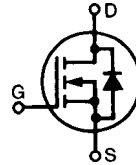


# MegaMOS™ FET

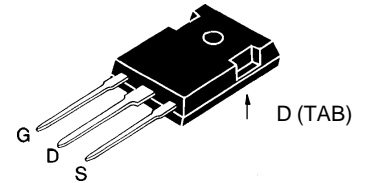
## N-Channel Enhancement Mode

	$V_{DSS}$	$I_{D25}$	$R_{DS(on)}$
<b>IXTH 30N45</b>	450 V	30 A	0.16 $\Omega$
<b>IXTH 30N50</b>	500 V	30 A	0.17 $\Omega$

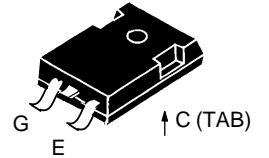


Symbol	Test Conditions	Maximum Ratings		
$V_{DSS}$	$T_J = 25^\circ\text{C}$ to $150^\circ\text{C}$	30N45	450	V
		30N50	500	V
$V_{DGR}$	$T_J = 25^\circ\text{C}$ to $150^\circ\text{C}$ ; $R_{GS} = 1\text{ M}\Omega$	30N45	450	V
		30N50	500	V
$V_{GS}$	Continuous		$\pm 20$	V
$V_{GSM}$	Transient		$\pm 30$	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.
<b>Weight</b>			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)

Symbol	Test Conditions	Characteristic Values		
		$(T_J = 25^\circ\text{C}, \text{ unless otherwise specified})$		
		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
$I_{GSS}$	$V_{GS} = \pm 20\text{ V}_{DC}, V_{DS} = 0$			$\pm 100$ nA
$I_{DSS}$	$V_{DS} = 0.8 \cdot V_{DSS}$	$T_J = 25^\circ\text{C}$		200 $\mu\text{A}$
	$V_{GS} = 0\text{ V}$	$T_J = 125^\circ\text{C}$		3 mA
$R_{DS(on)}$	$V_{GS} = 10\text{ V}, I_D = 0.5 I_{D25}$	30N50		0.17 $\Omega$
		30N45		0.16 $\Omega$
	Pulse test, $t \leq 300\ \mu\text{s}$ , duty cycle $d \leq 2\%$			

### 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

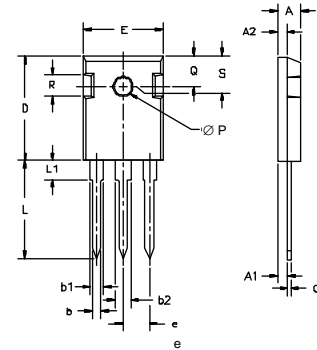
### Advantages

- 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.	
$g_{fs}$	$V_{DS} = 10\text{ V}; I_D = 0.5 \cdot I_{D25}$ , 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

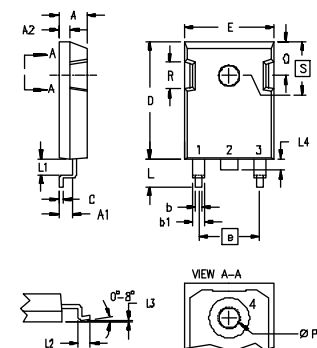
Symbol	Test Conditions	Characteristic Values ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)			
		min.	typ.	max.	
$I_S$	$V_{GS} = 0$			30	A
$I_{SM}$	Repetitive; pulse width limited by $T_{JM}$			120	A
$V_{SD}$	$I_F = I_S, V_{GS} = 0\text{ V}$ , Pulse test, $t \leq 300\ \mu\text{s}$ , duty cycle $d \leq 2\%$			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		Inches	
	Min.	Max.	Min.	Max.
A	4.7	5.3	.185	.209
A <sub>1</sub>	2.2	2.54	.087	.102
A <sub>2</sub>	2.2	2.6	.059	.098
b	1.0	1.4	.040	.055
b <sub>1</sub>	1.65	2.13	.065	.084
b <sub>2</sub>	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

### TO-247 SMD Outline



- Gate
- Collector
- Emitter
- Collector

Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.83	5.21	.190	.205
A1	2.29	2.54	.090	.100
A2	1.91	2.16	.075	.085
b	1.14	1.40	.045	.055
b1	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
L1	2.70	2.90	.106	.114
L2	2.10	2.30	.083	.091
L3	0.00	0.10	.00	.004
L4	1.90	2.10	.075	.083
∅P	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