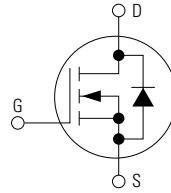


Linear™ Power MOSFET w/
Extended FBSOA

IXTK22N100L
IXTX22N100L

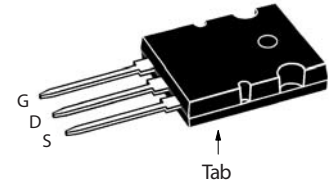
$V_{DSS} = 1000V$
 $I_{D25} = 22A$
 $R_{DS(on)} \leq 600m\Omega$

N-Channel Enhancement Mode
Avalanche Rated

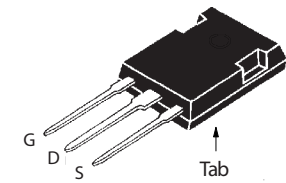


Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25^\circ C$ to $150^\circ C$	1000	V
V_{DGR}	$T_J = 25^\circ C$ to $150^\circ C$, $R_{GS} = 1M\Omega$	1000	V
V_{GSS}	Continuous	± 30	V
V_{GSM}	Transient	± 40	V
I_{D25}	$T_c = 25^\circ C$	22	A
I_{DM}	$T_c = 25^\circ C$, Pulse Width Limited by T_{JM}	50	A
I_A	$T_c = 25^\circ C$	22	A
E_{AS}	$T_c = 25^\circ C$	1.5	J
P_D	$T_c = 25^\circ C$	700	W
T_J		-55 ... +150	$^\circ C$
T_{JM}		150	$^\circ C$
T_{stg}		-55 ... +150	$^\circ C$
T_L	1.6mm (0.063 in.) from Case for 10s	300	$^\circ C$
T_{SOLD}	Plastic Body for 10s	260	$^\circ C$
M_d	Mounting Torque (IXTK)	1.13/10	Nm/lb.in.
F_c	Mounting Force (IXTX)	20..120 / 4.5..27	N/lb.

TO-264 (IXTK)



PLUS247 (IXTX)



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

Features

- Designed for Linear Operation
- Avalanche Rated
- Molding Epoxy Meets UL94 V-0 Flammability Classification

Advantages

- Easy to Mount
- Space Savings
- High Power Density

Applications

- Programmable Loads
- Current Regulators
- DC-DC Converters
- Battery Chargers
- DC Choppers
- Temperature and Lighting Controls

Symbol	Test Conditions ($T_J = 25^\circ C$, Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
BV_{DSS}	$V_{GS} = 0V, I_D = 1mA$	1000		V
$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	3.0		5.5 V
I_{GSS}	$V_{GS} = \pm 30V, V_{DS} = 0V$			± 200 nA
I_{DSS}	$V_{DS} = V_{DSS}, V_{GS} = 0V$ $T_J = 125^\circ C$			50 μA 1 mA
$R_{DS(on)}$	$V_{GS} = 20V, I_D = 0.5 \cdot I_{DSS}$, Note 1			600 m Ω

Symbol Test Conditions ($T_J = 25^\circ\text{C}$, Unless Otherwise Specified)		Characteristic Values		
		Min.	Typ.	Max.
g_{fs}	$V_{DS} = 20\text{V}, I_D = 0.5 \cdot I_{DSS}$, Note 1	4.5	7.0	9.5
C_{iss}	$V_{GS} = 0\text{V}, V_{DS} = 25\text{V}, f = 1\text{MHz}$		7050	pF
C_{oss}			600	pF
C_{rss}			100	pF
$t_{d(on)}$	Resistive Switching Times $V_{GS} = 15\text{V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 0.5 \cdot I_{DSS}$ $R_G = 2\Omega$ (External)		36	ns
t_r			35	ns
$t_{d(off)}$			80	ns
t_f			50	ns
$Q_{g(on)}$	$V_{GS} = 15\text{V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 0.5 \cdot I_{DSS}$		270	nC
Q_{gs}			70	nC
Q_{gd}			110	nC
R_{thJC}			0.18	$^\circ\text{C/W}$
R_{thCS}		0.15		$^\circ\text{C/W}$

