

## Excellent Integrated System Limited

Stocking Distributor

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[IXYS Corporation](#)

[IXTK8N150L](#)

For any questions, you can email us directly:

[sales@integrated-circuit.com](mailto:sales@integrated-circuit.com)



Preliminary Technical Information

**Linear Power MOSFET  
w/Extended FBSOA**

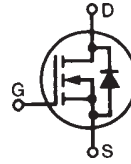
**IXTK8N150L  
IXTX8N150L**

$V_{DSS} = 1500V$

$I_{D25} = 8A$

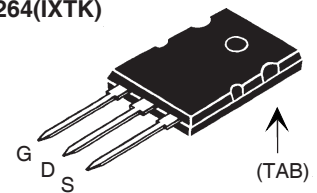
$R_{DS(on)} \leq 3.6\Omega$

N-Channel Enhancement Mode  
Guaranteed FBSOA

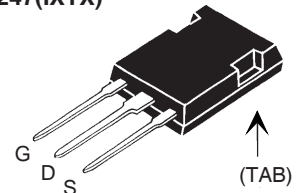


Symbol	Test Conditions	Maximum Ratings	
$V_{DSS}$	$T_J = 25^\circ C$ to $150^\circ C$	1500	V
$V_{DGR}$	$T_J = 25^\circ C$ to $150^\circ C$ , $R_{GS} = 1M\Omega$	1500	V
$V_{GSS}$	Continuous	$\pm 30$	V
$V_{GSM}$	Transient	$\pm 40$	V
$I_{D25}$	$T_C = 25^\circ C$	8	A
$I_{DM}$	$T_C = 25^\circ C$ , Pulse Width Limited by $T_{JM}$	20	A
$P_D$	$T_C = 25^\circ C$	700	W
$T_J$		-55 to +150	$^\circ C$
$T_{JM}$		150	$^\circ C$
$T_{stg}$		-55 to +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.
<b>Weight</b>	TO-264	10	g
	PLUS247	6	g

TO-264(IXTK)



PLUS247(IXTX)



G = Gate                      D = Drain  
S = Source                    TAB = Drain

**Features**

- Designed for Linear Operations
- International Standard Packages
- Guaranteed FBSOA at  $60^\circ C$
- Molding Epoxies Meet UL94 V-0 Flammability Classification

**Applications**

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

**Advantages**

- Easy to Mount
- Space Savings
- High Power Density

Symbol	Test Conditions ( $T_J = 25^\circ C$ , Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
$BV_{DSS}$	$V_{GS} = 0V$ , $I_D = 1mA$	1500		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$ , $I_D = 250\mu A$	5.0		8.0 V
$I_{GSS}$	$V_{GS} = \pm 30V$ , $V_{DS} = 0V$			$\pm 200$ nA
$I_{DSS}$	$V_{DS} = V_{DSS}$ $V_{GS} = 0V$ $T_J = 125^\circ C$			50 $\mu A$ 3 mA
$R_{DS(on)}$	$V_{GS} = 20V$ , $I_D = 0.5 \cdot I_{D25}$ , Note 1			3.6 $\Omega$

# IXYS

## IXTK8N150L IXTX8N150L

Symbol	Test Conditions ( $T_J = 25^\circ\text{C}$ , Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
$g_{fs}$	$V_{DS} = 50\text{V}$ , $I_D = 0.5 \cdot I_{D25}$ , Note 1	1.4	2.3	3.2 S
$C_{iss}$	$V_{GS} = 0\text{V}$ , $V_{DS} = 25\text{V}$ , $f = 1\text{MHz}$		8000	pF
$C_{oss}$			405	pF
$C_{rss}$			70	pF
$t_{d(on)}$	<b>Resistive Switching Times</b> $V_{GS} = 15\text{V}$ , $V_{DS} = 0.5 \cdot V_{DSS}$ , $I_D = 0.5 \cdot I_{D25}$ $R_G = 2\Omega$ (External)		36	ns
$t_r$			18	ns
$t_{d(off)}$			90	ns
$t_f$			95	ns
$Q_{g(on)}$		$V_{GS} = 15\text{V}$ , $V_{DS} = 0.5 \cdot V_{DSS}$ , $I_D = 0.5 \cdot I_{D25}$		250
$Q_{gs}$			80	nC
$Q_{gd}$			116	nC
$R_{thJC}$			0.18	$^\circ\text{C/W}$
$R_{thCS}$			0.15	$^\circ\text{C/W}$

