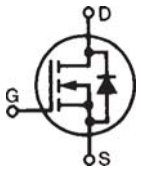
IXYS

High Voltage MOSFET

N-Channel, Enhancement Mode

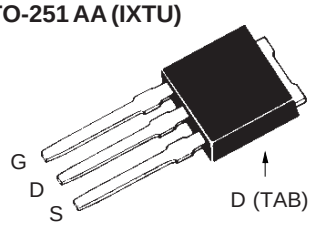
IXTU 01N100
IXTY 01N100

V_{DSS} = 1000 V
I_{D25} = 100 mA
$R_{DS(on)}$ = 80 Ω

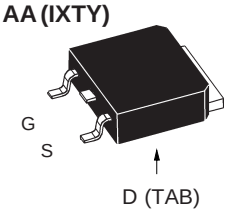


Symbol	Test Conditions	Maximum Ratings 01N100	
V_{DSS}	T_J = 25°C to 150°C	1000	V
V_{DGR}	T_J = 25°C to 150°C; R_{GS} = 1 MΩ	1000	V
V_{GS}	Continuous	±20	V
V_{GSM}	Transient	±30	V
I_{D25}	T_C = 25°C; T_J = 25°C to 150°C	100	mA
I_{DM}	T_C = 25°C, pulse width limited by max. T_J	400	mA
P_D	T_C = 25°C	25	W
T_J		-55 ... +150	°C
T_{JM}		150	°C
T_{stg}		-55 ... +150	°C
T_L	1.6 mm (0.063 in) from case for 5 s	300	°C
Weight		0.8	g

TO-251 AA (IXTU)



TO-252 AA (IXTY)



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

Symbol	Test Conditions		Characteristic Values (T_J = 25°C, unless otherwise specified) min.	typ.	max.	
V_{DSS}	V_{GS} = 0 V, I_D = 25 µA		1000			V
						V
$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 25 µA		2		4.5	V
I_{GSS}	V_{GS} = ±20 V_{DC}, V_{DS} = 0				±50	nA
I_{DSS}	V_{DS} = 0.8 • V_{DSS}	T_J = 25°C			10	µA
	V_{GS} = 0 V	T_J = 125°C			200	µA
$R_{DS(on)}$	V_{GS} = 10 V, I_D = I_{D25} Pulse test, t ≤ 300 ms, duty cycle d ≤ 2 %			60	80	Ω

Features

- International standard packages JEDEC TO-251 AA, TO-252 AA
- Low $R_{DS\ (on)}$ HDMOS™ process
- Rugged polysilicon gate cell structure
- Fast switching times

Applications

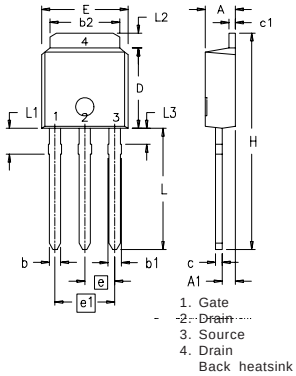
- Level shifting
- Triggers
- Solid state relays
- Current regulators

Symbol	Test Conditions	Characteristic Values (T_J = 25°C, unless otherwise specified) min.	typ.	max.	
g_{fs}	V_{DS} = 10 V; I_D = 0.5 • I_{D25}, pulse test		160		mS
C_{iss}	V_{GS} = 0 V, V_{DS} = 25 V, f = 1 MHz		54		pF
C_{oss}			6.9		pF
C_{rss}			2		pF
$t_{d(on)}$	V_{GS} = 10 V, V_{DS} = 500 V, I_D = I_{D25} R_G = 50 Ω (External)		12		ns
t_r			12		ns
$t_{d(off)}$			28		ns
t_f			28		ns
$Q_{g(on)}$	V_{GS} = 10 V, V_{DS} = 0.5 • V_{DSS}, I_D = 0.5 I_{D25}		6.9		nC
Q_{gs}			1.8		nC
Q_{gd}			3.0		nC
R_{thJC}				5	K/W

