

Symbol	Test Conditions	Characteristic Values (T _j = 25°C, unless otherwise specified)			
		Min.	Typ.	Max.	
g_{fs}	$V_{DS} = 10\text{ V}; I_D = 0.5 \cdot I_{D25}$, Note 1	7	10	13	S
C_{iss}	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$	7000			pF
C_{oss}					pF
C_{rss}					pF
$t_{d(on)}$	$V_{GS} = 15\text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 0.5 \cdot I_{D25}$ $R_G = 2\ \Omega$ (External),	40			ns
t_r					ns
$t_{d(off)}$					ns
t_f					ns
$Q_{g(on)}$	$V_{GS} = 15\text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 0.5 \cdot I_{D25}$	260			nC
Q_{gs}					nC
Q_{gd}					nC
R_{thJC}		0.18			°C/W
R_{thCS}					°C/W

Safe Operating Area Specification

Symbol	Test Conditions	Min.	Typ.	Max.
SOA	$V_{DS} = 400\text{ V}, I_D = 0.6\text{ A}, T_C = 90^\circ\text{C}$	240		W

Source-Drain Diode

Symbol	Test Conditions	Characteristic Values (T _j = 25°C, unless otherwise specified)		
		Min.	Typ.	Max.
I_S	$V_{GS} = 0\text{ V}$			46 A
I_{SM}	Repetitive; pulse width limited by T _{JM}			100 A
V_{SD}	$I_F = I_S, V_{GS} = 0\text{ V}$, Note 1			1.5 V
t_{rr}	$I_F = I_S, -di/dt = 100\text{ A}/\mu\text{s}, V_R = 100\text{ V}$	600		ns

Note 1: Pulse test, t < 300 μs, duty cycle, d ≤ 2 %

PRELIMINARY TECHNICAL INFORMATION

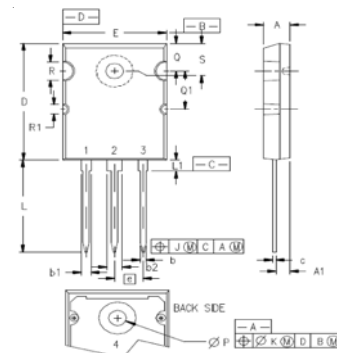
The product presented herein is under development. The Technical Specifications offered are derived from data gathered during objective characterizations of preliminary engineering lots; but also may yet contain some information supplied during a pre-production design evaluation. IXYS reserves the right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

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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	

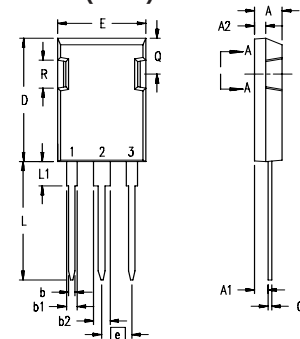
TO-264 (IXTK) Outline



- 1 - GATE
2, 4 - DRAIN (COLLECTOR)
3 - SOURCE (EMITTER)

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

PLUS247™ (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 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
@ 25°C