### Safe Operating Area Specification

Symbol	Test Conditions	Characteristic Values		
		Min.	Typ.	Max.
SOA	$V_{DS} = 1000\text{V}$ , $I_D = 0.5\text{A}$ , $T_C = 60^\circ\text{C}$ , $T_p = 3\text{s}$	500		W

### Source-Drain Diode

Symbol	Test Conditions ( $T_J = 25^\circ\text{C}$ , Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
$I_s$	$V_{GS} = 0\text{V}$			8 A
$I_{SM}$	Repetitive, Pulse Width Limited by $T_{JM}$			32 A
$V_{SD}$	$I_F = 8\text{A}$ , $V_{GS} = 0\text{V}$ , Note 1			1.2 V
$t_{rr}$	$I_F = I_s$ , $-di/dt = 100\text{A}/\mu\text{s}$ , $V_R = 100\text{V}$		1700	ns

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

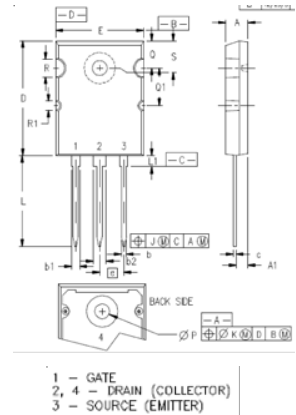
### PRELIMINARY TECHNICAL INFORMATION

The product presented herein is under development. The Technical Specifications offered are derived from data gathered during objective characterizations of preliminary engineering lots; but also may yet contain some information supplied during a pre-production design evaluation. IXYS reserves the right to change limits, test conditions, and dimensions without notice.

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

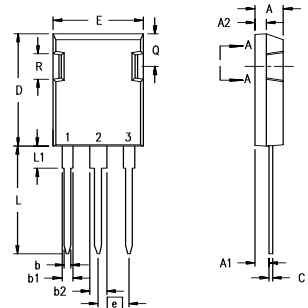
IXYS MOSFETs and IGBTs are covered 4,835,592 4,931,844 5,049,961 5,237,481 6,162,665 6,404,065 B1 6,683,344 6,727,585 7,005,734 B2 7,157,338B2  
 by one or more of the following U.S. patents: 4,850,072 5,017,508 5,063,307 5,381,025 6,259,123 B1 6,534,343 6,710,405 B2 6,759,692 7,063,975 B2  
 4,881,106 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 (IXTK) 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

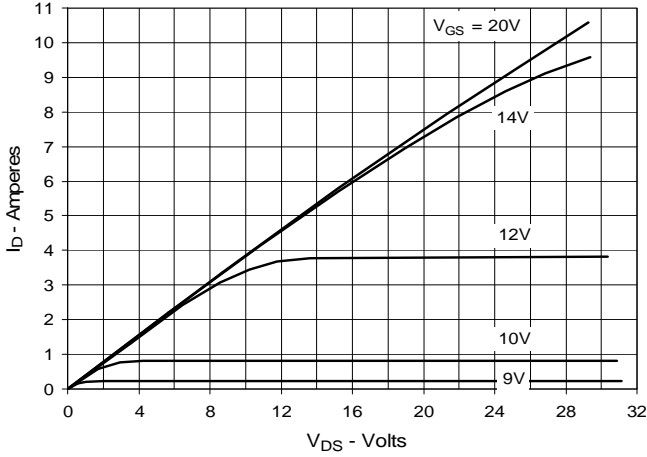
### PLUS 247™ (IXTX) Outline



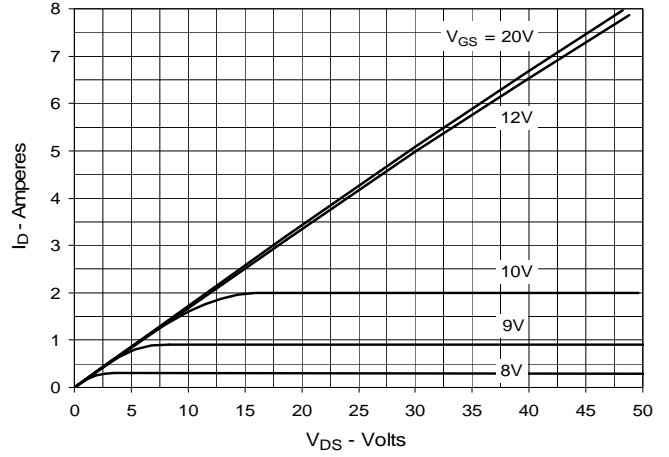
Terminals: 1 - Gate  
 2 - Drain (Collector)  
 3 - Source (Emitter)  
 4 - Drain (Collector)

Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.83	5.21	.190	.205
A <sub>1</sub>	2.29	2.54	.090	.100
A <sub>2</sub>	1.91	2.16	.075	.085
b	1.14	1.40	.045	.055
b <sub>1</sub>	1.91	2.13	.075	.084
b <sub>2</sub>	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

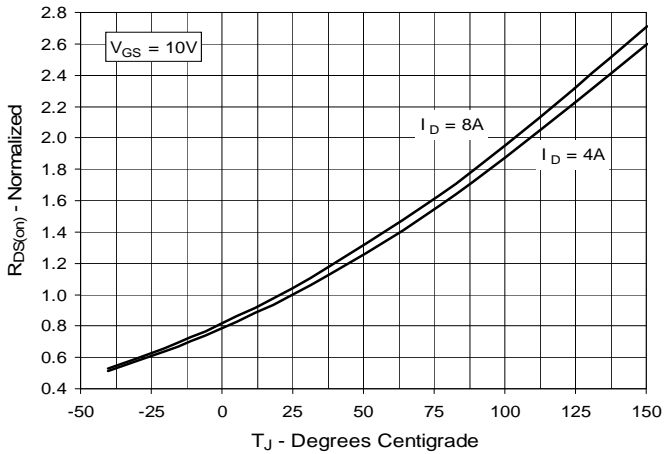
**Fig. 1. Extended Output Characteristics @ 25°C**



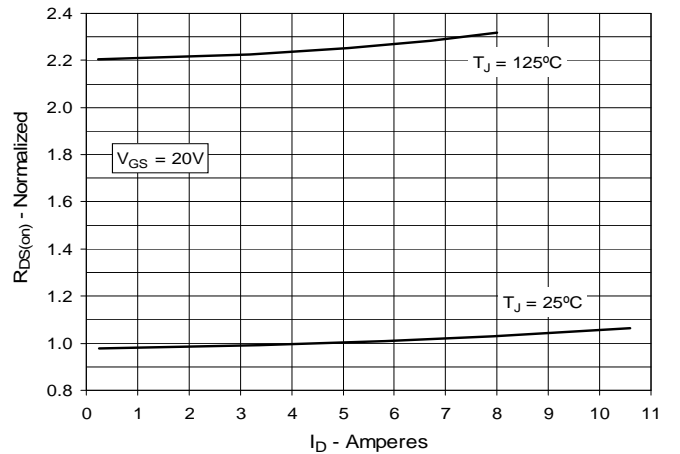
**Fig. 2. Output Characteristics @ 125°C**



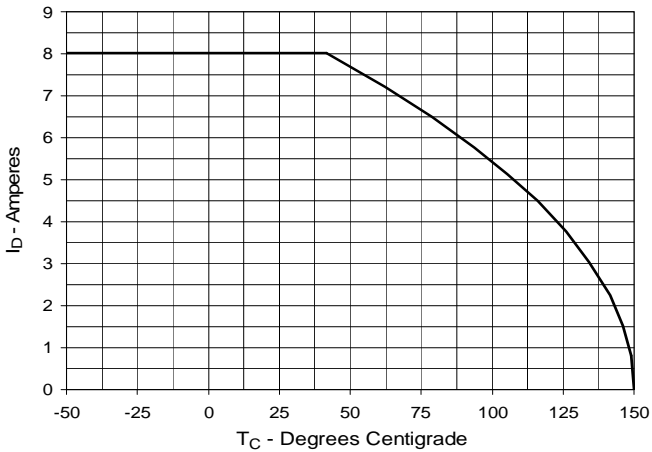
**Fig. 3. RDS(on) Normalized to ID = 4A Value vs. Junction Temperature**



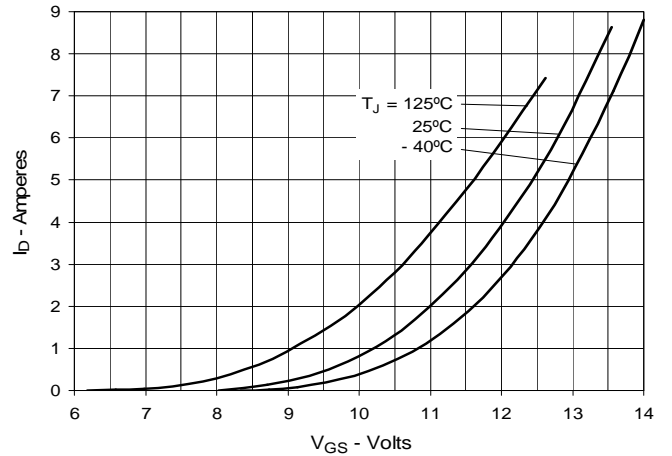
**Fig. 4. RDS(on) Normalized to ID = 4A Value vs. Drain Current**