Source-Drain Diode

Symbol	Test Conditions	Characteristic Values (T_J = 25°C, unless otherwise specified) min.	typ.	max.	
V_{SD}	I_F = 100 mA, V_{GS} = 0 V, Pulse test, t ≤ 300 µs, duty cycle d ≤ 2 %			1.8	V
t_{rr}	I_F = 0.75 A, -di/dt = 10 A/µs, V_{DS} = 25 V			1.5	µs

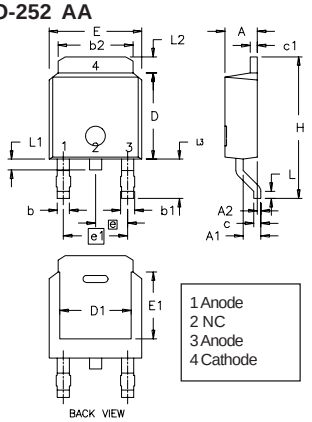
TO-251 AA Outline



1. Gate
2. Drain
3. Source
4. Drain
Back heatsink

Dim.	Millimeter Min.	Max.	Inches Min.	Max.
A	2.19	2.38	.086	.094
A1	0.89	1.14	0.35	.045
b	0.64	0.89	.025	.035
b1	0.76	1.14	.030	.045
b2	5.21	5.46	.205	.215
c	0.46	0.58	.018	.023
c1	0.46	0.58	.018	.023
D	5.97	6.22	.235	.245
E	6.35	6.73	.250	.265
e	2.28	BSC	.090	BSC
e1	4.57	BSC	.180	BSC
H	17.02	17.78	.670	.700
L	8.89	9.65	.350	.380
L1	1.91	2.28	.075	.090
L2	0.89	1.27	.035	.050
L3	1.15	1.52	.045	.060

TO-252 AA



1 Anode
2 NC
3 Anode
4 Cathode

Dim.	Millimeter Min.	Max.	Inches Min.	Max.
A	2.19	2.38	0.086	0.094
A1	0.89	1.14	0.035	0.045
A2	0	0.13	0	0.005
b	0.64	0.89	0.025	0.035
b1	0.76	1.14	0.030	0.045
b2	5.21	5.46	0.205	0.215
c	0.46	0.58	0.018	0.023
c1	0.46	0.58	0.018	0.023
D	5.97	6.22	0.235	0.245
D1	4.32	5.21	0.170	0.205
E	6.35	6.73	0.250	0.265
E1	4.32	5.21	0.170	0.205
e	2.28 BSC		0.090 BSC	
e1	4.57 BSC		0.180 BSC	
H	9.40	10.42	0.370	0.410
L	0.51	1.02	0.020	0.040
L1	0.64	1.02	0.025	0.040
L2	0.89	1.27	0.035	0.050
L3	2.54	2.92	0.100	0.115

IXYS reserves the right to change limits, test conditions, and dimensions.

