IXYS

IXFK 73N30
IXFN 73N30

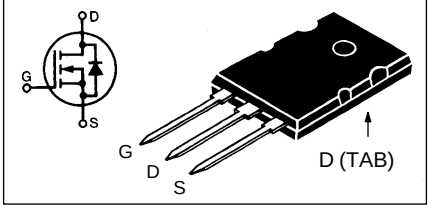
Preliminary Data

V_{DSS} = 300V
I_{D25} = 73A
$R_{DS(on)}$ = 45mΩ
t_{rr} ≤ 200ns

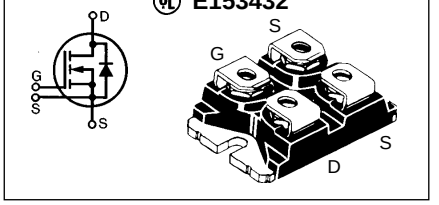
HiPerFET™ Power MOSFET

N-Channel Enhancement Mode
Avalanche Rated, High dv/dt, Low t_{rr}

TO-264 AA (IXFK)



miniBLOC, SOT-227 B (IXFN)
UL **E153432**



G = Gate D = Drain
S = Source TAB = Drain
Either Source terminal at miniBLOC can be used as Main or Kelvin Source

Symbol	Test Conditions	Maximum Ratings IXFK	IXFN	
V_{DSS}	T_J = 25°C to 150°C	300	300	V
V_{DGR}	T_J = 25°C to 150°C; R_{GS} = 1 MΩ	300	300	V
V_{GS}	Continuous	±20	±20	V
V_{GSM}	Transient	±30	±30	V
I_{D25}	T_C = 25°C	73	73	A
I_{DM}	T_C = 25°C, pulse width limited by T_{JM}	292	292	A
I_{AR}	T_C = 25°C	40	40	A
E_{AR}	T_C = 25°C	30	30	mJ
dv/dt	$I_S \le I_{DM}$, di/dt ≤ 100 A/µs, $V_{DD} \le V_{DSS}$, $T_J \le 150°C$, R_G = 2 Ω	5	5	V/ns
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~
	$I_{ISOL} \le$ 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

Symbol	Test Conditions	Characteristic Values (T_J = 25°C, unless otherwise specified) Min.	Typ.	Max.	
V_{DSS}	V_{GS} = 0 V, I_D = 1 mA	300			V
$V_{GH(th)}$	$V_{DS} = V_{GS}$, I_D = 8 mA	2		4	V
I_{GSS}	V_{GS} = ±20 V_{DC}, V_{DS} = 0			±200	nA
I_{DSS}	V_{DS} = 0.8 V_{DSS} T_J = 25°C			400	µA
	V_{GS} = 0 V 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 %			0.045	Ω

Features
- International standard packages
- JEDEC TO-264 AA, epoxy meet UL 94 V-0, flammability classification
- miniBLOC with Aluminium nitride isolation
- Low $R_{DS(on)}$ HDMOS™ process
- Rugged polysilicon gate cell structure
- Unclamped Inductive Switching (UIS) rated
- Low package inductance
- Fast intrinsic Rectifier

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

Advantages
- Easy to mount
- Space savings
- High power density

92805F (10/95)

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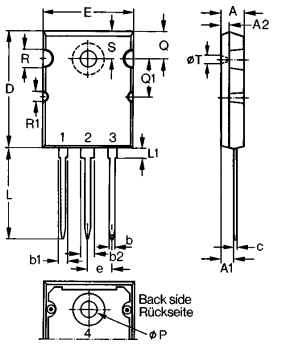
Symbol	Test Conditions (T_J = 25°C, unless otherwise specified)	Characteristic Values Min.	Typ.	Max.	
g_{fs}	V_{DS} = 10 V; I_D = 0.5 I_{D25}, pulse test		50		S
C_{iss}	V_{GS} = 0 V, V_{DS} = 25 V, f = 1 MHz		9000		pF
C_{oss}			1500		pF
C_{rss}			580		pF
$t_{d(on)}$	V_{GS} = 10 V, V_{DS} = 0.5 V_{DSS}, I_D = 0.5 I_{D25} R_G = 1 Ω (External),		30		ns
t_r			80		ns
$t_{d(off)}$			100		ns
t_f			50		ns
$Q_{g(on)}$	V_{GS} = 10 V, V_{DS} = 0.5 V_{DSS}, I_D = 0.5 I_{D25}		360		nC
Q_{gs}			60		nC
Q_{gd}			180		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

