

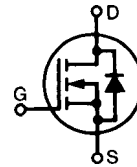
MegaMOS™FET

N-Channel Enhancement Mode

IXTH 30N45

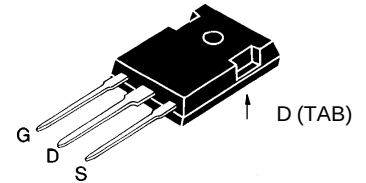
IXTH 30N50

V_{DSS}	I_{D25}	$R_{DS(on)}$
450 V	30 A	0.16 Ω
500 V	30 A	0.17 Ω

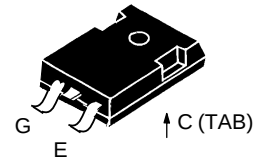


Symbol	Test Conditions	Maximum Ratings		
V_{DSS}	$T_J = 25^\circ\text{C}$ to 150°C	30N45	450	V
		30N50	500	V
V_{DGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GS} = 1\text{ M}\Omega$	30N45	450	V
		30N50	500	V
V_{GS}	Continuous		± 20	V
V_{GSM}	Transient		± 30	V
I_{D25}	$T_C = 25^\circ\text{C}$		30	A
I_{DM}	$T_C = 25^\circ\text{C}$, pulse width limited by T_{JM}		120	A
P_D	$T_C = 25^\circ\text{C}$		360	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	$^\circ\text{C}$
M_d	Mounting torque		1.13/10	Nm/lb.in.
Weight			6	g

TO-247 AD



TO-247 SMD
(...S)



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

*Add suffix letter "S" for TO-247 SMD package option (EX:IXTH30N50S)

Features

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

Applications

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

Advantages

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

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
V_{DSS}	$V_{GS} = 0\text{ V}$, $I_D = 5\text{ mA}$	30N50 500		V
		30N45 450		V
	BV_{DSS} temperature coefficient		.087	%/k
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 250\mu\text{A}$	2		V
	$V_{GS(th)}$ temperature coefficient		-0.25	%/k
I_{GSS}	$V_{GS} = \pm 20\text{ V}_{DC}$, $V_{DS} = 0$			$\pm 100\text{ nA}$
I_{DSS}	$V_{DS} = 0.8 \cdot V_{DSS}$, $V_{GS} = 0\text{ V}$	$T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$		200 μA 3 mA
$R_{DS(on)}$	$V_{GS} = 10\text{ V}$, $I_D = 0.5 I_{D25}$	30N50 30N45		0.17 Ω 0.16 Ω
	Pulse test, $t \leq 300\text{ }\mu\text{s}$, duty cycle $d \leq 2\%$			

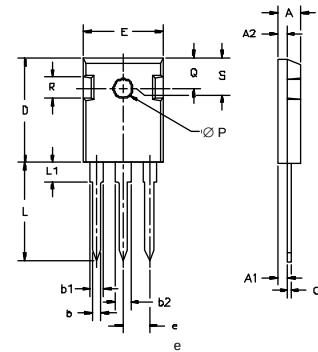
Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
g_{fs}	$V_{DS} = 10\text{ V}; I_D = 0.5 \cdot I_{D25}$, pulse test	18	28	S
C_{iss} C_{oss} C_{rss}	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$		5680	pF
			635	pF
			240	pF
$t_{d(on)}$ t_r $t_{d(off)}$ t_f	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 0.5 I_{D25}$ $R_G = 1\ \Omega$, (External)		35	ns
			42	ns
			110	ns
			26	ns
$Q_{g(on)}$ Q_{gs} Q_{gd}	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 0.5 I_{D25}$		227	nC
			29	nC
			110	nC
R_{thJC} R_{thCK}		0.15	0.35	K/W K/W

Source-Drain Diode

Characteristic Values
($T_J = 25^\circ\text{C}$, unless otherwise specified)

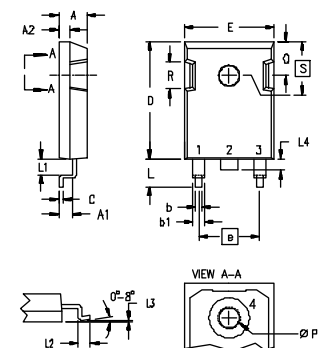
Symbol	Test Conditions	min.	typ.	max.
I_S	$V_{GS} = 0$			30 A
I_{SM}	Repetitive; pulse width limited by T_{JM}			120 A
V_{SD}	$I_F = I_S, V_{GS} = 0\text{ V}$, Pulse test, $t \leq 300\ \mu\text{s}$, duty cycle $d \leq 2\%$			1.5 V
t_{rr}	$I_F = I_S, -di/dt = 100\text{ A}/\mu\text{s}, V_R = 100\text{ V}$		850	ns

TO-247 AD Outline



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
L ₁	4.50	.177
ØP	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

TO-247 SMD Outline



1. Gate
2. Collector
3. Emitter
4. Collector

Dim.	Millimeter Min. Max.	Inches 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
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	4.90 5.10	.193 .201
L ₁	2.70 2.90	.106 .114
L ₂	2.10 2.30	.083 .091
L ₃	0.00 0.10	.00 .004
L ₄	1.90 2.10	.075 .083
ØP	3.55 3.65	.140 .144
Q	5.59 6.20	.220 .244
R	4.32 4.83	.170 .190
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
4,850,072 4,931,844 5,034,796 5,063,307 5,237,481 5,381,025