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IXYS

High Voltage MegaMOS™ FETs

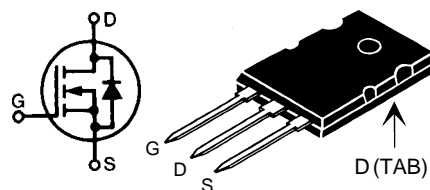
IXTK 21N100
IXTN 21N100

V_{DSS} = 1000 V
I_{D25} = 21 A
R_{DS(on)} = 0.55 Ω

N-Channel, Enhancement Mode

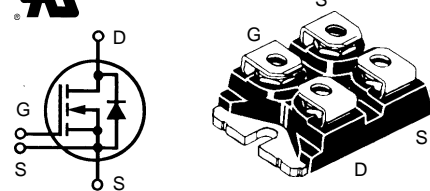
Symbol	Test Conditions	Maximum Ratings		
		IXTK	IXTN	
V _{DSS}	T _J = 25°C to 150°C	1000	1000	V
V _{DGR}	T _J = 25°C to 150°C; R _{GS} = 1 MΩ	1000	1000	V
V _{GS}	Continuous	±20	±20	V
V _{GSM}	Transient	±30	±30	V
I _{D25}	T _C = 25°C, Chip capability	21	21	A
I _{DM}	T _C = 25°C, pulse width limited by T _{JM}	84	84	A
P _D	T _C = 25°C	500	520	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 10 s	300	-	°C
V _{ISOL}	50/60 Hz, RMS t = 1 min	-	2500	V~
	I _{ISOL} ≤ 1 mA t = 1 s	-	3000	V~
M _d	Mounting torque	0.9/6	1.5/13	Nm/lb.in.
	Terminal connection torque	-	1.5/13	Nm/lb.in.
Weight		10	30	g

TO-264 AA (IXTK)



miniBLOC, SOT-227 B

E153432



G = Gate

D = Drain

S = Source

TAB = Drain

Either Source terminal at miniBLOC can be used as Main or Kelvin Source

Features

- International standard packages
- JEDECTO-264, epoxy meet UL94 V-0 flammability classification
- miniBLOC, (ISOTOP-compatible) with Aluminium nitride isolation
- Low R_{DS(on)} HDMOS™ process
- Rugged polysilicon gate cell structure
- Low package inductance

Applications

- DC-DC converters
- Synchronous rectification
- Battery chargers
- Switched-mode and resonant-mode power supplies
- DC choppers
- Temperature and lighting controls

Advantages

- Easy to mount
- Space savings
- High power density

Symbol	Test Conditions	Characteristic Values (T _J = 25°C, unless otherwise specified)		
		min.	typ.	max.
V _{DSS}	V _{GS} = 0 V, I _D = 6 mA	1000		V
V _{GH(th)}	V _{DS} = V _{GS} , I _D = 500 μA	2		4.5 V
I _{GSS}	V _{GS} = ±20 V _{DC} , V _{DS} = 0			±200 nA
I _{DSS}	V _{DS} = 0.8 • V _{DSS} V _{GS} = 0 V	T _J = 25°C		500 μA
		T _J = 125°C		2 mA
R _{DS(on)}	V _{GS} = 10 V, I _D = 0.5 • I _{D25} Pulse test, t ≤ 300 μs, duty cycle d ≤ 2 %			0.55 Ω



