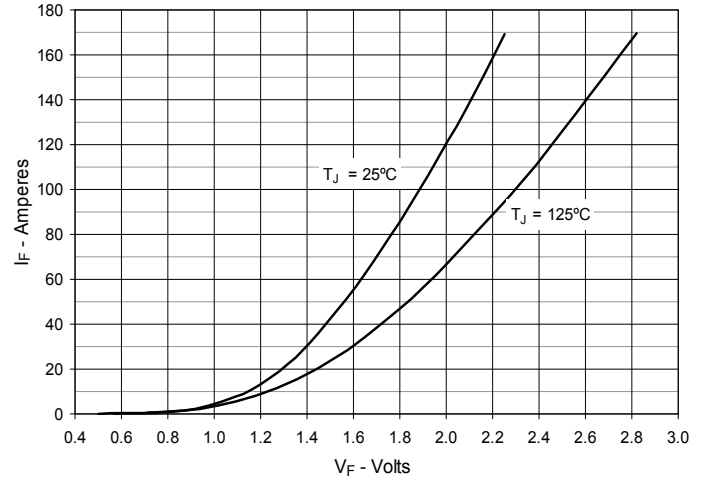
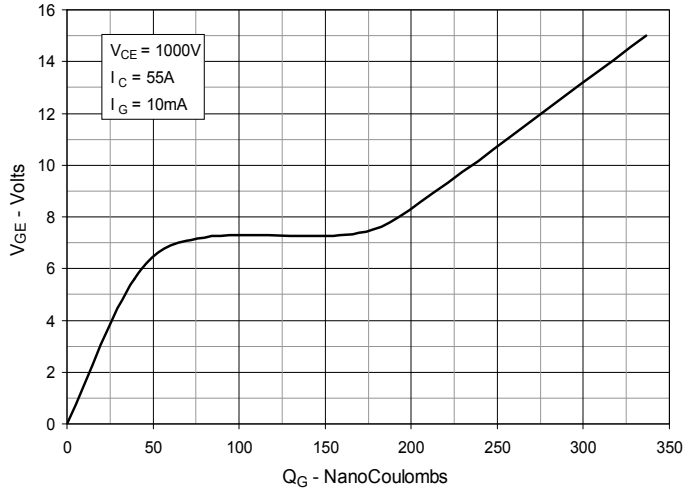
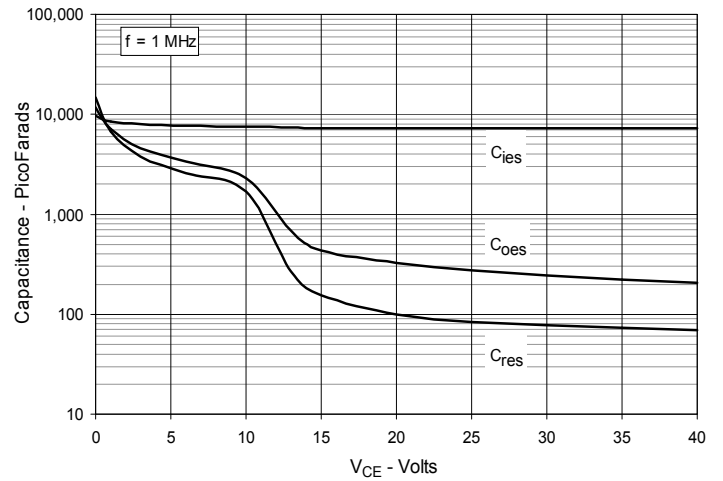
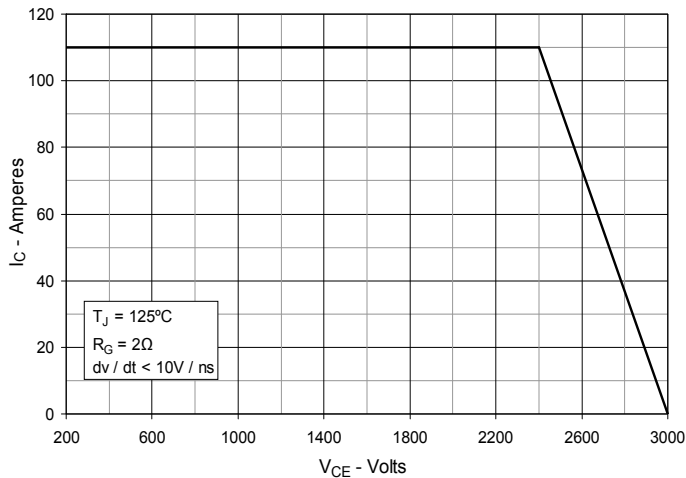
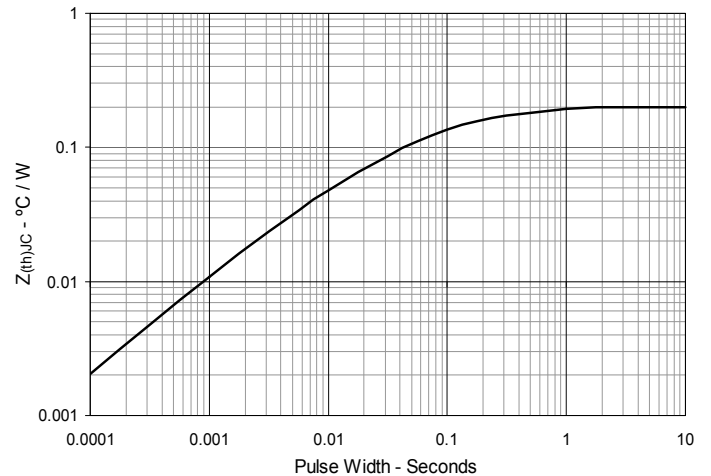
Fig. 7. Transconductance

