IXYS

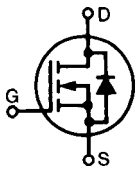
HiPerFET™ Power MOSFETs ISOPLUS247™

(Electrically Isolated Back Surface)

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

	V_{DSS}	I_{D25}	$R_{DS(on)}$
IXFR 26N50Q	500 V	24 A	0.20 Ω
IXFR 24N50Q	500 V	22 A	0.23 Ω

$t_{rr} \leq 250$ ns



Symbol	Test Conditions		Maximum Ratings	
V_{DSS}	T_J = 25°C to 150°C		500	V
V_{DGR}	T_J = 25°C to 150°C; R_{GS} = 1 MΩ		500	V
V_{GS}	Continuous		±20	V
V_{GSM}	Transient		±30	V
I_{D25}	T_C = 25°C	26N50Q	24	A
		24N50Q	22	A
I_{DM}	T_C = 25°C, Pulse width limited by T_{JM}	26N50Q	104	A
		24N50Q	96	A
I_{AR}	T_C = 25°C	26N50Q	26	A
		24N50Q	24	A
E_{AR}	T_C = 25°C		30	mJ
E_{AS}	T_C = 25°C		1.5	J
dv/dt	$I_S \leq I_{DM}$, di/dt ≤ 100 A/µs, $V_{DD} \leq V_{DSS}$ $T_J \leq 150$°C, R_G = 2 Ω		5	V/ns
P_D	T_C = 25°C		250	W
T_J			-55 ... +150	°C
T_{JM}			150	°C
T_{stg}			-55 ... +150	°C
T_L	1.6 mm (0.062 in.) from case for 10 s		300	°C
V_{ISOL}	50/60 Hz, RMS t = 1 minute leads-to-tab		2500	V~
Weight			5	g

Symbol	Test Conditions		Characteristic Values (T_J = 25°C, unless otherwise specified) min.	typ.	max.	
V_{DSS}	V_{GS} = 0 V, I_D = 250uA		500			V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, I_D = 4mA		2.5		4.5	V
I_{GSS}	V_{GS} = ±20 V_{DC}, V_{DS} = 0				±100	nA
I_{DSS}	V_{DS} = 0.8 V_{DSS}	T_J = 25°C			25	µA
	V_{GS} = 0 V	T_J = 125°C			1	mA
$R_{DS(on)}$	V_{GS} = 10 V, $I_D = I_T$ Notes 1 & 2	26N50Q			0.20	Ω
		24N50Q			0.23	Ω

ISOPLUS 247™
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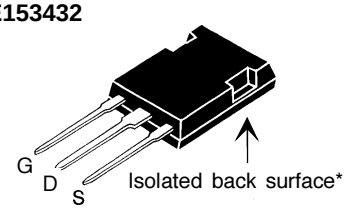


G = Gate D = Drain
S = Source

* 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)

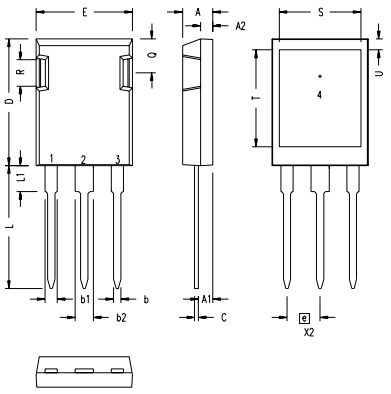
Symbol	Test Conditions (T_J = 25°C, unless otherwise specified)		Characteristic Values min.	typ.	max.	
g_{fs}	V_{DS} = 15 V; $I_D = I_T$	Note 1	14	24		S
C_{iss}	V_{GS} = 0 V, V_{DS} = 25 V, f = 1 MHz			3900		pF
C_{oss}				500		pF
C_{rss}				130		pF
$t_{d(on)}$	V_{GS} = 10 V, V_{DS} = 0.5 V_{DSS}, $I_D = I_T$; R_G = 1 Ω (External),			28		ns
t_r				30		ns
$t_{d(off)}$				55		ns
t_f				16		ns
$Q_{g(on)}$	V_{GS} = 10 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

Source-Drain Diode

Symbol	Test Conditions (T_J = 25°C, unless otherwise specified)		Characteristic Values 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				1.3	V
t_{rr}	$I_F = I_S$, -di/dt = 100 A/µs, V_R = 100 V	T_J = 25°C			250	ns
Q_{RM}		T_J = 25°C		0.85	1.5	µC
I_{RM}		T_J = 25°C		8		A

Note: 1. Pulse test, t ≤ 300 µs, duty cycle d ≤ 2 %
2. I_T test current: IXFR26N50Q I_T = 13A
IXFR24N50Q I_T = 12A
3. See IXFH26N50Q data sheet for characteristic curves.

ISOPLUS 247 OUTLINE



SYM	INCHES MIN	INCHES MAX	MILLIMETERS MIN	MILLIMETERS 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.