Safe-Operating-Area Specification

Source-Drain Diode

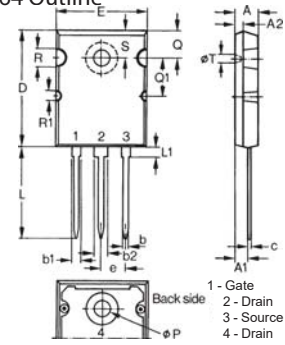
Symbol Test	Characteristic Values		
	Min.	Typ.	Max.
I_S	$V_{GS} = 0\text{V}$		22 A
I_{SM}			50 A

Note 1. Pulse test, $t \leq 300\mu\text{s}$, duty cycle, $d \leq 2\%$.

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

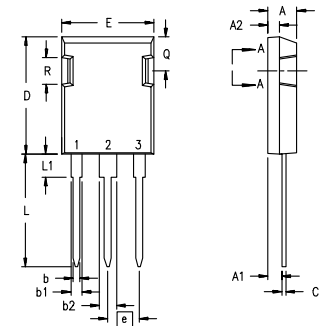
IXYS MOSFETs and IGBTs are covered by U.S. patents 4,835,592; 4,931,844; 5,049,961; 5,237,481; 6,162,665; 6,504,796; 6,381,025; 6,259,123; 6,175,580; 6,063,307; 4,881,106; 5,034,796; 5,381,025; 6,259,123; 6,187,117; 5,486,715; 6,306,728

TO-264 Outline



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.82	5.13	.190	.202
A1	2.54	2.89	.100	.114
A2	2.00	2.10	.079	.083
b	1.12	1.42	.044	.056
b1	2.39	2.69	.094	.106
b2	2.90	3.09	.114	.122
c	0.53	0.83	.021	.033
D		26.16	1.020	1.030
E		19.96	.780	.786
e	5.46 BSC		.215 BSC	
J	0.00	0.25	.000	.010
K	0.00	0.25	.000	.010
L		20.83	.800	.820