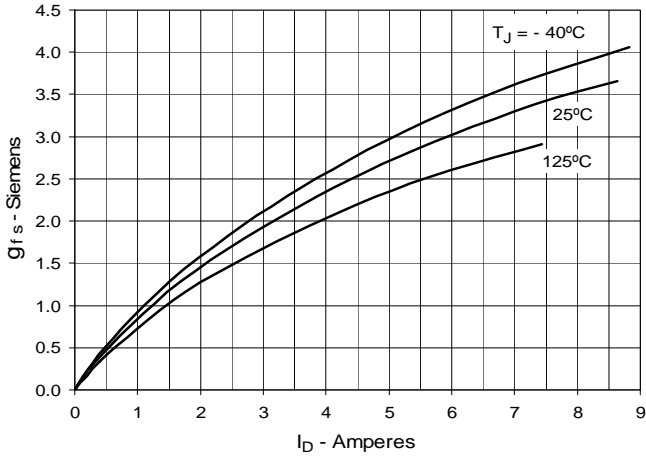
**Fig. 5. Maximum Drain Current vs. Case Temperature**



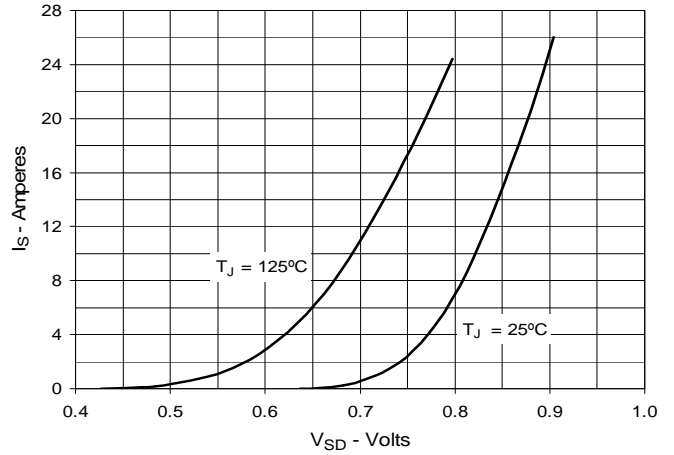
**Fig. 6. Input Admittance**



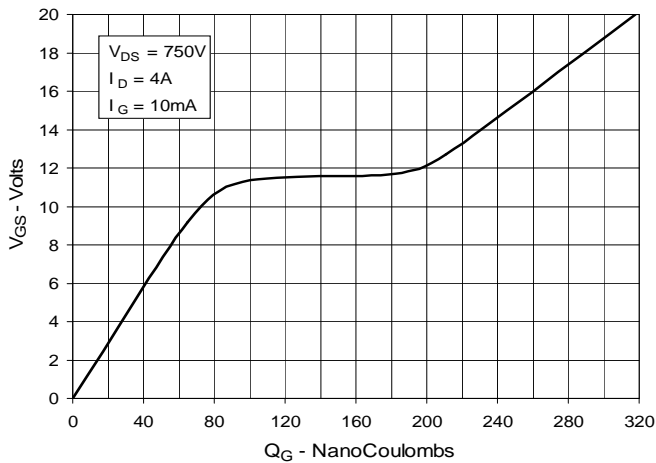
**Fig. 7. Transconductance**



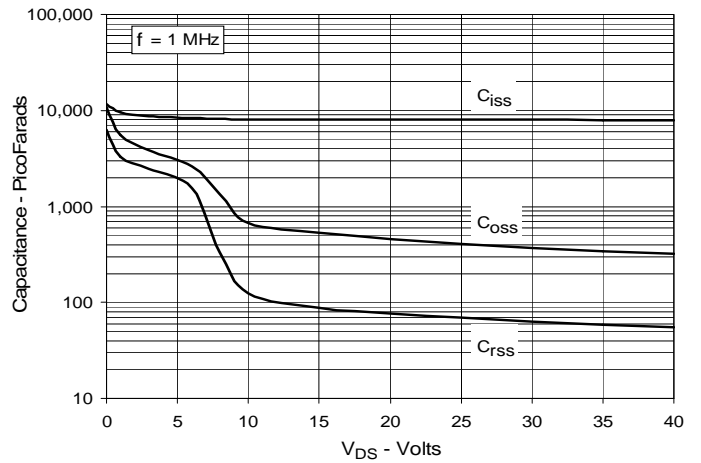
**Fig. 8. Forward Voltage Drop of Intrinsic Diode**



