

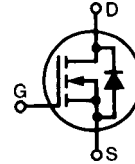
HiPerFET™ Power MOSFETs

ISOPLUS247™

IXFR 26N50Q
IXFR 24N50Q

(Electrically Isolated Back Surface)

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



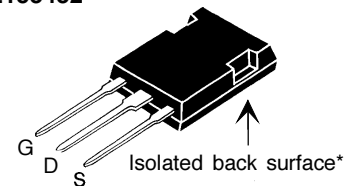
V_{DSS}	I_{D25}	$R_{DS(on)}$
500 V	24 A	0.20 Ω
500 V	22 A	0.23 Ω

$t_{rr} \leq 250$ 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}	$T_C = 25^\circ\text{C}$	26N50Q 24 24N50Q 22	A
I_{DM}	$T_C = 25^\circ\text{C}$, Pulse width limited by T_{JM}	26N50Q 104 24N50Q 96	A
I_{AR}	$T_C = 25^\circ\text{C}$	26N50Q 26 24N50Q 24	A
E_{AR}	$T_C = 25^\circ\text{C}$	30	mJ
E_{AS}	$T_C = 25^\circ\text{C}$	1.5	J
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		5	g

ISOPLUS247™

E153432



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 (<35pF)
- 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: no screws, or isolation foils required
- Space savings
- High power density
- Low collector capacitance to ground (low EMI)

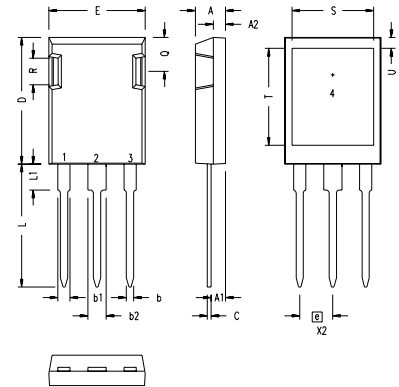
Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
V_{DSS}	$V_{GS} = 0$ V, $I_D = 250$ μA	500		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 4$ mA	2.5		V
I_{GSS}	$V_{GS} = \pm 20$ V _{DC} , $V_{DS} = 0$			± 100 nA
I_{DSS}	$V_{DS} = 0.8 V_{DSS}$ $V_{GS} = 0$ V		$T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$	25 μA 1 mA
$R_{DS(on)}$	$V_{GS} = 10$ V, $I_D = I_T$ Notes 1 & 2		26N50Q 24N50Q	0.20 Ω 0.23 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 1		14	24	S
C_{iss}	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$			3900	pF
C_{oss}				500	pF
C_{rss}				130	pF
$t_{d(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 V_{DSS}, I_D = I_T$ $R_G = 1\ \Omega$ (External),			28	ns
t_r				30	ns
$t_{d(off)}$				55	ns
t_f				16	ns
$Q_{g(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 V_{DSS}, I_D = I_T$			95	nC
Q_{gs}				27	nC
Q_{gd}				40	nC
R_{thJC}				0.50	K/W
R_{thCK}			0.15		K/W

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)	Characteristic Values		
			min.	typ.	max.
I_S	$V_{GS} = 0\text{ V}$			26	A
I_{SM}	Repetitive; pulse width limited by T_{JM}			104	A
V_{SD}	$I_F = I_S, V_{GS} = 0\text{ V}$, Note 1			1.3	V
t_{rr}	$I_F = I_S, -di/dt = 100\text{ A}/\mu\text{s}$ $V_R = 100\text{ V}$	$T_J = 25^\circ\text{C}$		250	ns
Q_{RM}		$T_J = 25^\circ\text{C}$	0.85	1.5	μC
I_{RM}		$T_J = 25^\circ\text{C}$	8		A

- Note: 1. Pulse test, $t \leq 300\ \mu\text{s}$, duty cycle $d \leq 2\%$
 2. I_T test current: IXFR26N50Q $I_T = 13\text{ A}$
 IXFR24N50Q $I_T = 12\text{ A}$
 3. See IXFH26N50Q data sheet for characteristic curves.

ISOPLUS 247 OUTLINE



SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.190	.205	4.83	5.21
A1	.090	.100	2.29	2.54
A2	.075	.085	1.91	2.16
b	.045	.055	1.14	1.40
b1	.075	.084	1.91	2.13
b2	.115	.123	2.92	3.12
C	.024	.031	0.61	0.80
D	.819	.840	20.80	21.34
E	.620	.635	15.75	16.13
e	.215 BSC		5.45 BSC	
L	.780	.800	19.81	20.32
L1	.150	.170	3.81	4.32
Q	.220	.244	5.59	6.20
R	.170	.190	4.32	4.83
S	.520	.540	13.21	13.72
T	.620	.640	15.75	16.26
U	.065	.080	1.65	2.03

- 1 - GATE
- 2 - DRAIN (COLLECTOR)
- 3 - SOURCE (EMITTER)
- 4 - NO CONNECTION

NOTE: This drawing will meet all dimensions requirement of JEDEC outline TO-247AD except screw hole.