PLUS 247™ Outline



Terminals: 1 - Gate 2 - Drain 3 - Source

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
P	4.32	4.83	.170	.190

B16,404,065; 157,318; 6,050,805; 3,024,759; 6,065,706; 6,778,112; 6,710,463; 6,771,478; B1 6,534,342; 7,071,537

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

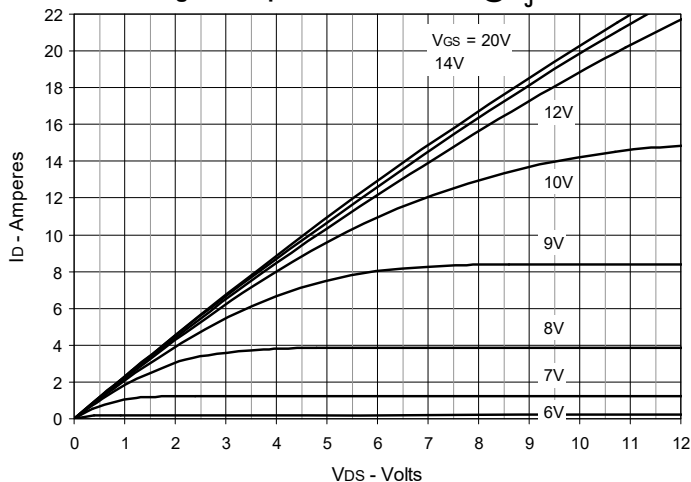


Fig. 2. Extended Output Characteristics @ $T_J = 25^\circ\text{C}$

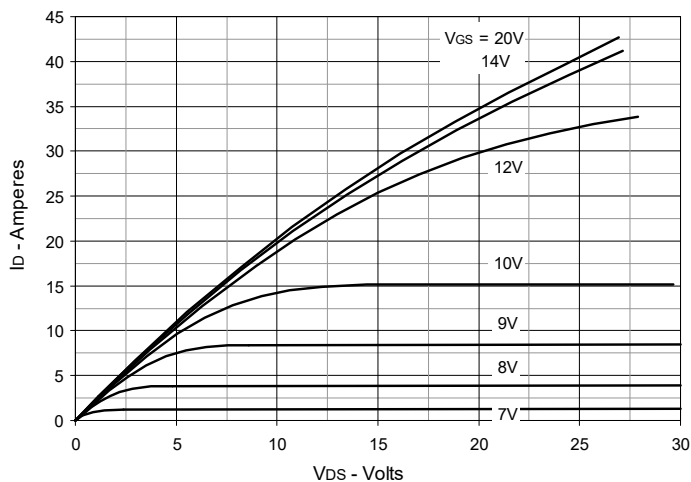


Fig. 3. Output Characteristics @ $T_J = 125^\circ\text{C}$

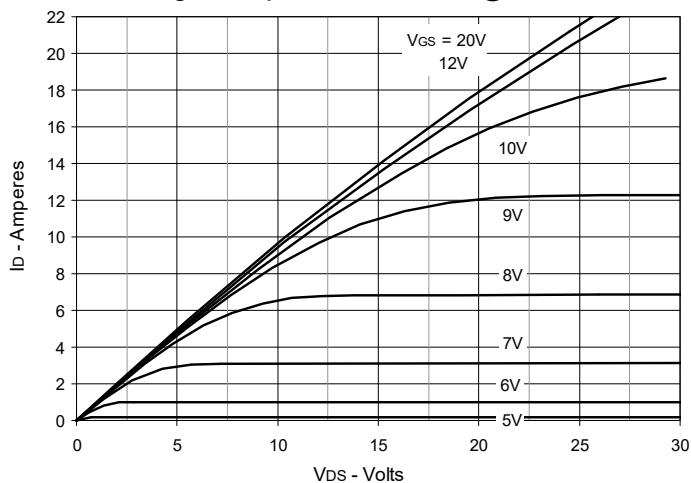


Fig. 4. $R_{DS(on)}$ Normalized to $I_D = 11\text{A}$ Value vs. Junction Temperature

