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Stocking Distributor

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[IXYS Corporation](#)

[IXTH16N50D2](#)

For any questions, you can email us directly:

sales@integrated-circuit.com

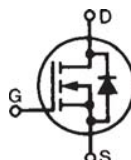


Depletion Mode MOSFETs

IXTH16N50D2
IXTT16N50D2

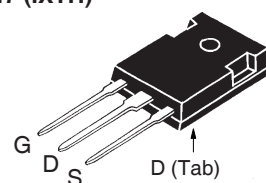
$$\begin{aligned} V_{DSX} &= 500V \\ I_{D(on)} &\geq 16A \\ R_{DS(on)} &\leq 300m\Omega \end{aligned}$$

N-Channel

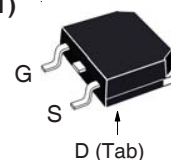


Symbol	Test Conditions	Maximum Ratings	
V_{DSX}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}$	500	V
V_{DGX}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}, R_{GS} = 1M\Omega$	500	V
V_{GSX}	Continuous	± 20	V
V_{GSM}	Transient	± 30	V
P_D	$T_C = 25^\circ\text{C}$	695	W
T_J		- 55 ... +150	$^\circ\text{C}$
T_{JM}		150	$^\circ\text{C}$
T_{stg}		- 55 ... +150	$^\circ\text{C}$
T_L	1.6mm (0.062 in.) from Case for 10s	300	$^\circ\text{C}$
T_{SOLD}	Plastic Body for 10s	260	$^\circ\text{C}$
M_d	Mounting Torque (TO-247)	1.13 / 10	Nm/lb.in.
Weight	TO-247	6	g
	TO-268	4	g

TO-247 (IXTH)



TO-268 (IXTT)



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

Features

- Normally ON Mode
- International Standard Packages
- Molding Epoxies Meet UL 94 V-0 Flammability Classification

Advantages

- Easy to Mount
- Space Savings
- High Power Density

Applications

- Audio Amplifiers
- Start-up Circuits
- Protection Circuits
- Ramp Generators
- Current Regulators
- Active Loads

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
BV_{DSX}	$V_{GS} = -5V, I_D = 250\mu\text{A}$	500		V
$V_{GS(off)}$	$V_{DS} = 25V, I_D = 4mA$	- 2.0		- 4.0 V
I_{GSX}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100 nA
$I_{DSX(off)}$	$V_{DS} = V_{DSX}, V_{GS} = -5V$ $T_J = 125^\circ\text{C}$			10 μA 150 μA
$R_{DS(on)}$	$V_{GS} = 0V, I_D = 8A$, Note 1			300 m Ω
$I_{D(on)}$	$V_{GS} = 0V, V_{DS} = 25V$, Note 1	16		A



IXTH16N50D2 IXTT16N50D2

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
g_{fs}	$V_{DS} = 30\text{V}$, $I_D = 8\text{A}$, Note 1	7	12	S
C_{iss}	$V_{GS} = -10\text{V}$, $V_{DS} = 25\text{V}$, $f = 1\text{MHz}$		5250	pF
C_{oss}			515	pF
C_{rss}			130	pF
$t_{d(on)}$	Resistive Switching Times $V_{GS} = \pm 5\text{V}$, $V_{DS} = 250\text{V}$, $I_D = 8\text{A}$ $R_G = 3.3\Omega$ (External)		50	ns
t_r			173	ns
$t_{d(off)}$			203	ns
t_f			220	ns
$Q_{g(on)}$	$V_{GS} = \pm 5\text{V}$, $V_{DS} = 250\text{V}$, $I_D = 8\text{A}$		199	nC
Q_{gs}			18	nC
Q_{gd}			100	nC
R_{thJC}	TO-247		0.21	0.18°C/W
R_{thCS}				$^\circ\text{C/W}$