Fig. 8. Forward Voltage Drop of Intrinsic Diode

Fig. 9. Gate Charge

Fig. 10. Capacitance

Fig. 11. Reverse-Bias Safe Operating Area

Fig. 12. Maximum Transient Thermal Impedance


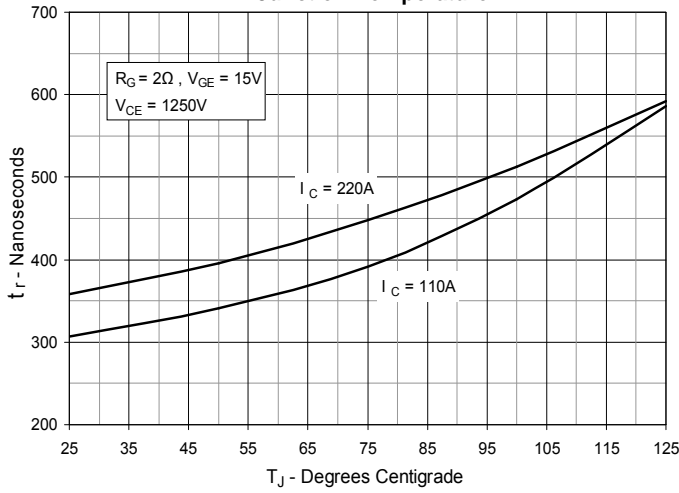
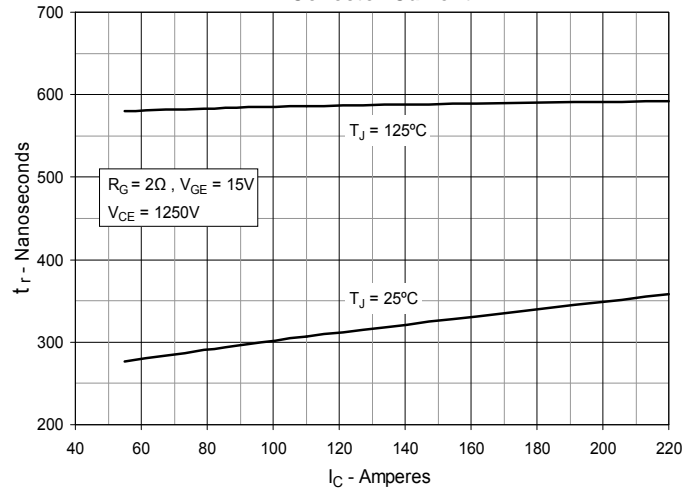