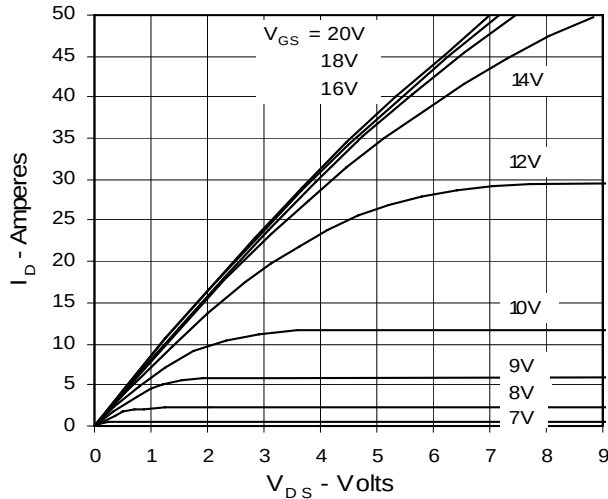


Fig. 2. Extended Output Characteristics
@ 25°C

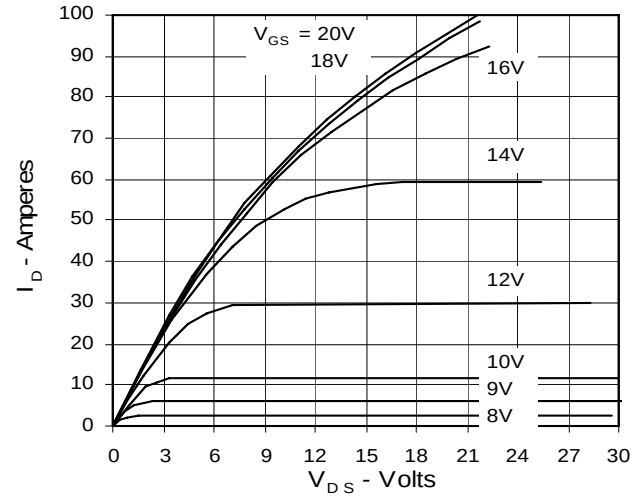


Fig. 3. Output Characteristics
@ 125°C

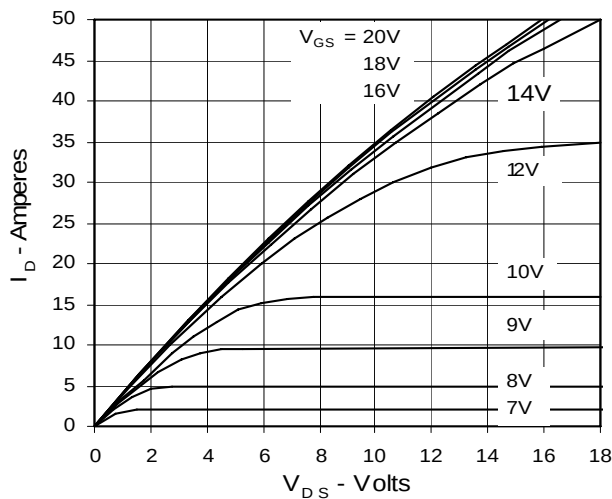


Fig. 4. $R_{DS(on)}$ Normalized to 0.5 I_{D25} Value
vs. Junction Temperature