Safe-Operating-Area Specification

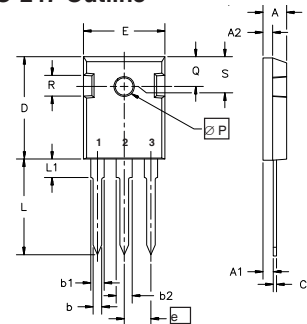
Symbol	Test Conditions	Characteristic Values		
		Min.	Typ.	Max.
SOA	$V_{DS} = 500\text{V}$, $I_D = 0.5\text{A}$, $T_C = 75^\circ\text{C}$, $t_p = 5\text{s}$	250		W

Source-Drain Diode

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
V_{SD}	$I_F = 16\text{A}$, $V_{GS} = -10\text{V}$, Note 1		0.8	1.3 V
t_{rr}	$I_F = 8\text{A}$, $-di/dt = 100\text{A}/\mu\text{s}$ $V_R = 100\text{V}$, $V_{GS} = -10\text{V}$		695	ns
I_{RM}			20	A
Q_{RM}			7	μC

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

TO-247 Outline



Terminals: 1 - Gate
2 - Drain
3 - Source

Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.7	5.3	.185	.209
A ₁	2.2	2.54	.087	.102
A ₂	2.2	2.6	.059	.098
b	1.0	1.4	.040	.055
b ₁	1.65	2.13	.065	.084
b ₂	2.87	3.12	.113	.123
C	.4	.8	.016	.031
D	20.80	21.46	.819	.845
E	15.75	16.26	.610	.640
e	5.20	5.72	0.205	0.225
L	19.81	20.32	.780	.800
L ₁		4.50		.177
ØP	3.55	3.65	.140	.144
Q	5.89	6.40	0.232	0.252
R	4.32	5.49	.170	.216
S	6.15	BSC	.242	BSC