IXTK 21N100
IXTN 21N100

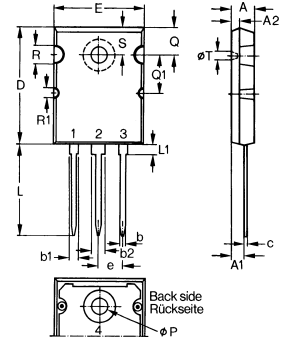
Symbol	Test Conditions	Characteristic Values (T _J = 25°C, unless otherwise specified)		
		min.	typ.	max.
g_{fs}	V _{DS} = 10 V; I _D = 0.5 • I _{D25} , pulse test		24	S
C_{iss}	V _{GS} = 0 V, V _{DS} = 25 V, f = 1 MHz		8400	pF
C_{oss}			630	pF
C_{rss}			110	pF
t_{d(on)}	V _{GS} = 10 V, V _{DS} = 0.5 • V _{DSS} , I _D = 0.5 • I _{D25} R _G = 1 Ω (External),		30	ns
t_r			50	ns
t_{d(off)}			100	ns
t_f			40	ns
Q_{g(on)}	V _{GS} = 10 V, V _{DS} = 0.5 • V _{DSS} , I _D = 0.5 • I _{D25}		250	nC
Q_{gs}			60	nC
Q_{gd}			100	nC
R_{thJC}	TO-264 AA		0.25	K/W
R_{thCK}	TO-264 AA		0.15	K/W
R_{thJC}	miniBLOC, SOT-227 B		0.24	K/W
R_{thCK}	miniBLOC, SOT-227 B		0.05	K/W

Source-Drain Diode

Characteristic Values
(T_J = 25°C, unless otherwise specified)

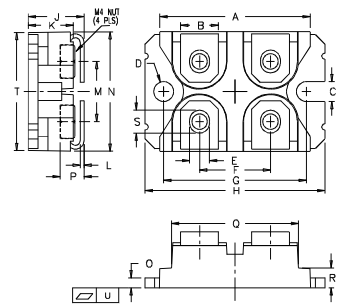
Symbol	Test Conditions	Characteristic Values		
		min.	typ.	max.
I_S	V _{GS} = 0 V			21 A
I_{SM}	Repetitive; pulse width limited by T _{JM}			84 A
V_{SD}	I _F = I _S , V _{GS} = 0 V, Pulse test, t ≤ 300 μs, duty cycle d ≤ 2 %			1.5 V
t_{rr}	I _F = I _S , -di/dt = 100 A/μs, V _R = 100 V		1000	ns
I_{RM}			20	A

TO-264 AA 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	25.91	26.16	1.020	1.030
E	19.81	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	20.32	20.83	.800	.820
L1	2.29	2.59	.090	.102
P	3.17	3.66	.125	.144
Q	6.07	6.27	.239	.247
Q1	8.38	8.69	.330	.342
R	3.81	4.32	.150	.170
R1	1.78	2.29	.070	.090
S	6.04	6.30	.238	.248
T	1.57	1.83	.062	.072

miniBLOC, SOT-227 B



M4 screws (4x) supplied

Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	31.50	31.88	1.240	1.255
B	7.80	8.20	0.307	0.323
C	4.09	4.29	0.161	0.169
D	4.09	4.29	0.161	0.169
E	4.09	4.29	0.161	0.169
F	14.91	15.11	0.587	0.595
G	30.12	30.30	1.186	1.193
H	38.00	38.23	1.496	1.505
J	11.68	12.22	0.460	0.481
K	8.92	9.60	0.351	0.378
L	0.76	0.84	0.030	0.033
M	12.60	12.85	0.496	0.506
N	25.15	25.42	0.990	1.001
O	1.98	2.13	0.078	0.084
P	4.95	5.97	0.195	0.235
Q	26.54	26.90	1.045	1.059
R	3.94	4.42	0.155	0.174
S	4.72	4.85	0.186	0.191
T	24.59	25.07	0.968	0.987
U	-0.05	0.1	-0.002	0.004