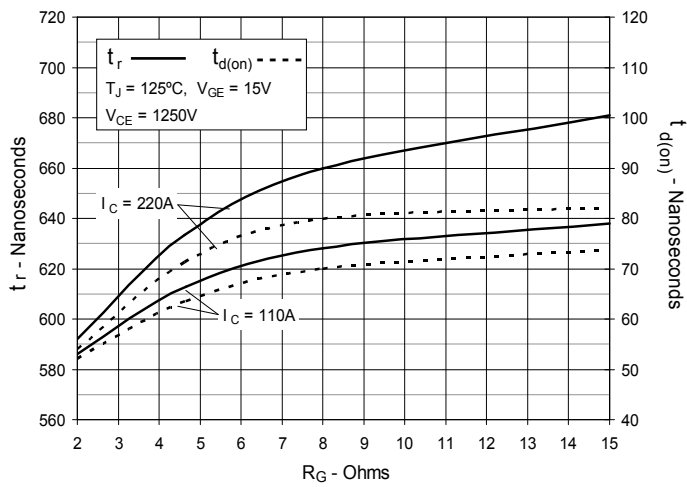
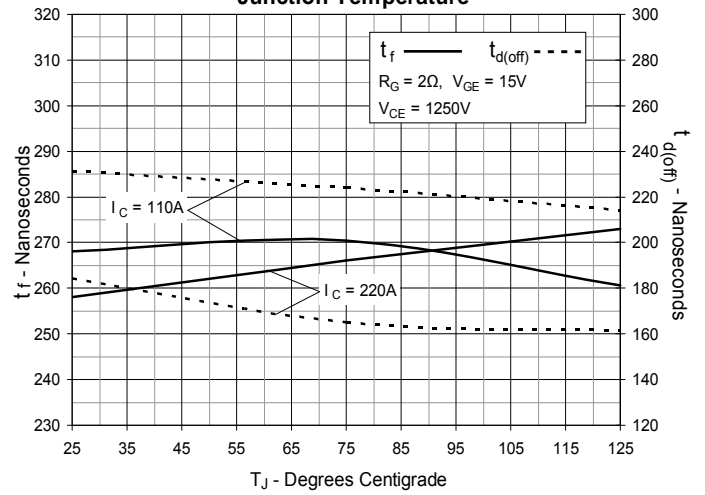
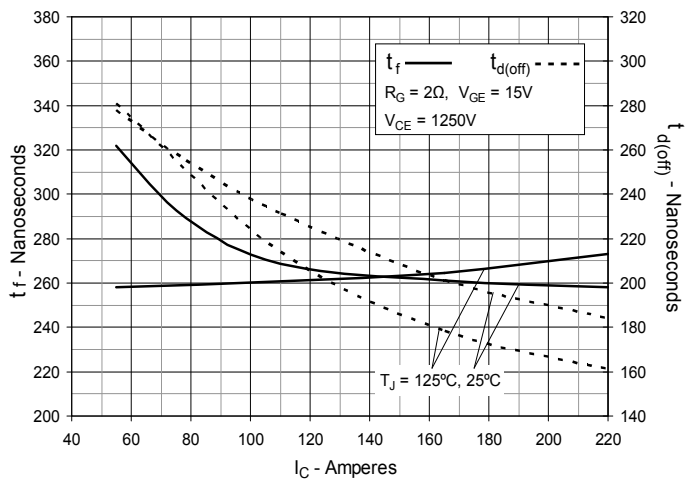
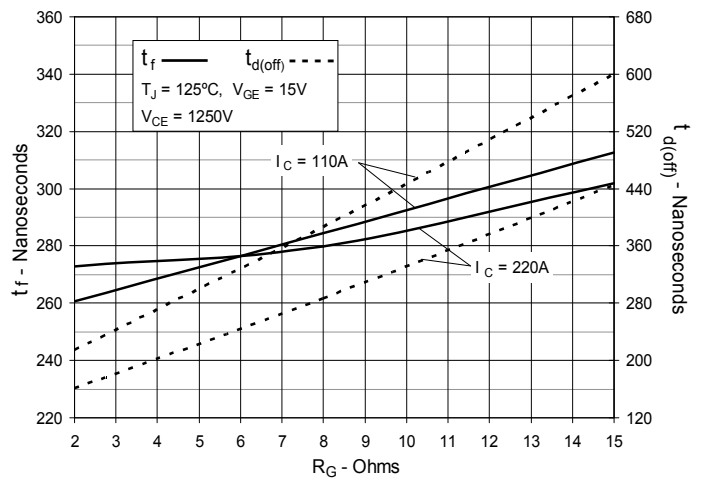
Fig. 13. Resistive Turn-on Rise Time vs. Junction Temperature