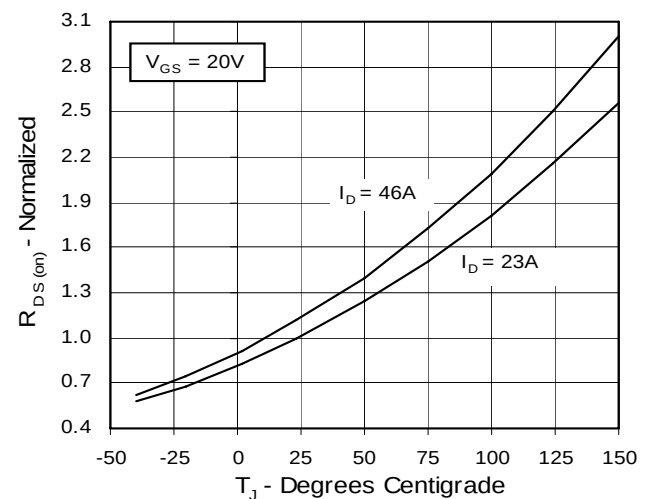


Fig. 5. $R_{DS(on)}$ Normalized to
0.5 I_{D25} Value vs. I_D

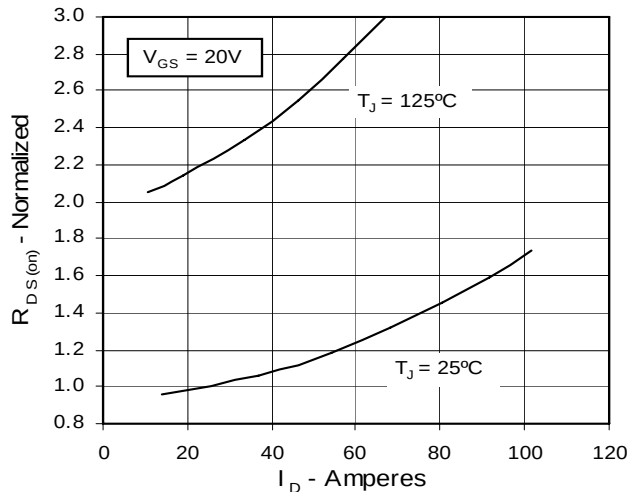


Fig. 6. Drain Current vs. Case
Temperature

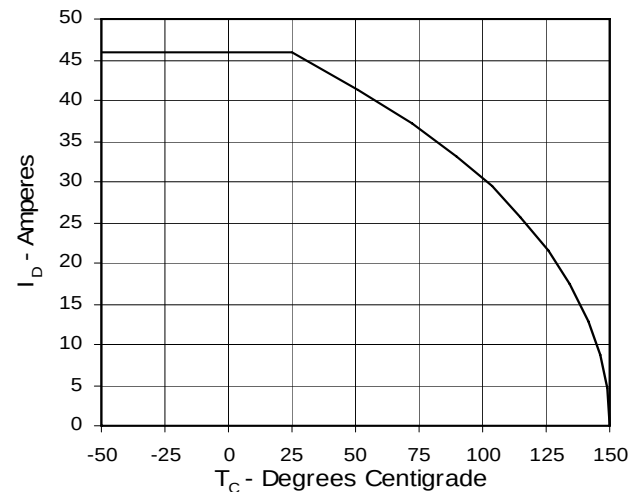


Fig. 7. Input Admittance

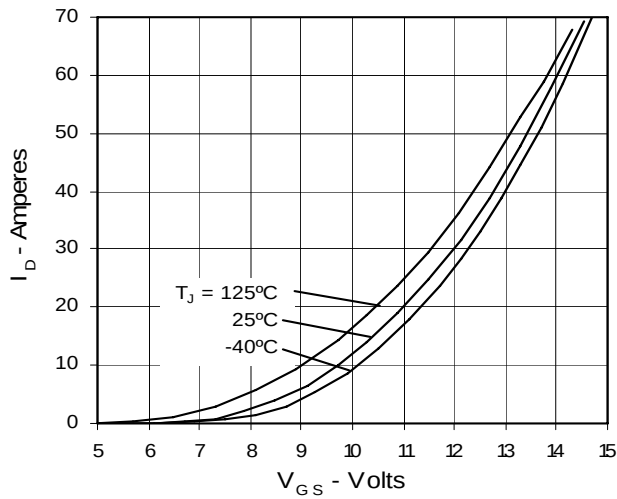