TO-268 Outline

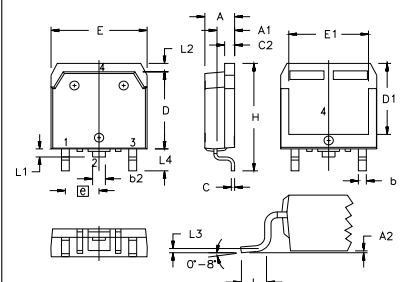


Fig. 1. Output Characteristics @ $T_J = 25^\circ\text{C}$

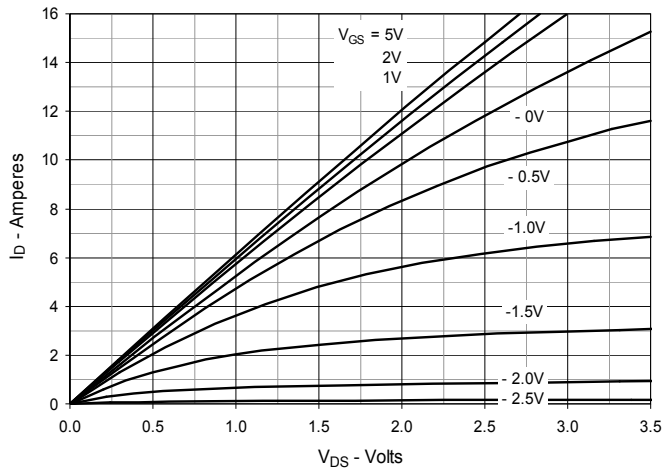


Fig. 2. Extended Output Characteristics @ $T_J = 25^\circ\text{C}$

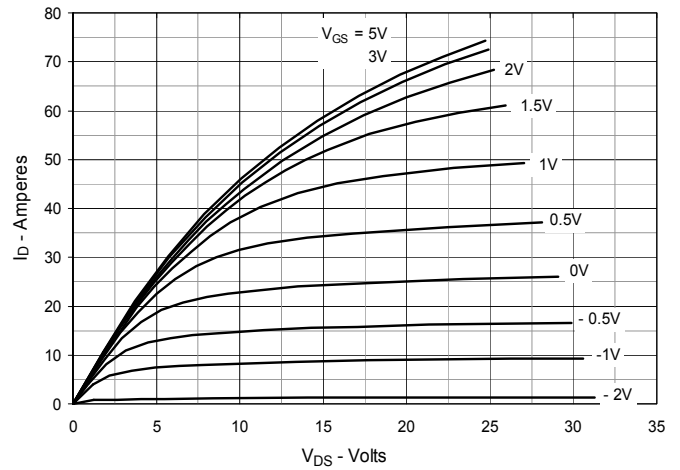


Fig. 3. Output Characteristics @ $T_J = 125^\circ\text{C}$

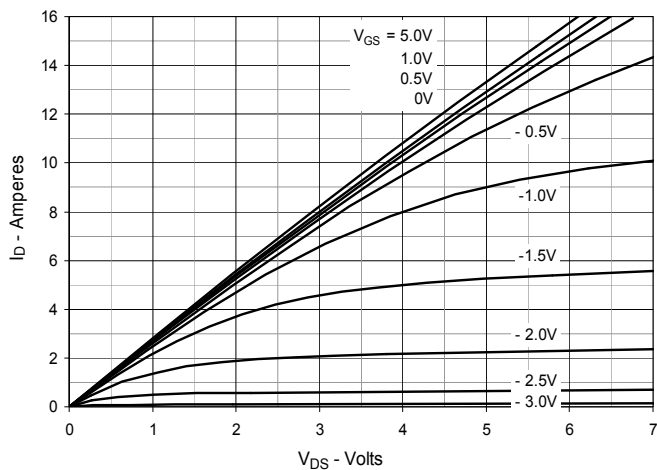


Fig. 4. Drain Current @ $T_J = 25^\circ\text{C}$

