

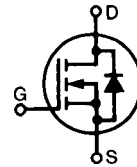
HiPerFET™ Power MOSFETs IXFR 180N10

ISOPLUS247™

(Electrically Isolated Back Surface)

Single MOSFET Die

Preliminary data



$$V_{DSS} = 100 \text{ V}$$

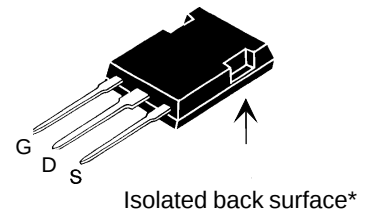
$$I_{D25} = 165 \text{ A}$$

$$R_{DS(on)} = 8 \text{ m}\Omega$$

$$t_{rr} \leq 250 \text{ ns}$$

Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25^\circ\text{C}$ to 150°C	100	V
V_{DGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GS} = 1 \text{ M}\Omega$	100	V
V_{GS}	Continuous	± 20	V
V_{GSM}	Transient	± 30	V
I_{D25}	$T_C = 25^\circ\text{C}$ (MOSFET chip capability)	165	A
$I_{D(RMS)}$	External lead (current limit)	76	A
I_{DM}	$T_C = 25^\circ\text{C}$, Note 1	720	A
I_{AR}	$T_C = 25^\circ\text{C}$	180	A
E_{AR}	$T_C = 25^\circ\text{C}$	60	mJ
E_{AS}	$T_C = 25^\circ\text{C}$	3	J
dv/dt	$I_S \leq I_{DM}$, $di/dt \leq 100 \text{ A}/\mu\text{s}$, $V_{DD} \leq V_{DSS}$ $T_J \leq 150^\circ\text{C}$, $R_G = 2 \Omega$	5	V/ns
P_D	$T_C = 25^\circ\text{C}$	400	W
T_J		-55 ... +150	$^\circ\text{C}$
T_{JM}		150	$^\circ\text{C}$
T_{stg}		-55 ... +150	$^\circ\text{C}$
T_L	1.6 mm (0.063 in.) from case for 10 s	300	$^\circ\text{C}$
V_{ISOL}	50/60 Hz, RMS $t = 1 \text{ min}$	2500	V~
Weight		5	g

ISOPLUS 247™



G = Gate D = Drain
S = Source

* Patent pending

Features

- Silicon chip on Direct-Copper-Bond substrate
- High power dissipation
- Isolated mounting surface
- 2500V electrical isolation
- Low drain to tab capacitance (<25pF)
- Low $R_{DS(on)}$ HDMOS™ process
- Rugged polysilicon gate cell structure
- Unclamped Inductive Switching (UIS) rated
- Fast intrinsic Rectifier

Applications

- DC-DC converters
- Battery chargers
- Switched-mode and resonant-mode power supplies
- DC choppers
- AC motor control

Advantages

- Easy assembly
- Space savings
- High power density

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
V_{DSS}	$V_{GS} = 0 \text{ V}$, $I_D = 3 \text{ mA}$	100		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 8 \text{ mA}$	2.0		4.0 V
I_{GSS}	$V_{GS} = \pm 20 \text{ V}$, $V_{DS} = 0$			$\pm 100 \text{ nA}$
I_{DSS}	$V_{DS} = V_{DSS}$ $V_{GS} = 0 \text{ V}$			100 μA 2 mA
$R_{DS(on)}$	$V_{GS} = 10 \text{ V}$, $I_D = 90 \text{ A}$ Note 1			8 m Ω

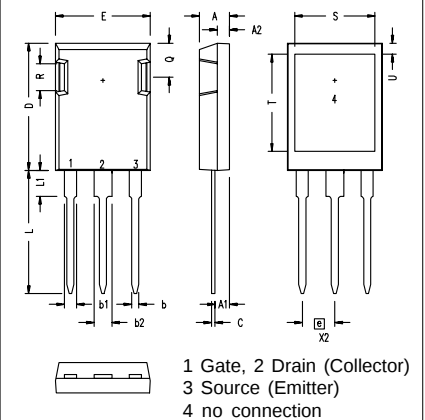
Symbol	Test Conditions		Characteristic Values ($T_j = 25^\circ\text{C}$, unless otherwise specified)		
			min.	typ.	max.
g_{fs}	$V_{DS} = 10\text{ V}; I_D = 90\text{ A}$	Note 2	60	90	S
C_{iss}	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$			9400	pF
C_{oss}				3200	pF
C_{rss}				1660	pF
$t_{d(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 90\text{ A}$ $R_G = 1\ \Omega$ (External),			50	ns
t_r				90	ns
$t_{d(off)}$				140	ns
t_f				65	ns
$Q_{g(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 90\text{ A}$			400	nC
Q_{gs}				65	nC
Q_{gd}				220	nC
R_{thJC}				0.30	K/W
R_{thCK}				0.15	K/W

Source-Drain Diode

Symbol	Test Conditions	Characteristic Values ($T_j = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
I_S	$V_{GS} = 0\text{ V}$			180 A
I_{SM}	Repetitive; pulse width limited by T_{JM}			720 A
V_{SD}	$I_F = 100\text{ A}, V_{GS} = 0\text{ V}$, Note 1			1.5 V
t_{rr}	$I_F = 50\text{ A}, -di/dt = 100\text{ A}/\mu\text{s}, V_R = 100\text{ V}$			250 ns
Q_{RM}				1.1 μC
I_{RM}				13 A

Note: 1. Pulse width limited by T_{JM}
2. Pulse test, $t \leq 300\ \mu\text{s}$, duty cycle $d \leq 2\%$

ISOPLUS 247 (IXFR) OUTLINE



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.83	5.21	.190	.205
A ₁	2.29	2.54	.090	.100
A ₂	1.91	2.16	.075	.085
b	1.14	1.40	.045	.055
b ₁	1.91	2.13	.075	.084
b ₂	2.92	3.12	.115	.123
C	0.61	0.80	.024	.031
D	20.80	21.34	.819	.840
E	15.75	16.13	.620	.635
e	5.45 BSC		.215 BSC	
L	19.81	20.32	.780	.800
L1	3.81	4.32	.150	.170
Q	5.59	6.20	.220	.244
R	4.32	4.83	.170	.190
S	13.21	13.72	.520	.540
T	15.75	16.26	.620	.640
U	1.65	3.03	.065	.080



LittleDiode supplies new, hard to find or obsolete electronic components and semiconductors all over the world.

With over two million different components listed you are sure to find the part you need.

Feel free to visit us today at our online store:

LittleDiode.com

Looking forward to providing you with the best possible service.