

HiPerFET™ Power MOSFETs

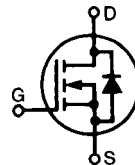
ISOPLUS247™

IXFR 26N50
IXFR 24N50

V_{DSS}	I_{D25}	$R_{DS(on)}$
500 V	24 A	0.20 Ω
500 V	22 A	0.23 Ω

(Electrically Isolated Back Surface)

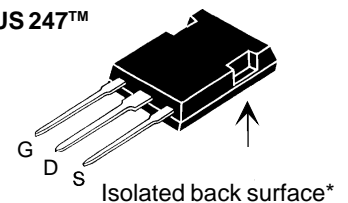
N-Channel Enhancement Mode
High dV/dt , Low t_{rr} , HDMOS™ Family



$t_{rr} \leq 250$ ns

Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25^\circ\text{C}$ to 150°C	500	V
V_{DGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GS} = 1$ M Ω	500	V
V_{GS}	Continuous	± 20	V
V_{GSM}	Transient	± 30	V
I_{D25}	$T_C = 25^\circ\text{C}$	26N50	26 A
		24N50	24 A
I_{DM}	$T_C = 25^\circ\text{C}$, Pulse width limited by T_{JM}	26N50	104 A
		24N50	96 A
I_{AR}	$T_C = 25^\circ\text{C}$	26N50	26 A
		24N50	24 A
E_{AR}	$T_C = 25^\circ\text{C}$	30	mJ
dv/dt	$I_S \leq I_{DM}$, $di/dt \leq 100$ A/ μs , $V_{DD} \leq V_{DSS}$ $T_J \leq 150^\circ\text{C}$, $R_G = 2$ Ω	5	V/ns
P_D	$T_C = 25^\circ\text{C}$	250	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 (0.062 in.) from case for 10 s	300	$^\circ\text{C}$
V_{ISOL}	50/60 Hz, RMS $t = 1$ minute leads-to-tab	2500	V~
Weight		6	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 (<50pF)
- Low $R_{DS(on)}$ HDMOS™ process
- Rugged polysilicon gate cell structure
- Unclamped Inductive Switching (UIS) rated
- Fast intrinsic Rectifier

Applications

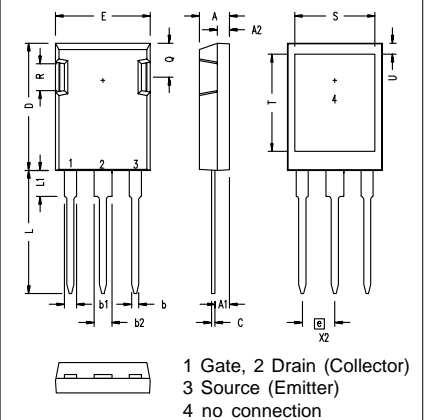
- DC-DC converters
- Battery chargers
- Switched-mode and resonant-mode power supplies
- DC choppers
- AC motor control

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}	$V_{GS} = 0$ V, $I_D = 250$ μA	500		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 4$ mA	2	4	V
I_{GSS}	$V_{GS} = \pm 20$ V _{DC} , $V_{DS} = 0$			± 100 nA
I_{DSS}	$V_{DS} = 0.8 \cdot V_{DSS}$ $V_{GS} = 0$ V	$T_J = 25^\circ\text{C}$	200	μA
		$T_J = 125^\circ\text{C}$	1	mA
$R_{DS(on)}$	$V_{GS} = 10$ V, $I_D = I_T$ Notes 1 & 2	26N50	0.20	Ω
		24N50	0.23	Ω

Symbol	Test Conditions	Characteristic Values			
		(T _J = 25°C, unless otherwise specified)			
		min.	typ.	max.	
g_{fs}	V _{DS} = 15 V; I _D = I _T Note 1	11	21	S	
C_{iss}	V _{GS} = 0 V, V _{DS} = 25 V, f = 1 MHz		4200	pF	
C_{oss}			450	pF	
C_{rss}			135	pF	
t_{d(on)}	V _{GS} = 10 V, V _{DS} = 0.5 • V _{DSS} , I _D = I _T R _G = 1 Ω (External),		16	25	ns
t_r			33	45	ns
t_{d(off)}			65	80	ns
t_f			30	40	ns
Q_{g(on)}	V _{GS} = 10 V, V _{DS} = 0.5 • V _{DSS} , I _D = I _T		135	160	nC
Q_{gs}			28	40	nC
Q_{gd}			62	85	nC
R_{thJC}				0.50	K/W
R_{thCK}			0.15		K/W

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

Source-Drain Diode		Characteristic Values			
		(T _J = 25°C, unless otherwise specified)			
Symbol	Test Conditions	min.	typ.	max.	
I_S	V _{GS} = 0 V			26 A	
I_{SM}	Repetitive; pulse width limited by T _{JM}			104 A	
V_{SD}	I _F = I _S , V _{GS} = 0 V, Note 1			1.5 V	
t_{rr}	I _F = I _S , -di/dt = 100 A/μs, V _R = 100 V			250 ns	
Q_{RM}		T _J = 25°C			400 ns
		T _J = 125°C			1.5 μC
I_{RM}		T _J = 25°C		10	A
	T _J = 125°C		15	A	

- Note: 1. Pulse test, t ≤ 300 μs, duty cycle d ≤ 2 %
2. I_T test current: IXFR26N50 I_T = 13A
IXFR24N50 I_T = 12A
3. See IXFR26N50 data sheet for characteristic curves.



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