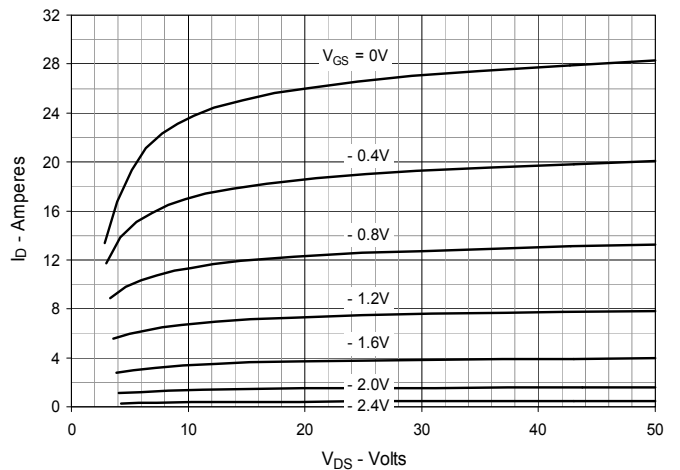


Fig. 5. Drain Current @ $T_J = 100^\circ\text{C}$

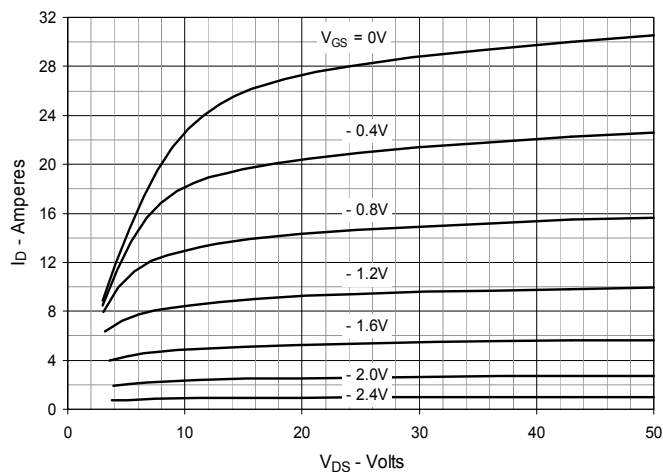


Fig. 6. Dynamic Resistance vs. Gate Voltage

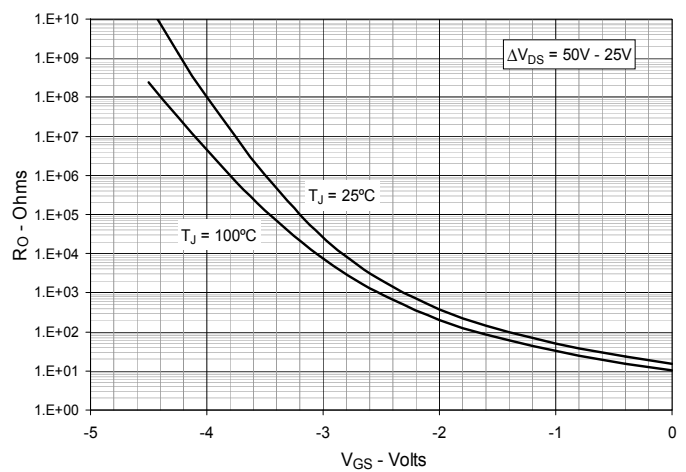


Fig. 7. Normalized $R_{DS(on)}$ vs. Junction Temperature

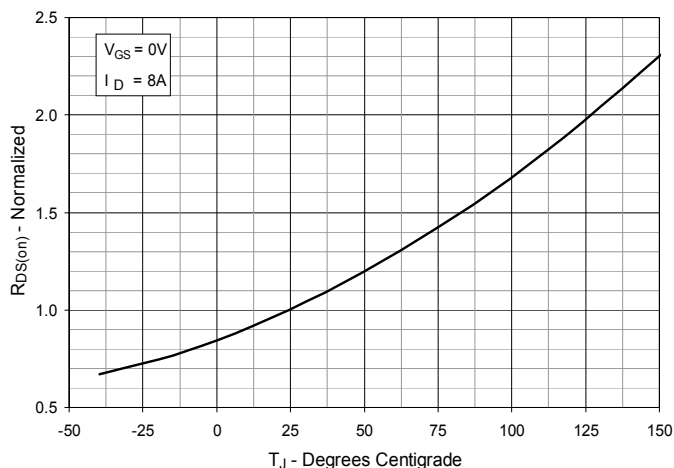


Fig. 8. $R_{DS(on)}$ Normalized to $I_D = 8A$ Value vs. Drain Current