Fig. 14. Resistive Turn-on Rise Time vs. Collector Current

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

Fig. 16. Resistive Turn-off Switching Times vs. Junction Temperature

Fig. 17. Resistive Turn-off Switching Times vs. Collector Current

Fig. 18. Resistive Turn-off Switching Times vs. Gate Resistance


Fig. 19. Forward-Bias Safe Operating Area
@ $T_C = 25^\circ\text{C}$

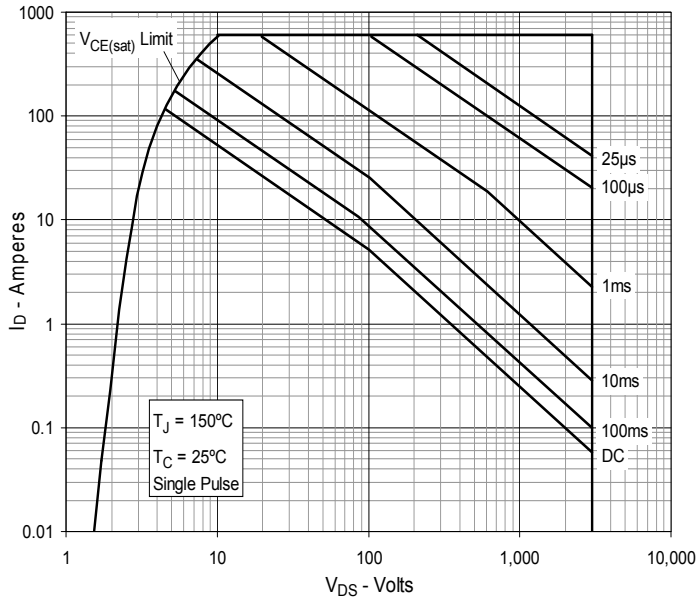
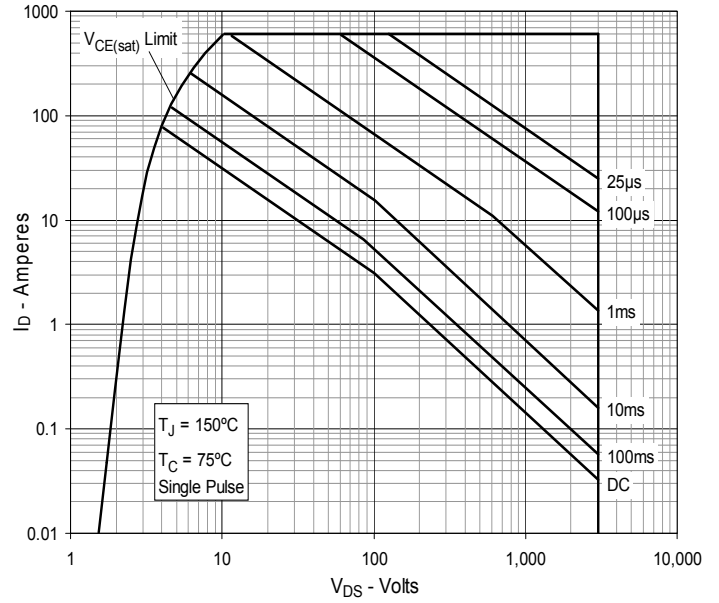


Fig. 20. Forward-Bias Safe Operating Area
@ $T_C = 75^\circ\text{C}$



X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [IGBT Transistors](#) category:

Click to view products by [IXYS](#) manufacturer:

Other Similar products are found below :

[748152A](#) [APT20GT60BRDQ1G](#) [APT50GT60BRG](#) [NGTB10N60FG](#) [STGFW20V60DF](#) [APT30GP60BG](#) [APT45GR65B2DU30](#)
[GT50JR22\(STA1ES\)](#) [TIG058E8-TL-H](#) [IGW40N120H3FKSA1](#) [VS-CPV364M4KPBF](#) [NGTB25N120FL2WAG](#) [NGTG40N120FL2WG](#)
[RJH60F3DPQ-A0#T0](#) [APT40GR120B2SCD10](#) [APT15GT120BRG](#) [APT20GT60BRG](#) [NGTB75N65FL2WAG](#) [NGTG15N120FL2WG](#)
[IXA30RG1200DHGLB](#) [IXA40RG1200DHGLB](#) [APT70GR65B2DU40](#) [NTE3320](#) [QP12W05S-37A](#) [IHF40N65R5SXXSA1](#) [APT70GR120J](#)
[APT35GP120JDQ2](#) [IKZA40N65RH5XKSA1](#) [IKFW75N65ES5XKSA1](#) [IKFW50N65ES5XKSA1](#) [IKFW50N65EH5XKSA1](#)
[IKFW40N65ES5XKSA1](#) [IKFW60N65ES5XKSA1](#) [IMBG120R090M1HXTMA1](#) [IMBG120R220M1HXTMA1](#) [XD15H120CX1](#)
[XD25H120CX0](#) [XP15PJS120CL1B1](#) [IGW30N60H3FKSA1](#) [STGWA8M120DF3](#) [IGW08T120FKSA1](#) [IGW75N60H3FKSA1](#)
[FGH60N60SMD_F085](#) [FGH75T65UPD](#) [STGWA15H120F2](#) [IKA10N60TXKSA1](#) [IHW20N120R5XKSA1](#) [RJH60D2DPP-M0#T2](#)
[IKP20N60TXKSA1](#) [IHW20N65R5XKSA1](#)