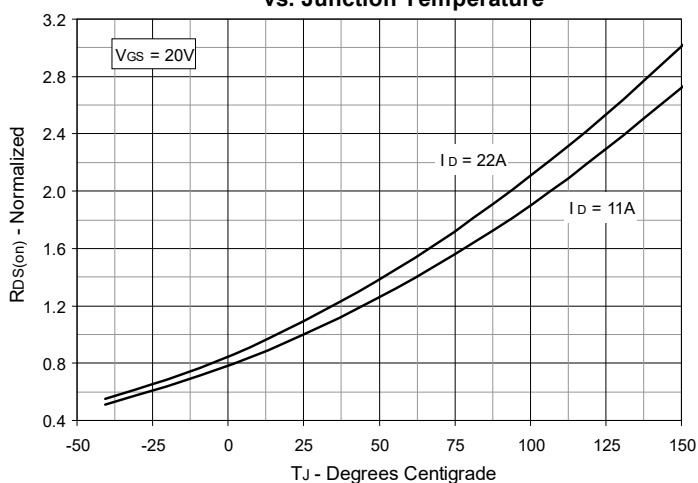


Fig. 5. $R_{DS(on)}$ Normalized to $I_D = 11\text{A}$ Value vs. Drain Current

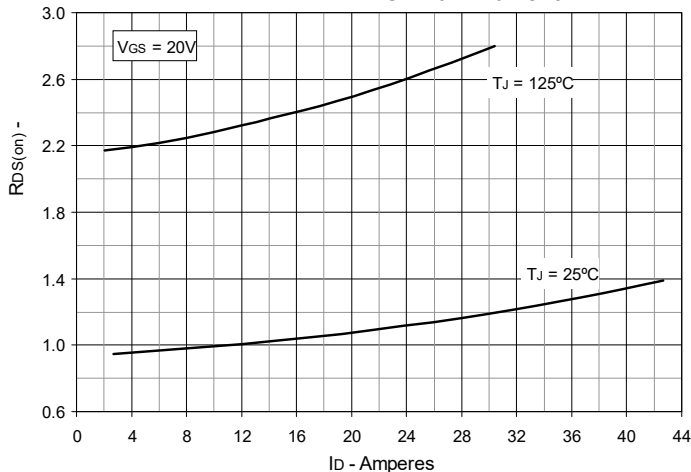


Fig. 6. Maximum Drain Current vs. Case Temperature

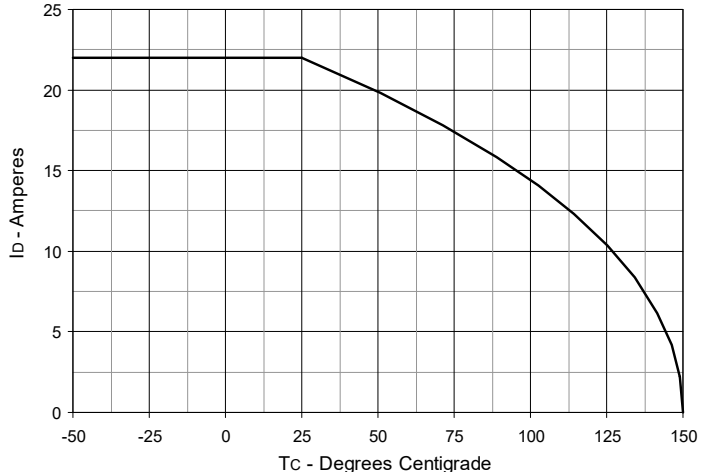


Fig. 7. Input Admittance

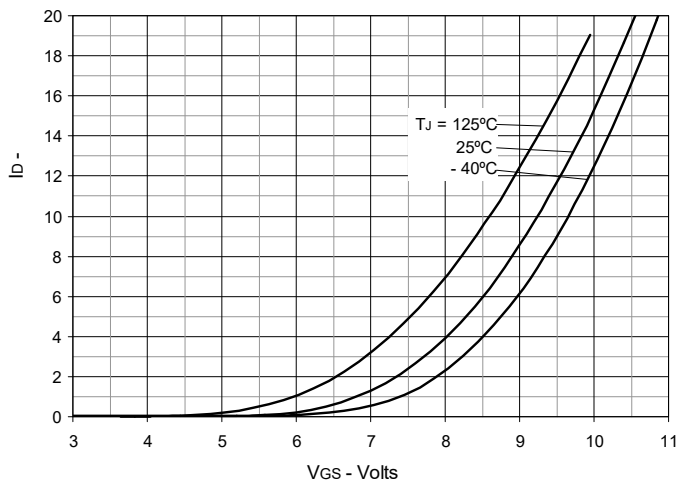


