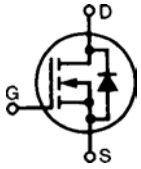
IXYS

MegaMOS™FET

N-Channel Enhancement Mode

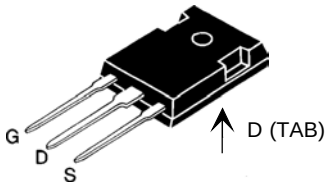
IXTH 30N50

V_{DSS} = 500 V
$I_{D (cont)}$ = 30 A
$R_{DS(on)}$ = 0.17 Ω



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	30	A
I_{DM}	T_C = 25°C, pulse width limited by T_{JM}	120	A
P_D	T_C = 25°C	360	W
T_J		-55 ... +150	°C
T_{JM}		150	°C
T_{stg}		-55 ... +150	°C
T_L	1.6 mm (0.063 in) from case for 10 s	300	°C
M_d	Mounting torque	1.13/10	Nm/lb.in.
Weight		6	g

TO-247 AD



G = Gate, D = Drain,
S = Source, TAB = Drain

Features

- International standard package JEDEC TO-247 AD
- Low $R_{DS (on)}$ HDMOS™ process
- Rugged polysilicon gate cell structure
- Fast switching times

Symbol	Test Conditions	Characteristic Values (T_J = 25°C, unless otherwise specified) min.	typ.	max.	
V_{DSS}	V_{GS} = 0 V, I_D = 5 mA	500			V
	BV_{DSS} temperature coefficient		.087		%/k
$V_{GS(th)}$	$V_{DS} = V_{GS}$, I_D = 250 µA	2		4	V
	$V_{GS(th)}$ temperature coefficient		-0.25		%/k
I_{GSS}	V_{GS} = ±20 V_{DC}, V_{DS} = 0			±100	nA
I_{DSS}	V_{DS} = 0.8 • V_{DSS} T_J = 25°C			200	µA
	V_{GS} = 0 V T_J = 125°C			3	mA
$R_{DS(on)}$	V_{GS} = 10 V, I_D = 0.5 • I_{D25} 30N50			0.17	Ω
	Pulse test, t ≤ 300 µs, duty cycle d ≤ 2 %				

Applications

- Switch-mode and resonant-mode power supplies
- Motor controls
- Uninterruptible Power Supplies (UPS)
- DC choppers

Advantages

- Easy to mount with 1 screw (TO-247) (isolated mounting screw hole)
- Space savings
- High power density

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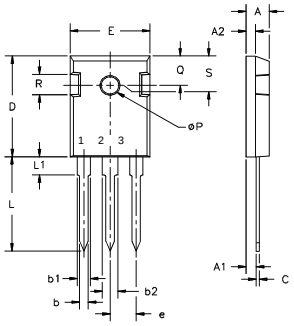
Symbol	Test Conditions (T_J = 25°C, unless otherwise specified)	Characteristic Values min.	typ.	max.	
g_{fs}	V_{DS} = 10 V; I_D = 0.5 • I_{D25}, pulse test	18	28		S
C_{iss}	V_{GS} = 0 V, V_{DS} = 25 V, f = 1 MHz		5680		pF
C_{oss}			635		pF
C_{rss}			240		pF
$t_{d(on)}$	V_{GS} = 10 V, V_{DS} = 0.5 • V_{DSS}, I_D = 0.5 I_{D25} R_G = 1 Ω, (External)		35		ns
t_r			42		ns
$t_{d(off)}$			110		ns
t_f			26		ns
$Q_{g(on)}$	V_{GS} = 10 V, V_{DS} = 0.5 • V_{DSS}, I_D = 0.5 I_{D25}		227		nC
Q_{gs}			29		nC
Q_{gd}			110		nC
R_{thJC}				0.35	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			30	A
I_{SM}	Repetitive; pulse width limited by T_{JM}			120	A
V_{SD}	$I_F = I_S$, V_{GS} = 0 V, Pulse test, t ≤ 300 µs, duty cycle d ≤ 2 %			1.5	V
t_{rr}	$I_F = I_S$, -di/dt = 100 A/µs, V_R = 100 V		850		ns

TO-247 AD Outline



Terminals: 1 - Gate 2 - Drain
3 - Source Tab - Drain

Dim.	Millimeter Min.	Max.	Inches Min.	Max.
A	4.7	5.3	.185	.209
A_1	2.2	2.54	.087	.102
A_2	2.2	2.6	.059	.098
b	1.0	1.4	.040	.055
b_1	1.65	2.13	.065	.084
b_2	2.87	3.12	.113	.123
C	.4	.8	.016	.031
D	20.80	21.46	.819	.845
E	15.75	16.26	.610	.640
e	5.20	5.72	0.205	0.225
L	19.81	20.32	.780	.800
L1		4.50		.177
∅P	3.55	3.65	.140	.144
Q	5.89	6.40	0.232	0.252
R	4.32	5.49	.170	.216
S	6.15 BSC		242 BSC	

IXYS reserves the right to change limits, test conditions, and dimensions.

IXYS MOSFETs and IGBTs are covered by one or more of the following U.S. patents: 4,835,592 4,881,106 5,017,508 5,049,961 5,187,117 5,486,715 6,306,728B1 4,850,072 4,931,844 5,034,796 5,063,307 5,237,481 5,381,025