Fig. 1 Output Characteristics

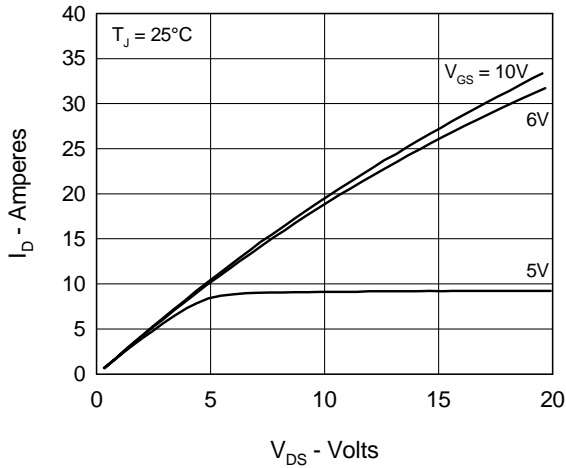


Fig. 2 Input Admittance

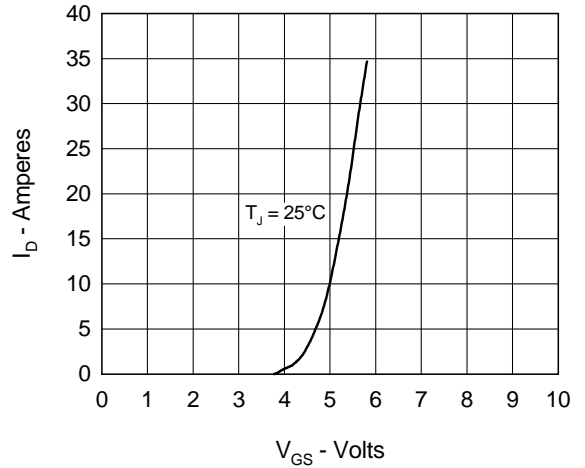


Fig. 3 $R_{DS(on)}$ vs. Drain Current

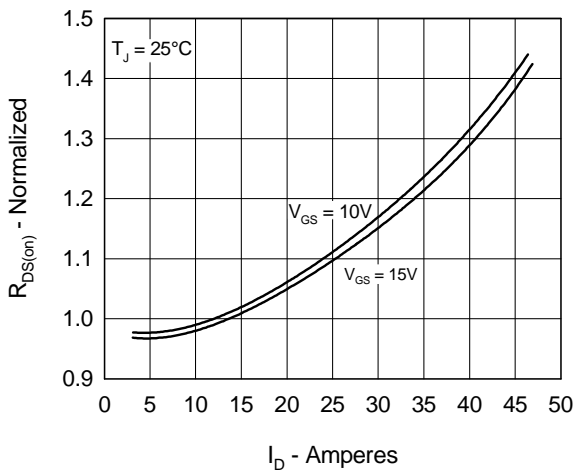


Fig. 4 Temperature Dependence of Drain to Source Resistance

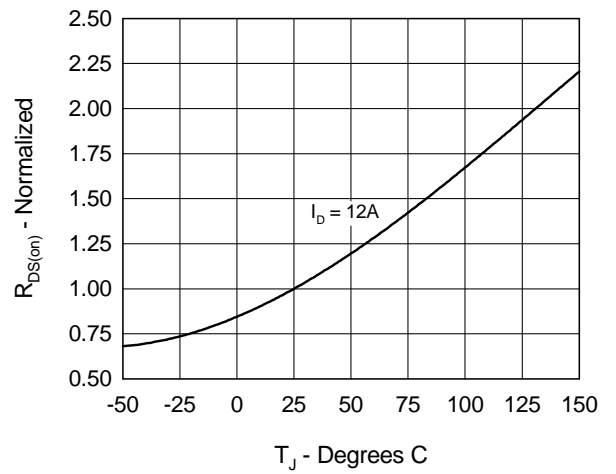


Fig. 5 Drain Current vs. Case Temperature

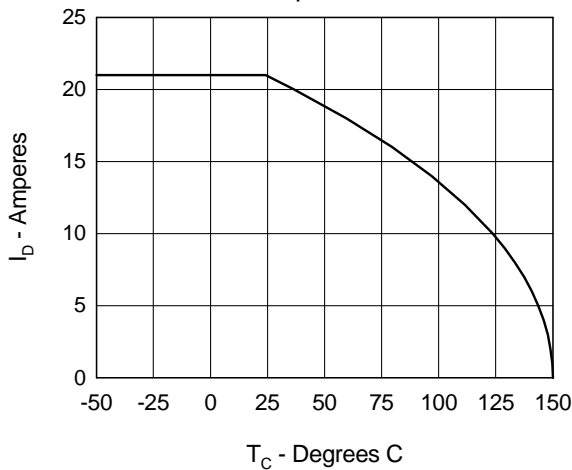


