

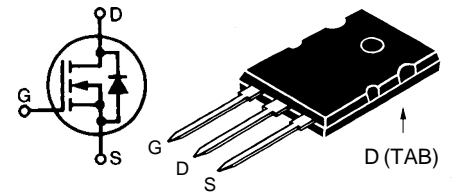
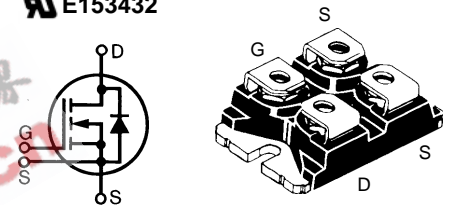
HiPerFET™ Power MOSFET

Single MOSFET Die

IXFN 43N60
IXFN 40N60
IXFK 43N60
IXFK 40N60

V _{DSS}	I _{D25}	R _{DS(on)}	t _{rr}
600V	43A	0.13Ω	200ns
600V	40A	0.15Ω	200ns
600V	43A	0.13Ω	200ns
600V	40A	0.15Ω	200ns

Symbol	Test Conditions	Maximum Ratings			
		IXFK 43N60	IXFK 40N60	IXFN 43N60	IXFN 40N60
V _{DSS}	T _J = 25°C to 150°C	600		600	V
V _{DGR} ①	T _J = 25°C to 150°C	600		600	V
V _{GS}	Continuous	±20		±20	V
V _{GSM}	Transient	±30		±30	V
I _{D25}	T _C = 25°C	43	40	43	A
I _{DM} ②	T _C = 25°C	172	160	172	A
I _{AR}	T _C = 25°C	43	40	43	A
E _{AR}	T _C = 25°C	60		60	mJ
dv/dt	I _S ≤ I _{DM} , di/dt ≤ 100 A/μs, V _{DD} ≤ V _{DSS} T _J ≤ 150°C, R _G = 2 Ω	5		5	V/ns
P _D	T _C = 25°C	560		600	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		N/A	°C
V _{ISOL}	50/60 Hz, RMS I _{ISOL} ≤ 1 mA		N/A	2500 3000	V~ V~
M _d	Mounting torque Terminal connection torque		0.9/6 N/A	1.5/13 1.5/13	Nm/lb.in. Nm/lb.in.
Weight		10		30	g

TO-264 AA (IXFK)

miniBLOC, SOT-227 B (IXFN)
E153432

 G = Gate
 S = Source

 D = Drain
 TAB = Drain

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

Features

- International standard packages
- Encapsulating epoxy meets UL94 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

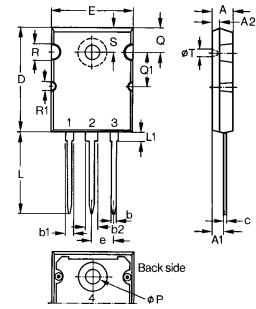
Advantages

- Easy to mount
- Space savings
- High power density

Symbol	Test Conditions (T _J = 25°C, unless otherwise specified)	Characteristic Values	
		Min.	Max.
V _{DSS}	V _{GS} = 0 V, I _D = 3mA	600	V
V _{GH(th)}	V _{DS} = V _{GS} , I _D = 8mA	2	4 V
I _{GSS}	V _{GS} = ±20 V, V _{GE} = 0		±200 nA
I _{DSS}	V _{DS} = 0.8 • V _{DSS} V V _{GS} = 0 V	T _J = 25 °C T _J = 125 °C	400 μA 2 mA
R _{DS(on)}	V _{GS} = 10 V, I _D = 0.5 • I _{D25} Pulse test, t ≤ 300 ms, duty cycle d ≤ 2 %	43N60 40N60	0.13 Ω 0.15 Ω

Symbol	Test Conditions	Characteristic Values		
		Min.	Typ.	Max.
<i>(T_J = 25°C, unless otherwise specified)</i>				
g_{fs}	V _{DS} = 10 V; I _D = 0.5 • I _{D25} , pulse test		TBD	S
C_{iss}			TBD	pF
C_{oss}	V _{GS} = 0 V, V _{DS} = 25 V, f = 1 MHz		TBD	pF
C_{rss}			TBD	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),		TBD	ns
t_r			TBD	ns
t_{d(off)}			TBD	ns
t_f			TBD	ns
Q_{g(on)}	V _{GS} = 10 V, V _{DS} = 0.5 • V _{DSS} , I _D = 0.5 • I _{D25}		TBD	nC
Q_{gs}			TBD	nC
Q_{gd}			TBD	nC
R_{thJC}	TO-264 AA		0.22	K/W
R_{thCK}	TO-264 AA		0.15	K/W
R_{thJC}	miniBLOC, SOT-227 B		0.21	K/W
R_{thCK}	miniBLOC, SOT-227 B		0.05	K/W

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

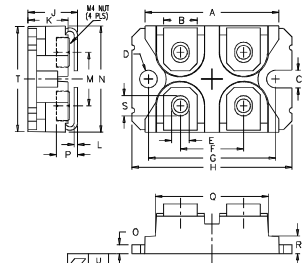
Source-Drain Diode

(T_J = 25°C, unless otherwise specified)

Symbol	Test Conditions	Characteristic Values			
		Min.	Typ.	Max.	
I_S	V _{GS} = 0	43N60 40N60		43 40	A A
I_{SM}	Repetitive; pulse width limited by T _{JM}	43N60 40N60		172 160	A A
V_{SD}	I _F = 100 A, V _{GS} = 0 V, Pulse test, t ≤ 300 μs, duty cycle d ≤ 2 %			1.5	V
t_{rr}	I _F = 50 A, -di/dt = 100 A/μs, V _R = 100 V		TBD		ns
Q_{RM}			TBD		μC
I_{RM}			TBD		A

- Notes: 1. R_{GS} = 1 MΩ
2. Pulse width limited by T_{JM}.

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