

IXTH15N70

MegaMOS™ FET

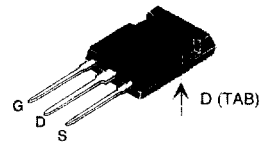
N-Channel Enhancement Mode

$V_{DSS} = 700\text{ V}$
 $I_{D(\text{cont})} = 15\text{ A}$
 $R_{DS(\text{on})} = 0.45\ \Omega$



| Symbol | Test Conditions | Maximum Ratings | |
|---|---|-----------------|------------------|
| V_{DSS} | $T_J = 25^\circ\text{C}$ to 150°C | 700 | V |
| V_{DGR} | $T_J = 25^\circ\text{C}$ to 150°C ; $R_{GS} = 1\text{ M}\Omega$ | 700 | V |
| V_{GS} | Continuous | ± 20 | V |
| V_{GSM} | Transient | ± 30 | V |
| I_{D25} | $T_C = 25^\circ\text{C}$ | 15 | A |
| I_{DM} | $T_C = 25^\circ\text{C}$, pulse width limited by T_{JM} | 60 | A |
| P_D | $T_C = 25^\circ\text{C}$ | 300 | W |
| T_J | | -55 ... +150 | $^\circ\text{C}$ |
| T_{JM} | | 150 | $^\circ\text{C}$ |
| T_{stg} | | -55 ... +150 | $^\circ\text{C}$ |
| M_d | Mounting torque | 1.13/10 | Nm/lb.in. |
| Weight | | 6 | g |
| Maximum lead temperature for soldering 1.6 mm (0.062 in.) from case for 10 s | | 300 | $^\circ\text{C}$ |

TO-247 AD



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

Features

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

Applications

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

Advantages

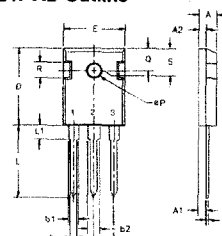
- Easy to mount with 1 screw (isolated mounting screw hole)
- Space savings
- High power density

| Symbol | Test Conditions | Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified) | | |
|---------------------|---|---|------|---------------------------|
| | | min. | typ. | max. |
| V_{DSS} | $V_{GS} = 0\text{ V}$, $I_D = 250\ \mu\text{A}$ | 700 | | V |
| $V_{GS(\text{th})}$ | $V_{DS} = V_{GS}$, $I_D = 250\ \mu\text{A}$ | 2 | | 4.5 V |
| I_{DSS} | $V_{GS} = \pm 20\text{ V}_{DC}$, $V_{DS} = 0$ | | | $\pm 100\text{ nA}$ |
| I_{DSS} | $V_{DS} = 0.8 \cdot V_{DSS}$, $T_J = 25^\circ\text{C}$ $V_{GS} = 0\text{ V}$, $T_J = 125^\circ\text{C}$ | | | 200 μA 1 mA |
| $R_{DS(\text{on})}$ | $V_{GS} = 10\text{ V}$, $I_D = 0.5 \cdot I_{D25}$ Pulse test, $t \leq 300\ \mu\text{s}$, duty cycle $d \leq 2\%$ | | | 0.45 Ω |

| Symbol | Test Conditions | Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified) | | |
|--------------|---|---|------|--------|
| | | min. | typ. | max. |
| g_{fs} | $V_{DS} = 10\text{ V}$; $I_D = 0.5 I_{D25}$, pulse test | 11 | 18 | S |
| C_{iss} | $V_{GS} = 0\text{ V}$, $V_{DS} = 25\text{ V}$, $f = 1\text{ MHz}$ | | 4500 | pF |
| C_{oss} | | | 420 | pF |
| C_{rss} | | | 140 | pF |
| $t_{d(on)}$ | $V_{GS} = 10\text{ V}$, $V_{DS} = 0.5 \cdot V_{DSS}$, $I_D = 0.5 I_{D25}$ $R_G = 2\ \Omega$, (External) | | 20 | 40 ns |
| t_r | | | 43 | 60 ns |
| $t_{d(off)}$ | | | 70 | 90 ns |
| t_f | | | 40 | 60 ns |
| $Q_{g(on)}$ | $V_{GS} = 10\text{ V}$, $V_{DS} = 0.5 \cdot V_{DSS}$, $I_D = 0.5 I_{D25}$ | | 150 | 170 nC |
| Q_{gs} | | | 29 | 40 nC |
| Q_{gd} | | | 60 | 85 nC |
| R_{thJC} | | | 0.42 | K/W |
| R_{thCK} | | 0.25 | | K/W |

| Symbol | Test Conditions | Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified) | | |
|----------|--|---|------|-------|
| | | min. | typ. | max. |
| I_S | $V_{GS} = 0\text{ V}$ | | | 15 A |
| I_{SM} | Repetitive; pulse width limited by T_{JM} | | | 60 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} | $I_F = I_S$, $-di/dt = 100\text{ A}/\mu\text{s}$, $V_R = 100\text{ V}$ | 600 | | ns |

TO-247 AD Outline



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

| Dim. | Millimeter | | Inches | |
|----------------|------------|-------|--------|-------|
| | Min. | Max. | 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 | 5.99 | 6.40 | 0.232 | 0.252 |
| R | 4.32 | 5.49 | .170 | .216 |
| S | 6.15 | BSC | .242 | BSC |

C2