Fig. 6 Temperature Dependence of Breakdown and Threshold Voltage

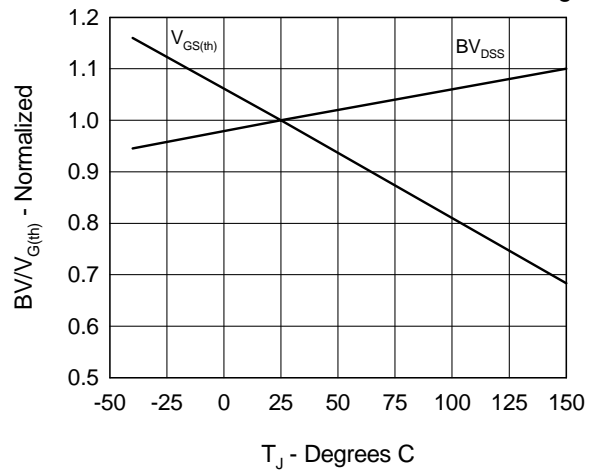


Fig.7 Gate Charge Characteristic Curve

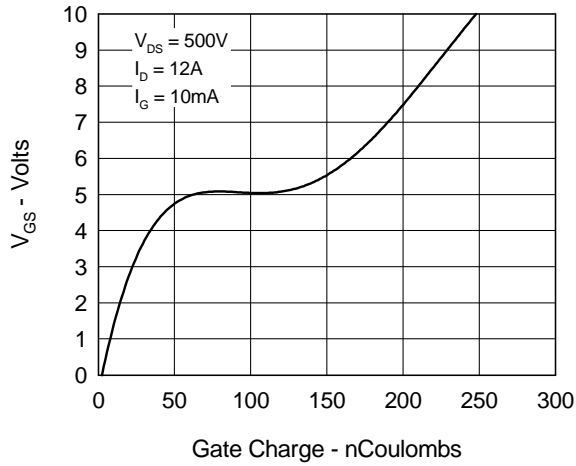


Fig.8 Capacitance Curves

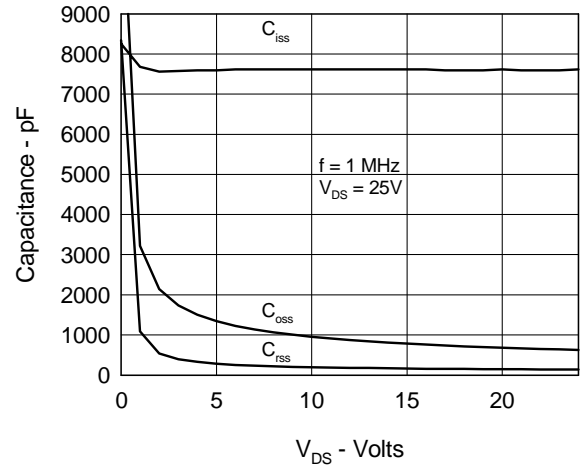


Fig.9 Source Current vs. Source to Drain Voltage

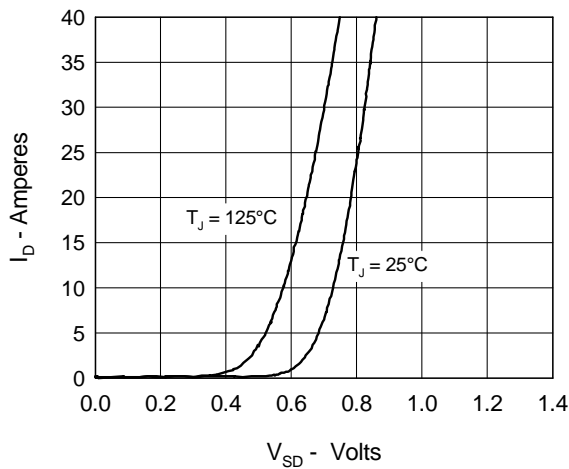


Fig.10 Transient Thermal Impedance