Fig. 1. Output Characteristics @ 25°C

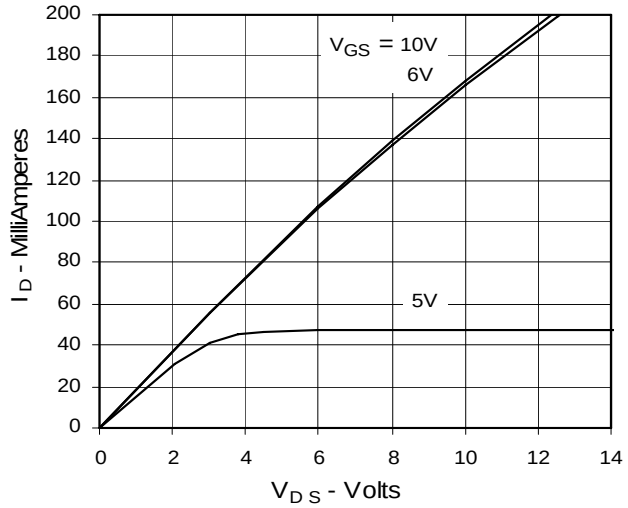


Fig. 2. Extended Output Characteristics @ 25°C

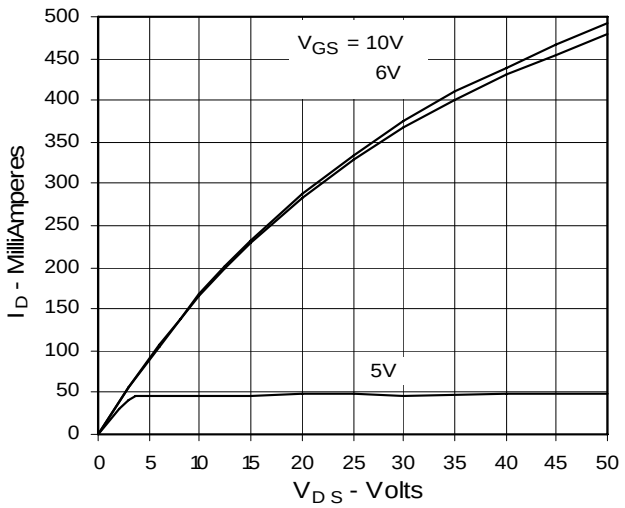


Fig. 3. Output Characteristics @ 125°C

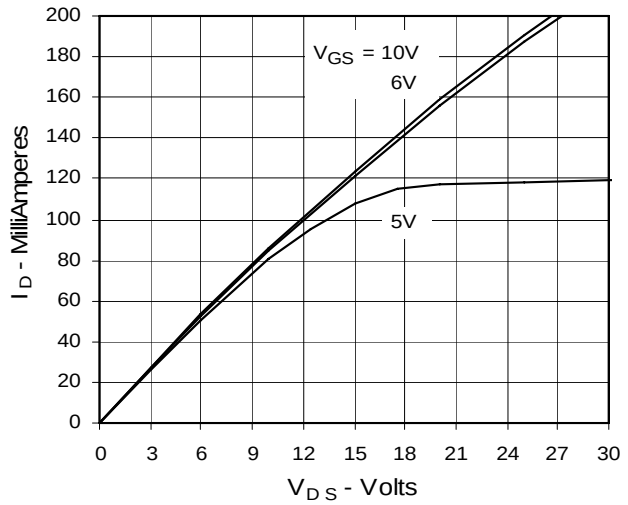


Fig. 4. $R_{DS(on)}$ Normalized to 0.5 I_{D25} Value vs. Junction Temperature

