

HiPerFET™ Power MOSFETs IXFL 34N100

ISOPLUS264™

(Electrically Isolated Backside)

$V_{DSS} = 1000\text{ V}$
 $I_{D25} = 30\text{ A}$
 $R_{DS(on)} = 0.28\ \Omega$

Single Die MOSFET

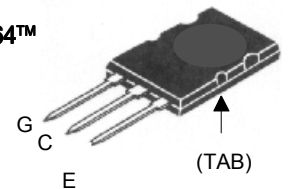
N-Channel Enhancement Mode
 Avalanche Rated, High dv/dt, Low t_{rr}



Preliminary Data Sheet

Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25^\circ\text{C}$ to 150°C	1000	V
V_{DGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GS} = 1\text{ M}\Omega$	1000	V
V_{GS}	Continuous	± 20	V
V_{GSM}	Transient	± 30	V
I_{D25}	$T_C = 25^\circ\text{C}$	30	A
I_{DM}	$T_C = 25^\circ\text{C}$, Note 1	136	A
I_{AR}	$T_C = 25^\circ\text{C}$	34	A
E_{AR}	$T_C = 25^\circ\text{C}$	64	mJ
E_{AS}	$T_C = 25^\circ\text{C}$	4	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	$T_C = 25^\circ\text{C}$	550	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 $t = 1\text{ min}$ $I_{ISOL} \leq 1\text{ mA}$ $t = 1\text{ s}$	2500 3000	V~ V~
Weight		5	g

ISOPLUS-264™



G = Gate C = Collector
 E = Emitter Tab = Collector

Features

- Silicon chip on Direct-Copper-Bond substrate
 - High power dissipation
 - Isolated mounting surface
 - 2500V electrical isolation
- Low drain to tab capacitance (<30pF)
- 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

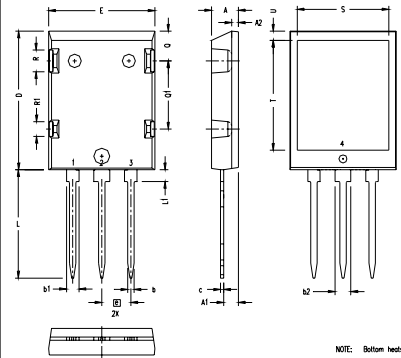
Symbol	Test Conditions	Characteristic Values		
		$(T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
V_{DSS}	$V_{GS} = 0\text{ V}$, $I_D = 3\text{ mA}$	1000		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 8\text{ mA}$	2.5		5.0 V
I_{GSS}	$V_{GS} = \pm 20\text{ V}_{DC}$, $V_{DS} = 0$			$\pm 100\text{ nA}$
I_{DSS}	$V_{DS} = V_{DSS}$, $T_J = 25^\circ\text{C}$ $V_{GS} = 0\text{ V}$, $T_J = 125^\circ\text{C}$			100 μA 2 mA
$R_{DS(on)}$	$V_{GS} = 10\text{ V}$, $I_D = I_T$ Note 1			0.28 Ω

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)	Characteristic Values			
			min.	typ.	max.	
g_{fs}	$V_{DS} = 15\text{ V}; I_D = I_T$	Note 2	18	40	S	
C_{iss}	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$			9200	pF	
C_{oss}				1200	pF	
C_{rss}				300	pF	
$t_{d(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = I_T$ $R_G = 1\ \Omega$ (External)			41	ns	
t_r				65	ns	
$t_{d(off)}$				110	ns	
t_f				30	ns	
$Q_{g(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = I_T$			380	nC	
Q_{gs}				65	nC	
Q_{gd}				185	nC	
R_{thJC}					0.225	K/W
R_{thCK}				0.05		K/W

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)	Characteristic Values			
			min.	typ.	max.	
I_S	$V_{GS} = 0\text{ V}$			34	A	
I_{SM}	Repetitive; pulse width limited by T_{JM}			136	A	
V_{SD}	$I_F = I_S, V_{GS} = 0\text{ V}$, Note 1			1.3	V	
t_{rr}	$I_F = I_S, -di/dt = 100\text{ A}/\mu\text{s}, V_R = 100\text{ V}$			$T_J = 25^\circ\text{C}$	180	ns
Q_{RM}				$T_J = 125^\circ\text{C}$	330	ns
				$T_J = 25^\circ\text{C}$	2	μC
I_{RM}					8	A

- Note: 1. Pulse width limited by T_{JM}
 2. Pulse test, $t \leq 300\ \mu\text{s}$, duty cycle $d \leq 2\%$
 3. Test current $I_T = 30\text{ A}$

ISOPLUS 264 OUTLINE



SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.190	.205	4.83	5.21
A1	.102	.118	2.59	3.00
A2	.046	.055	1.17	1.40
b	.045	.055	1.14	1.40
b1	.087	.102	2.21	2.59
b2	.111	.126	2.82	3.20
c	.020	.029	0.51	0.74
D	1.020	1.040	25.91	26.42
E	.770	.799	19.56	20.29
e	.215 BSC		5.46 BSC	
L	.780	.820	19.81	20.83
L1	.080	.102	2.03	2.59
Q	.210	.235	5.33	5.97
Q1	.490	.513	12.45	13.03
R	.150	.180	3.81	4.57
R1	.100	.130	2.54	3.30
S	.668	.690	16.97	17.53
T	.801	.821	20.34	20.85
U	.065	.080	1.65	2.03

NOTE: Bottom heatsink meets 2500Vrms isolation to the other pins.