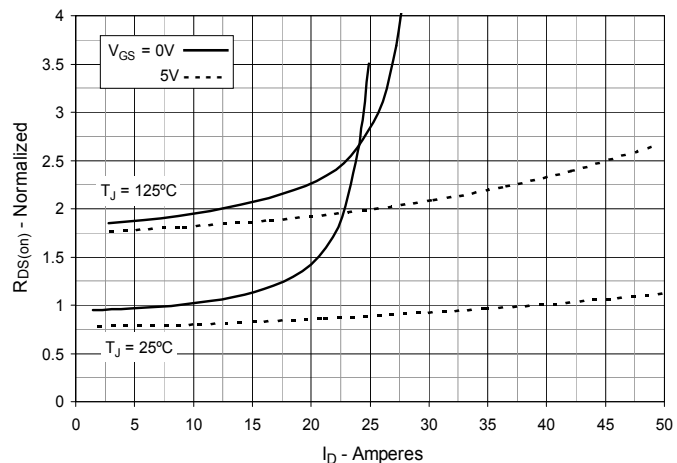


Fig. 9. Input Admittance

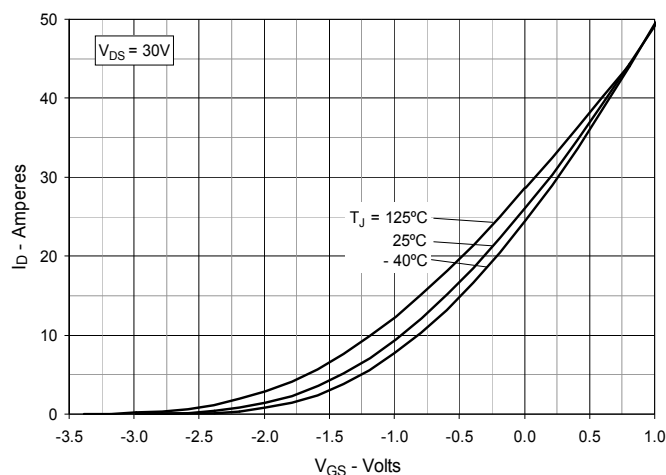


Fig. 10. Transconductance

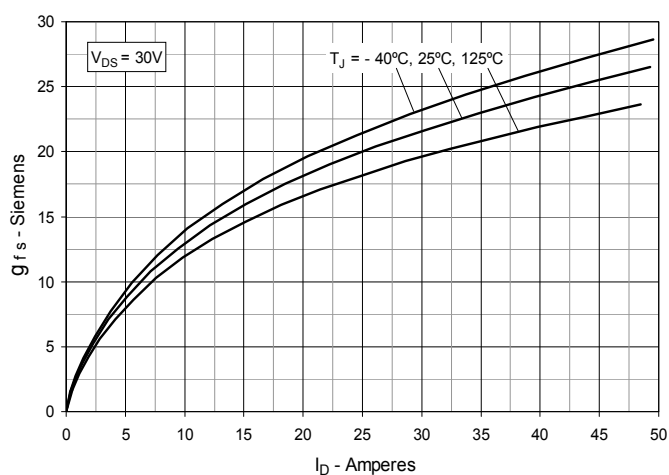


Fig. 11. Breakdown and Threshold Voltages vs. Junction Temperature

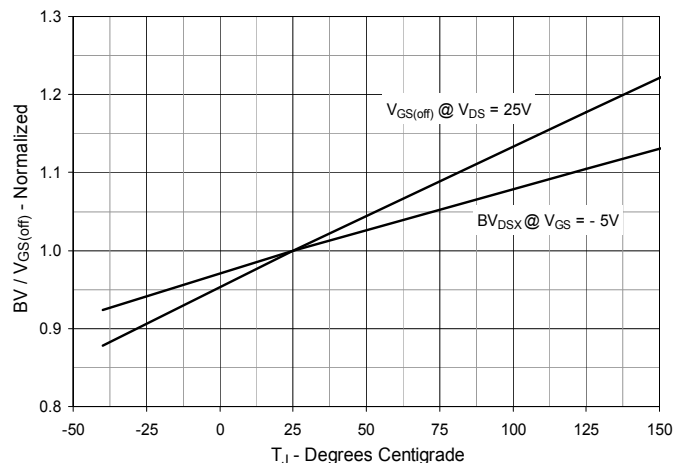


Fig. 12. Forward Voltage Drop of Intrinsic Diode

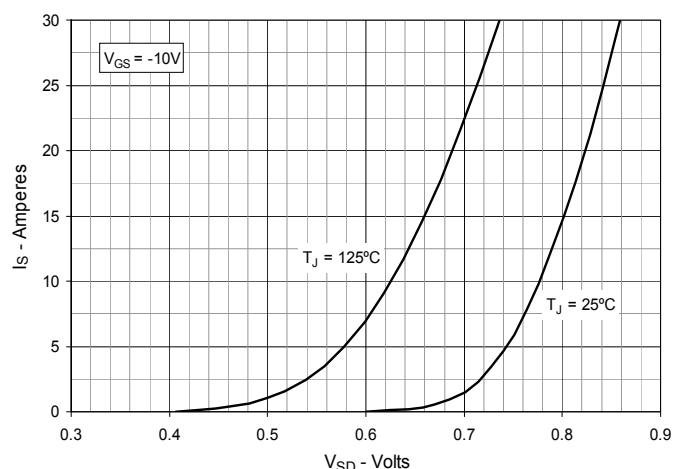