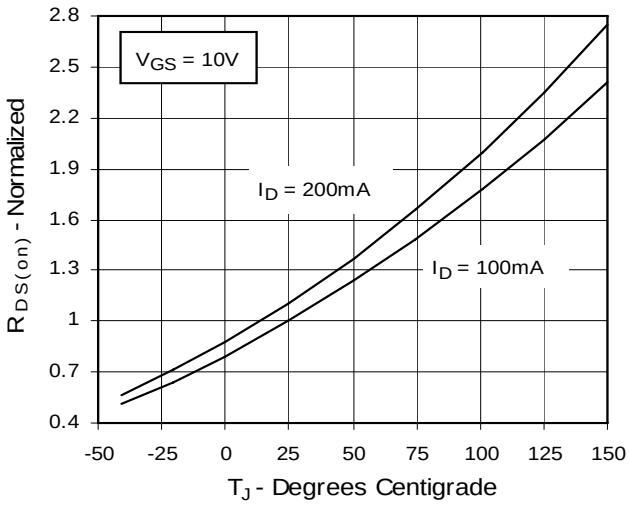


Fig. 5. $R_{DS(on)}$ Normalized to 0.5 I_{D25} Value vs. I_D

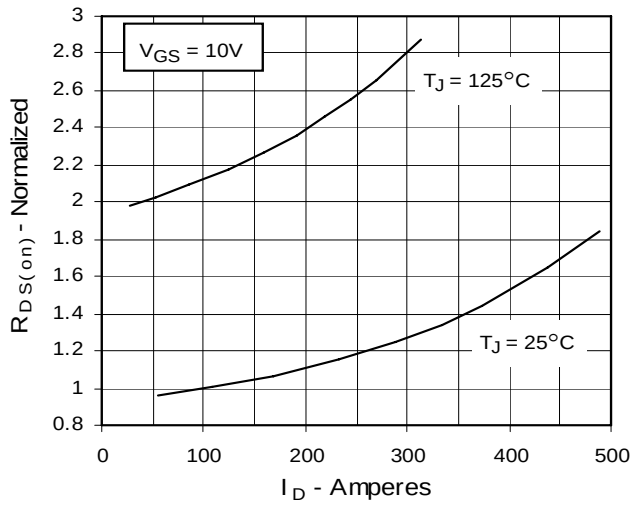


Fig. 6. Drain Current vs. Case Temperature

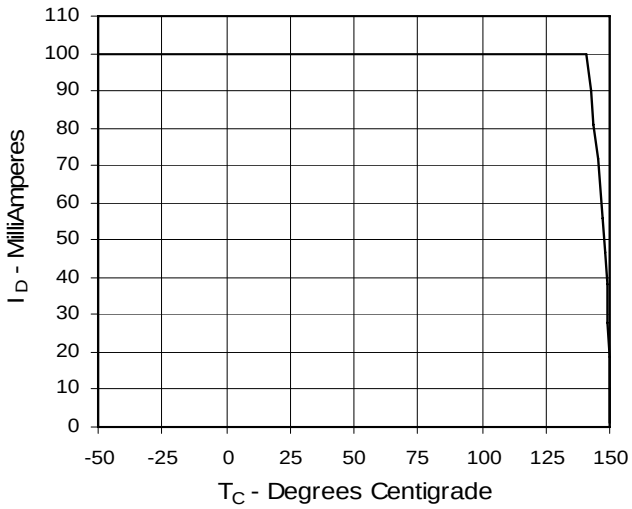


Fig. 7. Input Admittance

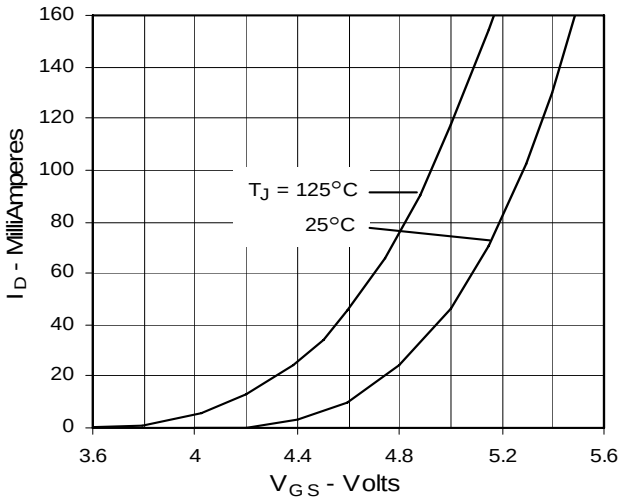