Fig. 8. Transconductance

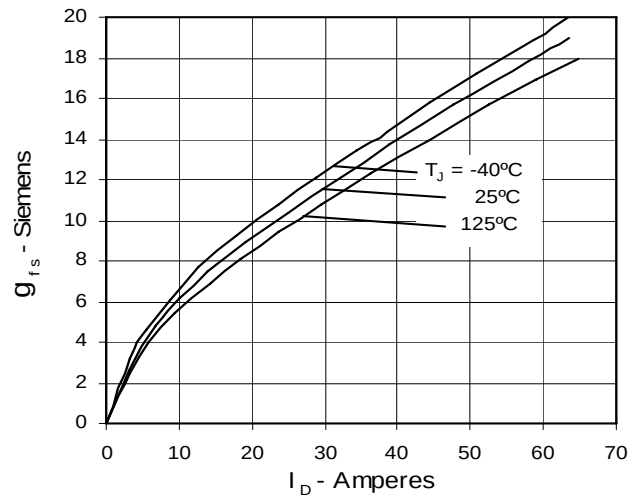


Fig. 9. Source Current vs. Source-To-Drain Voltage

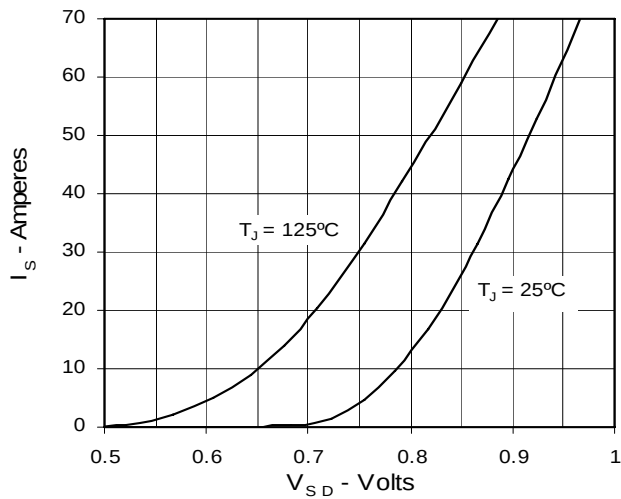


Fig. 10. Gate Charge

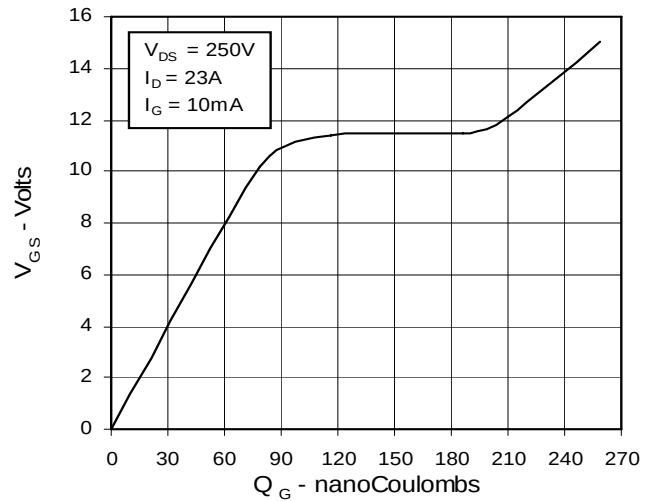
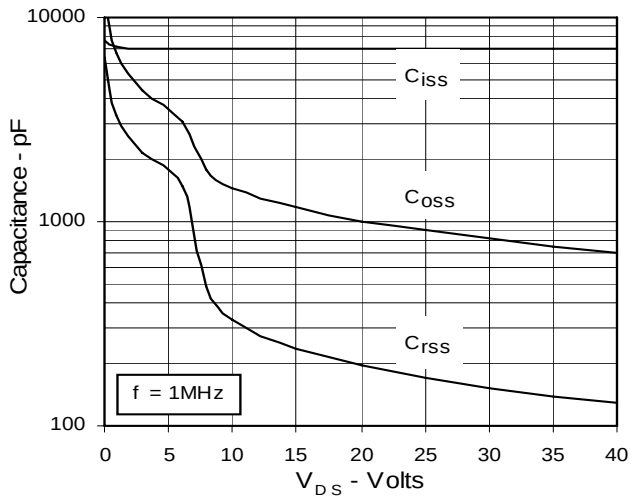
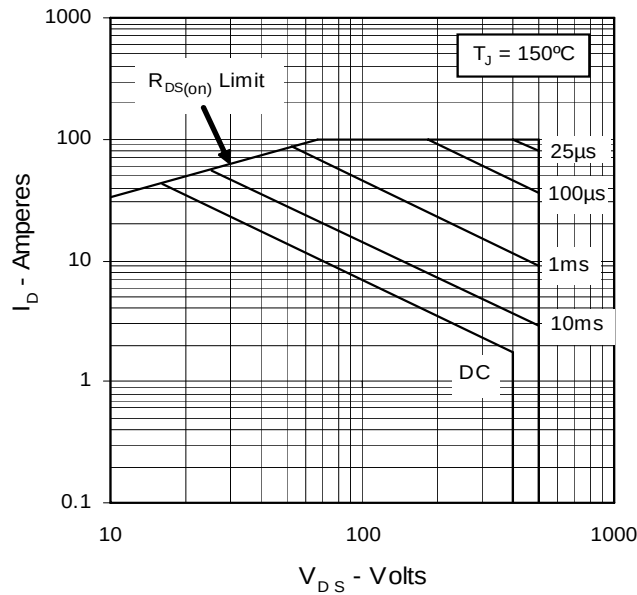