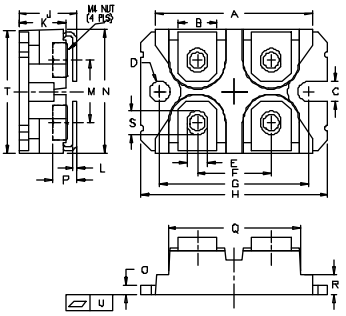
Symbol	Test Conditions (T_J = 25°C, unless otherwise specified)	Characteristic Values Min.	Typ.	Max.	
I_S	V_{GS} = 0			73	A
I_{SM}	Repetitive; pulse width limited by T_{JM}			292	A
V_{SD}	I_F = I_S A, V_{GS} = 0 V, Pulse test, t ≤ 300 µs, duty cycle d ≤ 2 %			1.5	V
t_{rr}	I_F = I_S, -di/dt = 100 A/µs, V_R = 100 V			200	ns
I_{RM}			40		A

TO-264 AA Outline



Dim.	Millimeter Min.	Max.	Inches 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 Min.	Max.	Inches 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

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

Fig.1. Output Characteristics

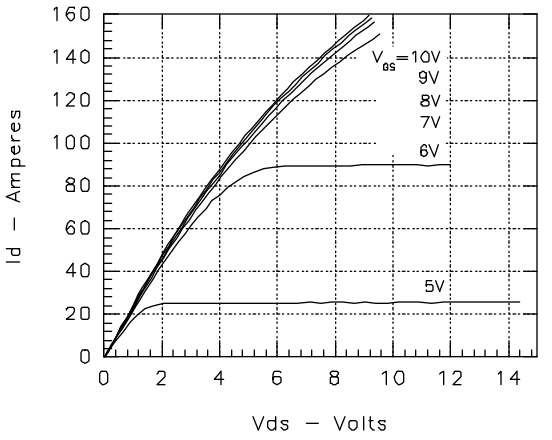


Fig. 2. Input Admittance

