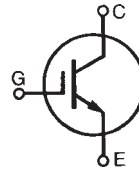


HiPerFAST™ IGBT

IXGH34N60B2

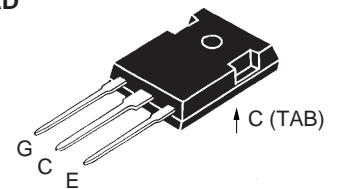
Optimized for 10-25 KHz hard switching and up to 150 KHz resonant switching

$$\begin{aligned}
 V_{CES} &= 600 \text{ V} \\
 I_{C25} &= 70 \text{ A} \\
 V_{CE(sat)} &< 1.55 \text{ V} \\
 t_{fityp} &= 150 \text{ ns}
 \end{aligned}$$



| Symbol | Test Conditions | Maximum Ratings | |
|---|---|-------------------|------------------|
| V_{CES} | $T_J = 25^\circ\text{C}$ to 150°C | 600 | V |
| V_{CGR} | $T_J = 25^\circ\text{C}$ to 150°C ; $R_{GE} = 1 \text{ M}\Omega$ | 600 | V |
| V_{GES} | Continuous | ± 20 | V |
| V_{GEM} | Transient | ± 30 | V |
| I_{C25} | $T_C = 25^\circ\text{C}$ (limited by leads) | 70 | A |
| I_{C110} | $T_C = 110^\circ\text{C}$ | 34 | A |
| I_{CM} | $T_C = 25^\circ\text{C}$, 1 ms | 150 | A |
| SSOA (RBSOA) | $V_{GE} = 15 \text{ V}$, $T_{VJ} = 125^\circ\text{C}$, $R_G = 10 \Omega$ Clamped inductive load @ $\leq 600 \text{ V}$ | $I_{CM} = 60$ | A |
| P_C | $T_C = 25^\circ\text{C}$ | 190 | W |
| T_J | | -55 ... +150 | $^\circ\text{C}$ |
| T_{JM} | | 150 | $^\circ\text{C}$ |
| T_{stg} | | -55 ... +150 | $^\circ\text{C}$ |
| Maximum lead temperature for soldering 1.6 mm (0.062 in.) from case for 10 s | | 300 | $^\circ\text{C}$ |
| M_d | Mounting torque (M3) | 1.13/10 Nm/lb.in. | |
| Weight | TO-247 AD | 6 | g |
| | TO-268 SMD | 4 | g |

TO-247 AD
(IXGH)



G = Gate, C = Collector,
E = Emitter, TAB = Collector

Features

- Medium frequency IGBT
- Square RBSOA
- High current handling capability
- MOS Gate turn-on
- drive simplicity

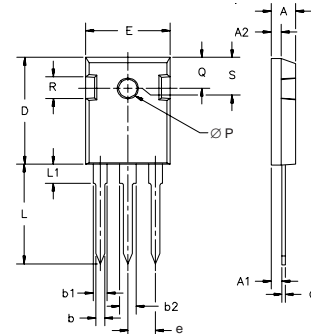
Applications

- PFC circuits
- Uninterruptible power supplies (UPS)
- Switched-mode and resonant-mode power supplies
- AC motor speed control
- DC servo and robot drives
- DC choppers

| Symbol | Test Conditions | Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified) | | |
|---------------|--|---|---|--------------------------|
| | | min. | typ. | max. |
| $V_{GE(th)}$ | $I_C = 250 \mu\text{A}$, $V_{CE} = V_{GE}$ | 2.5 | | 5.0 V |
| I_{CES} | $V_{CE} = V_{CES}$ $V_{GE} = 0 \text{ V}$ | | $T_J = 25^\circ\text{C}$ $T_J = 150^\circ\text{C}$ | 50 μA 1 mA |
| I_{GES} | $V_{CE} = 0 \text{ V}$, $V_{GE} = \pm 20 \text{ V}$ | | | $\pm 100 \text{ nA}$ |
| $V_{CE(sat)}$ | $I_C = 24 \text{ A}$, $V_{GE} = 15 \text{ V}$ | | $T_J = 25^\circ\text{C}$ | 1.55 V |

| Symbol | Test Conditions | Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified) | | |
|--------------|--|---|------|---------|
| | | min. | typ. | max. |
| g_{fs} | $I_C = 24\text{ A}; V_{CE} = 10\text{ V}$, Pulse test, $t \leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$ | 18 | 26 | S |
| C_{ies} | $V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}, f = 1\text{ MHz}$ | | 1500 | pF |
| C_{oes} | | | 115 | pF |
| C_{res} | | | 40 | pF |
| Q_g | $I_C = 24\text{ A}, V_{GE} = 15\text{ V}, V_{CE} = 300\text{ V}$ | | 66 | nC |
| Q_{ge} | | | 9 | nC |
| Q_{gc} | | | 22 | nC |
| $t_{d(on)}$ | Inductive load, $T_J = 25^\circ\text{C}$ $I_C = 24\text{ A}, V_{GE} = 15\text{ V}$ $V_{CE} = 400\text{ V}, R_G = 5\ \Omega$ | | 13 | ns |
| t_{ri} | | | 15 | ns |
| $t_{d(off)}$ | | | 150 | 300 ns |
| t_{fi} | | | 150 | 250 ns |
| E_{off} | | | 0.64 | 1.2 mJ |
| $t_{d(on)}$ | Inductive load, $T_J = 125^\circ\text{C}$ $I_C = 24\text{ A}, V_{GE} = 15\text{ V}$ $V_{CE} = 400\text{ V}, R_G = 5\ \Omega$ | | 13 | ns |
| t_{ri} | | | 17 | ns |
| E_{on} | | | 0.22 | mJ |
| $t_{d(off)}$ | | | 300 | ns |
| t_{fi} | | | 250 | ns |
| E_{off} | | 1.2 | mJ | |
| R_{thJC} | | | | 0.65 KW |
| R_{thCK} | (TO-247) | | 0.25 | KW |

TO-247 AD Outline



| 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 | 5.89 | 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 | 4,931,844 | 5,049,961 | 5,237,481 | 6,162,665 | 6,404,065 B1 | 6,683,344 | 6,727,585 |
| 4,850,072 | 5,017,508 | 5,063,307 | 5,381,025 | 6,259,123 B1 | 6,534,343 | 6,710,405 B2 | 6,759,692 |
| 4,881,106 | 5,034,796 | 5,187,117 | 5,486,715 | 6,306,728 B1 | 6,583,505 | 6,710,463 | 6,771,478 B2 |