Fig. 8. Transconductance

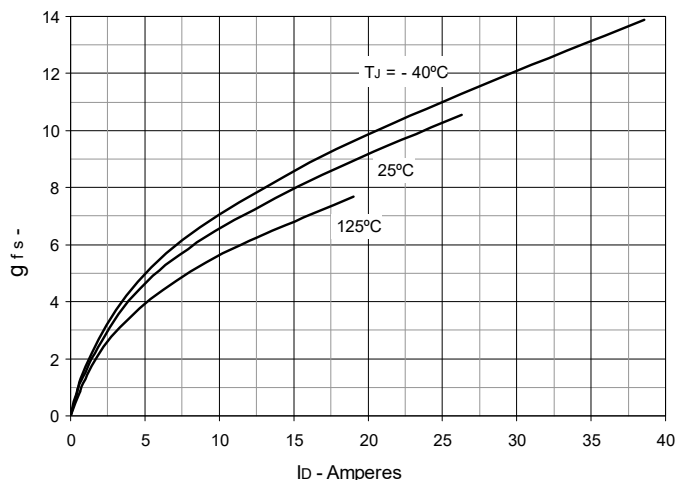


Fig. 9. Forward Voltage Drop of Intrinsic Diode

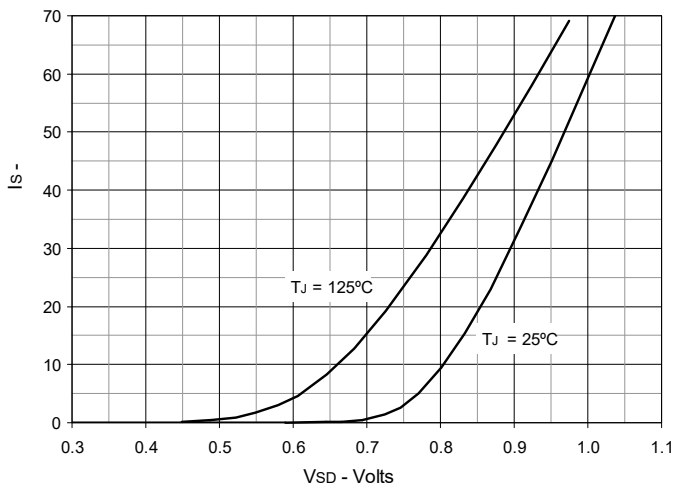


Fig. 10. Gate Charge

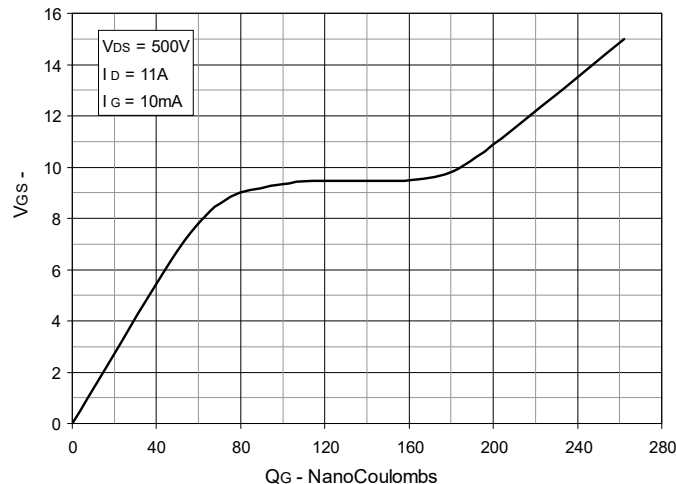


Fig. 11. Capacitance

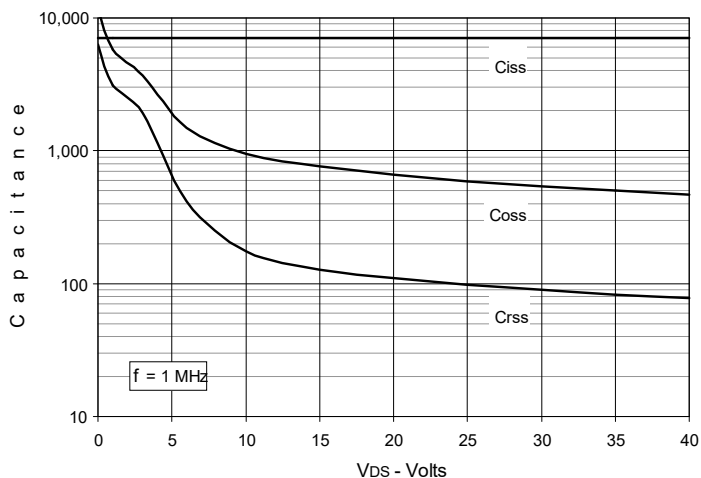


Fig. 12. Maximum Transient Thermal Impedance