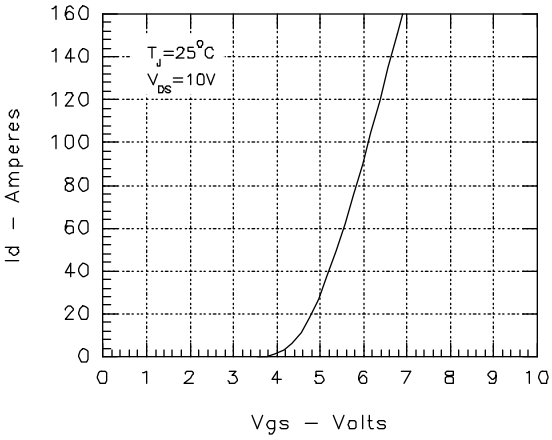


Fig. 3. Rds(on) vs. Drain Current

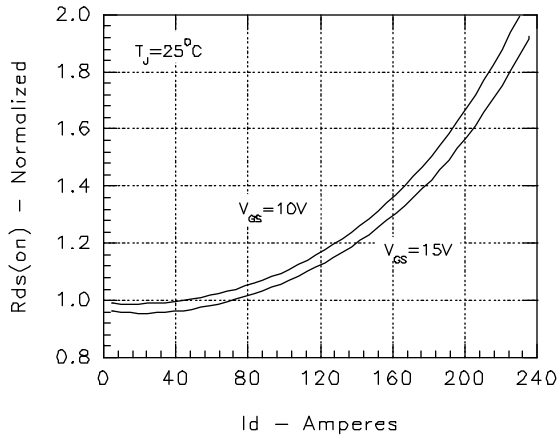


Fig. 4. Temperature Dependence of Drain to Source Resistance

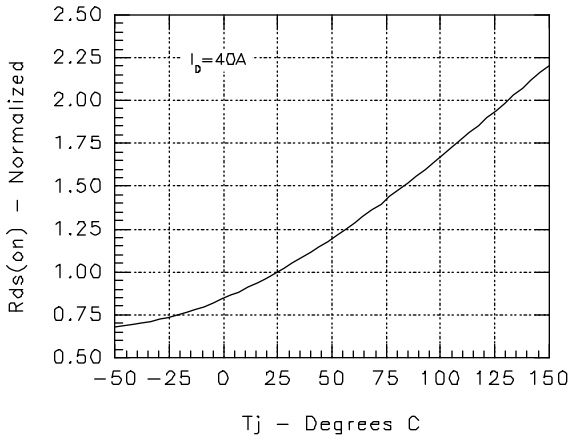


Fig. 5. Drain Current vs. Case Temperature

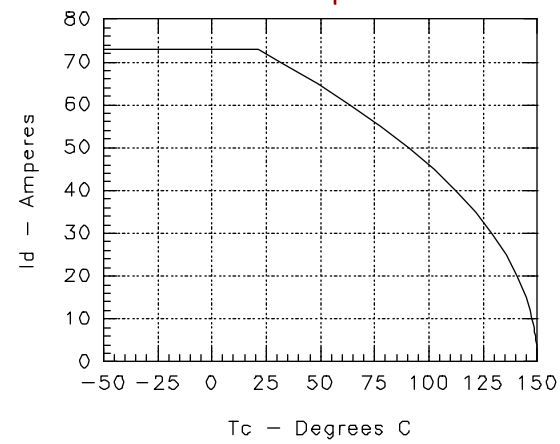


Fig. 6. Temperature Dependence of Breakdown Voltage and Threshold Voltage

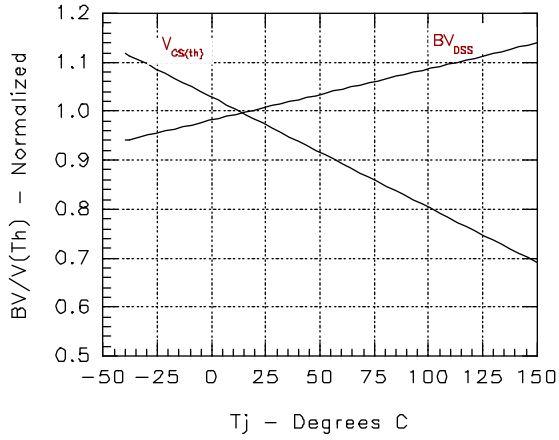


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Fig. 7. Gate Charge

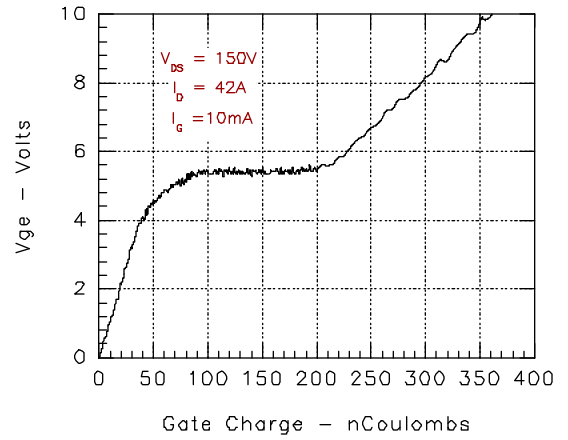

Fig. 8. Capacitance Curves

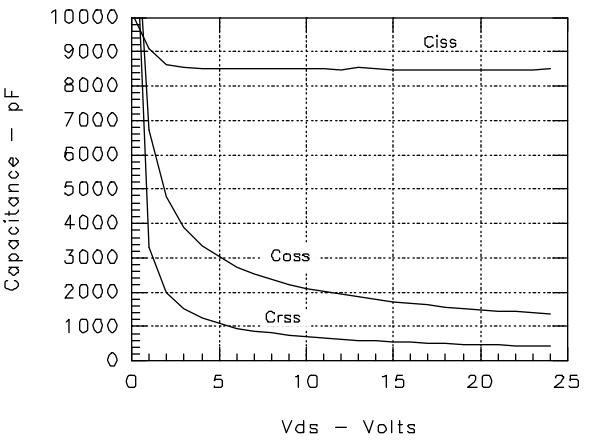

Fig. 9. Source Current vs. Source to Drain Voltage

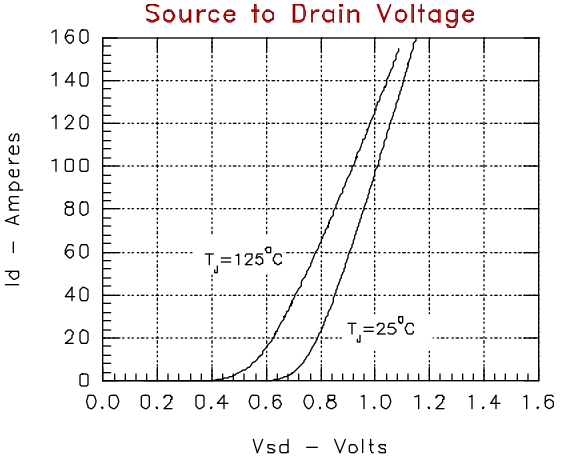

Fig. 10. Transient Thermal Impedance