Fig. 8. Transconductance

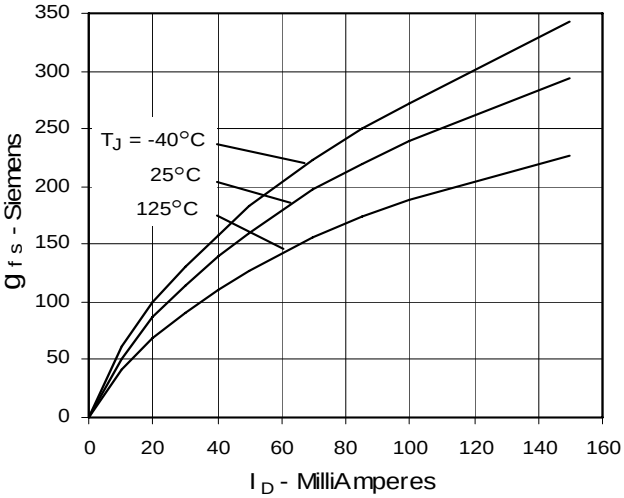


Fig. 9. Source Current vs. Source-To-Drain Voltage

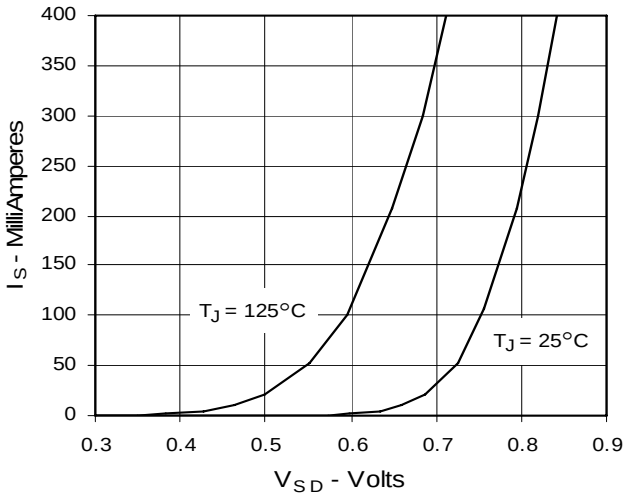


Fig. 10. Gate Charge

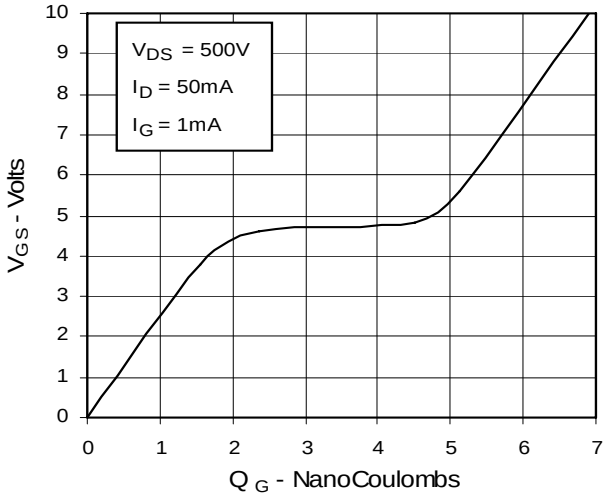


Fig. 11. Capacitance

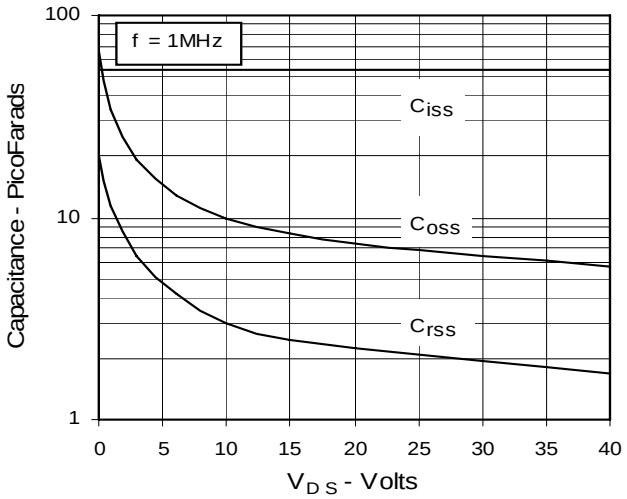


Fig. 12. Maximum Transient Thermal Resistance