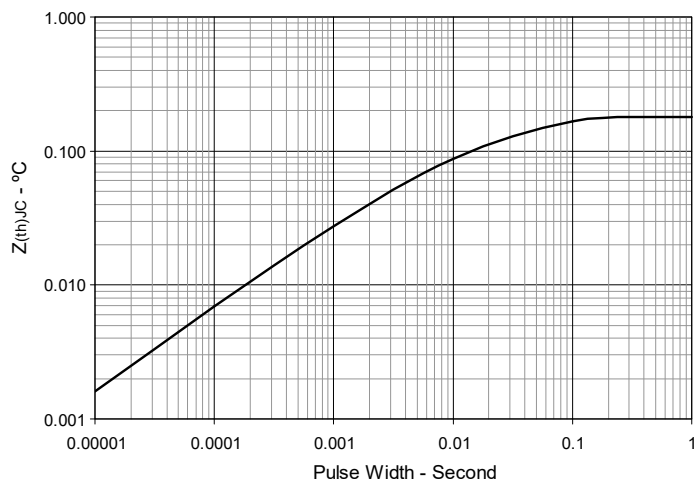


Fig. 13. Forward-Bias Safe Operating Area @ $T_c = 25^\circ\text{C}$

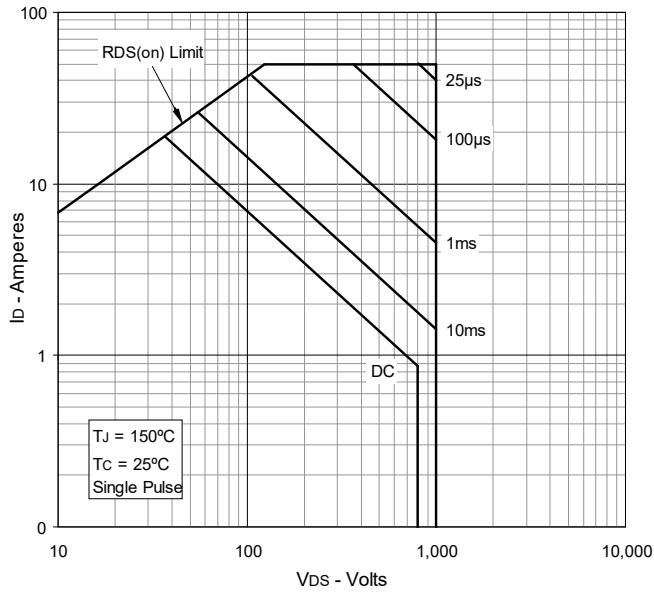
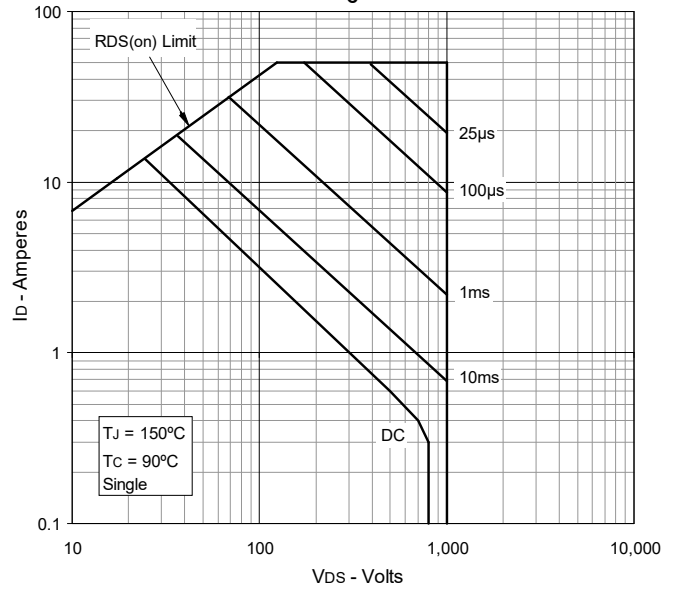


Fig. 14. Forward-Bias Safe Operating Area @ $T_c = 90^\circ\text{C}$





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