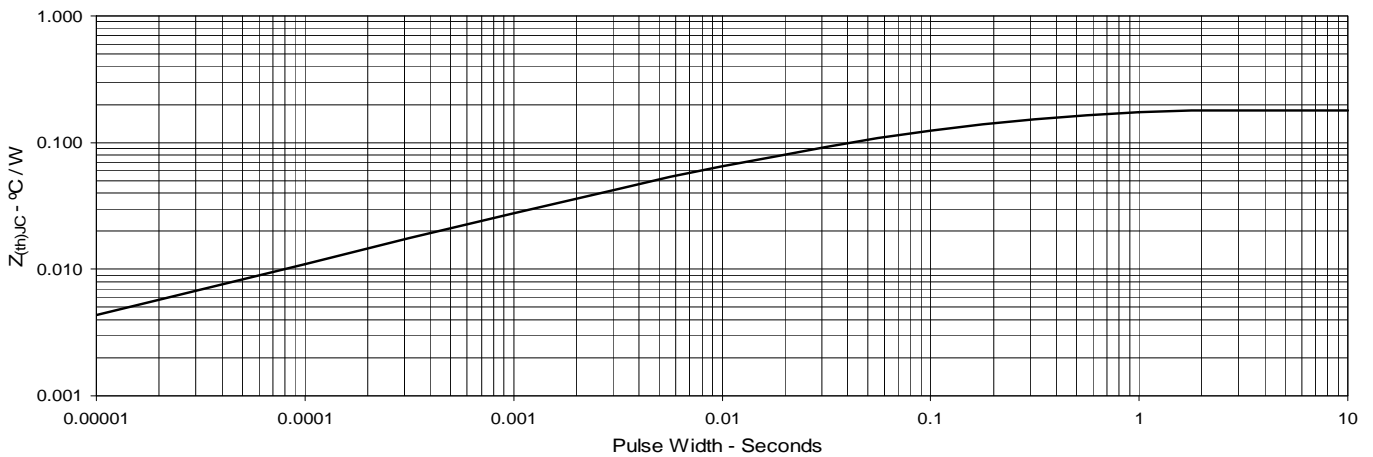
**Fig. 9. Gate Charge**



**Fig. 10. Capacitance**

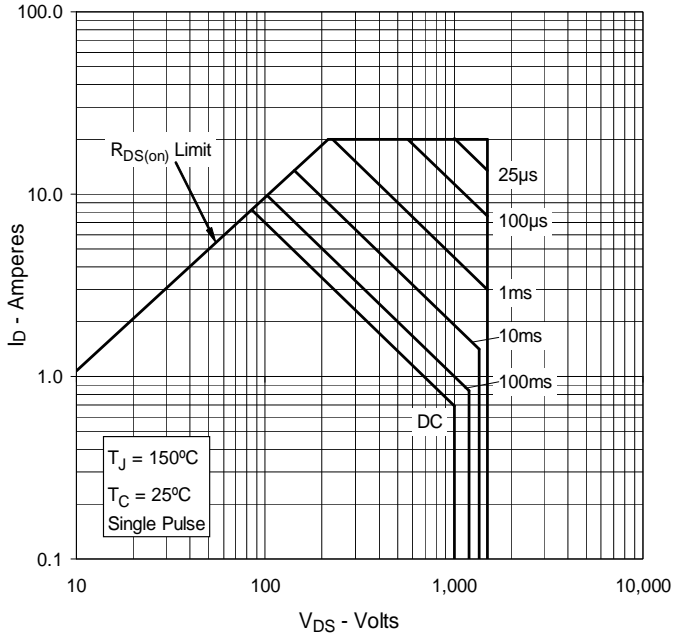


**Fig. 11. Maximum Transient Thermal Impedance**



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**Fig. 12. Forward-Bias Safe Operating Area @  
 $T_C = 25^\circ\text{C}$**



**Fig. 13. Forward-Bias Safe Operating Area  
@  $T_C = 60^\circ\text{C}$**