Fig. 11. Capacitance



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



**Fig. 13. Forward-Bias Safe
Operating Area @ $T_C = 90^\circ\text{C}$**

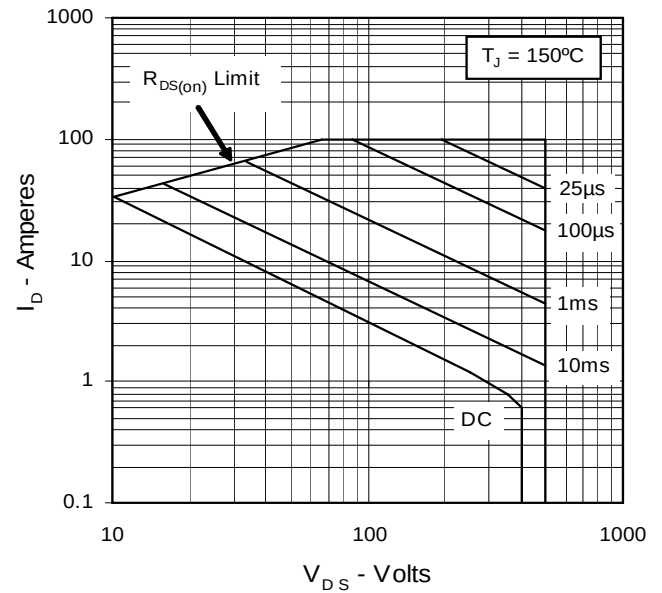
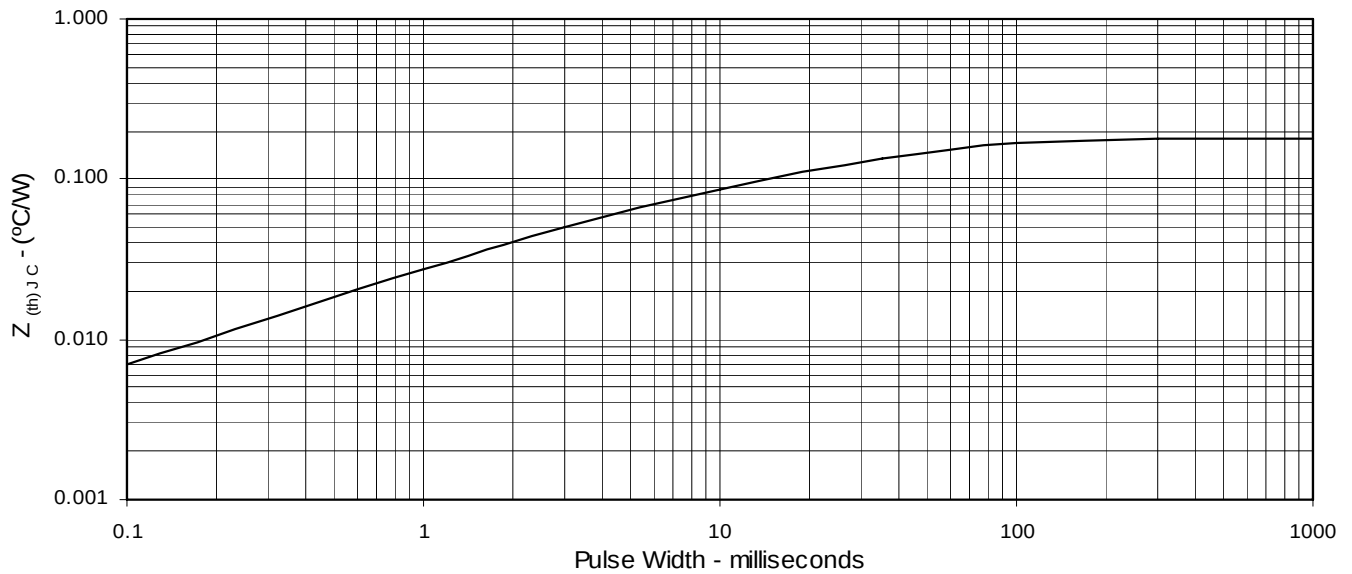


Fig. 14. Maximum Transient Thermal Impedance





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