Fig. 13. Capacitance

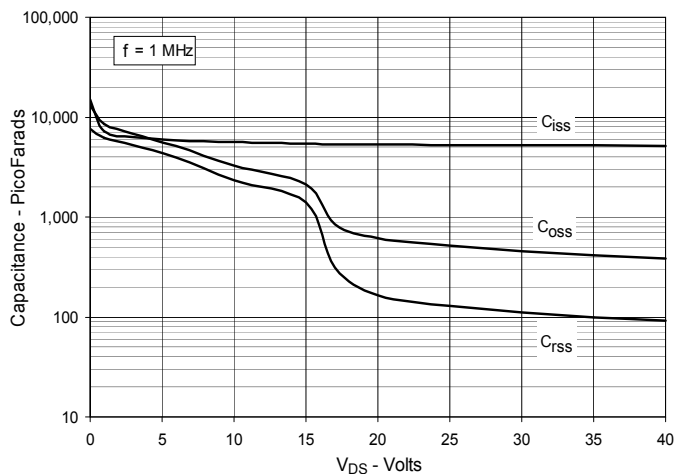


Fig. 14. Gate Charge

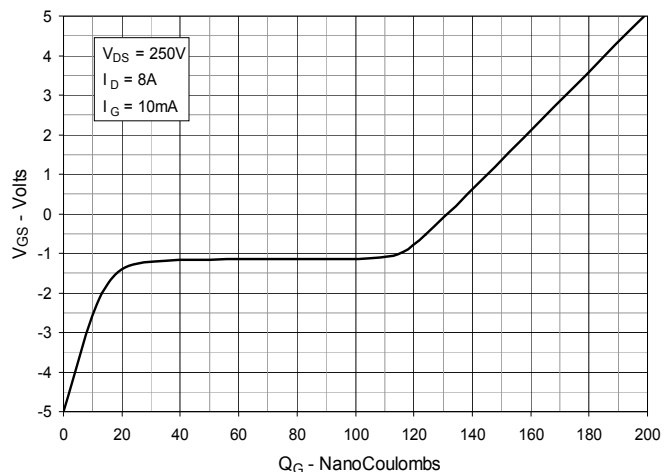


Fig. 15. Forward-Bias Safe Operating Area
@ $T_C = 25^\circ\text{C}$

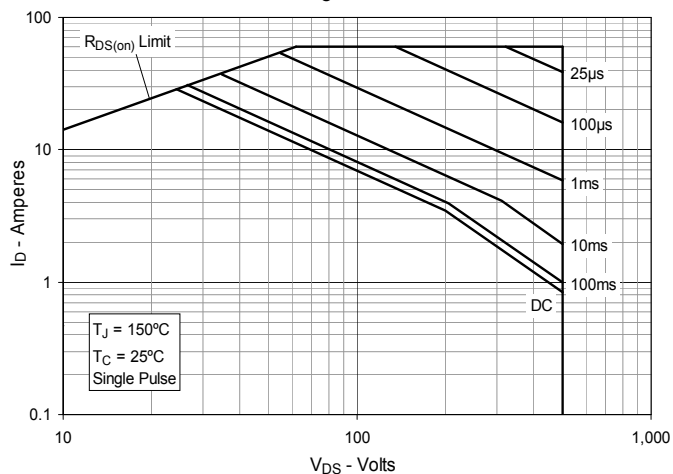


Fig. 16. Forward-Bias Safe Operating Area
@ $T_C = 75^\circ\text{C}$

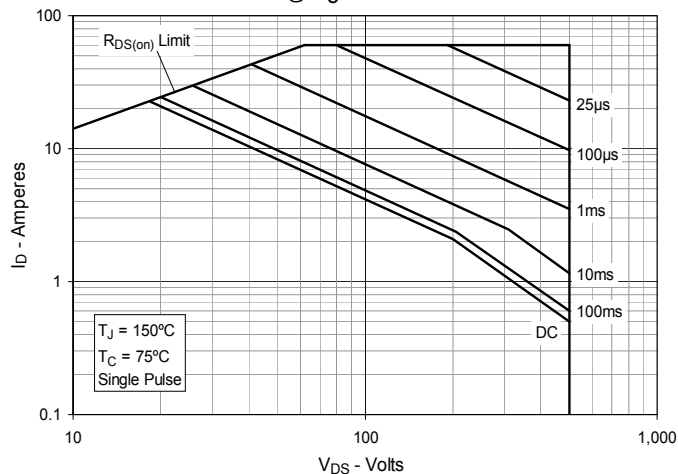


Fig. 17. Maximum Transient Thermal Impedance

