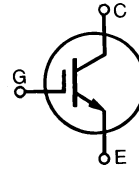


**Low  $V_{CE(sat)}$  IGBT**  
**High speed IGBT**

**IXGH/IXGM 17 N100**  
**IXGH/IXGM 17 N100A**

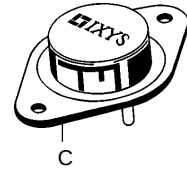
| $V_{CES}$     | $I_{C25}$   | $V_{CE(sat)}$ |
|---------------|-------------|---------------|
| <b>1000 V</b> | <b>34 A</b> | <b>3.5 V</b>  |
| <b>1000 V</b> | <b>34 A</b> | <b>4.0 V</b>  |



| Symbol                                                                          | Test Conditions                                                                                                              | Maximum Ratings                   |                  |
|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|------------------|
| $V_{CES}$                                                                       | $T_J = 25^\circ\text{C}$ to $150^\circ\text{C}$                                                                              | 1000                              | V                |
| $V_{CGR}$                                                                       | $T_J = 25^\circ\text{C}$ to $150^\circ\text{C}$ ; $R_{GE} = 1\text{ M}\Omega$                                                | 1000                              | V                |
| $V_{GES}$                                                                       | Continuous                                                                                                                   | $\pm 20$                          | V                |
| $V_{GEM}$                                                                       | Transient                                                                                                                    | $\pm 30$                          | V                |
| $I_{C25}$                                                                       | $T_C = 25^\circ\text{C}$                                                                                                     | 34                                | A                |
| $I_{C90}$                                                                       | $T_C = 90^\circ\text{C}$                                                                                                     | 17                                | A                |
| $I_{CM}$                                                                        | $T_C = 25^\circ\text{C}$ , 1 ms                                                                                              | 68                                | A                |
| <b>SSOA (RBSOA)</b>                                                             | $V_{GE} = 15\text{ V}$ , $T_{VJ} = 125^\circ\text{C}$ , $R_G = 82\ \Omega$<br>Clamped inductive load, $L = 300\ \mu\text{H}$ | $I_{CM} = 34$<br>@ $0.8\ V_{CES}$ | A                |
| $P_C$                                                                           | $T_C = 25^\circ\text{C}$                                                                                                     | 150                               | W                |
| $T_J$                                                                           |                                                                                                                              | $-55 \dots +150$                  | $^\circ\text{C}$ |
| $T_{JM}$                                                                        |                                                                                                                              | 150                               | $^\circ\text{C}$ |
| $T_{stg}$                                                                       |                                                                                                                              | $-55 \dots +150$                  | $^\circ\text{C}$ |
| $M_d$                                                                           | Mounting torque (M3)                                                                                                         | 1.13/10                           | Nm/lb.in.        |
| <b>Weight</b>                                                                   |                                                                                                                              | TO-204 = 18 g, TO-247 = 6 g       |                  |
| Maximum lead temperature for soldering<br>1.6 mm (0.062 in.) from case for 10 s |                                                                                                                              | 300                               | $^\circ\text{C}$ |

**TO-247 AD (IXGH)**

**TO-204 AE (IXGM)**



G = Gate,  
E = Emitter,

C = Collector,  
TAB = Collector

**Features**

- International standard packages
- 2nd generation HDMOS™ process
- Low  $V_{CE(sat)}$ 
  - for low on-state conduction losses
- High current handling capability
- MOS Gate turn-on
  - drive simplicity
- Voltage rating guaranteed at high temperature ( $125^\circ\text{C}$ )

**Applications**

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

**Advantages**

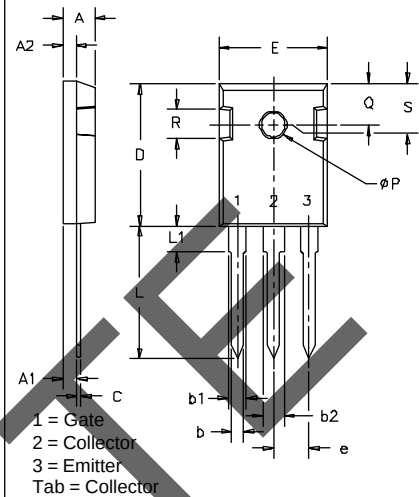
- Easy to mount with 1 screw (TO-247) (isolated mounting screw hole)
- High power density

| Symbol        | Test Conditions                                       | Characteristic Values<br>( $T_J = 25^\circ\text{C}$ , unless otherwise specified) |      |                           |
|---------------|-------------------------------------------------------|-----------------------------------------------------------------------------------|------|---------------------------|
|               |                                                       | min.                                                                              | typ. | max.                      |
| $BV_{CES}$    | $I_C = 3\text{ mA}$ , $V_{GE} = 0\text{ V}$           | 1000                                                                              |      | V                         |
| $V_{GE(th)}$  | $I_C = 250\ \mu\text{A}$ , $V_{CE} = V_{GE}$          | 2.5                                                                               |      | 5 V                       |
| $I_{CES}$     | $V_{CE} = 0.8 \cdot V_{CES}$<br>$V_{GE} = 0\text{ V}$ |                                                                                   |      | 250 $\mu\text{A}$<br>1 mA |
| $I_{GES}$     | $V_{CE} = 0\text{ V}$ , $V_{GE} = \pm 20\text{ V}$    |                                                                                   |      | $\pm 100\text{ nA}$       |
| $V_{CE(sat)}$ | $I_C = I_{C90}$ , $V_{GE} = 15\text{ V}$              |                                                                                   |      | 3.5 V<br>4.0 V            |
|               |                                                       |                                                                                   |      | 17N100<br>17N100A         |

| Symbol       | Test Conditions                                                                                                                                                                                                                                                                                                                            | Characteristic Values<br>( $T_J = 25^\circ\text{C}$ , unless otherwise specified) |      |          |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|----------|
|              |                                                                                                                                                                                                                                                                                                                                            | min.                                                                              | typ. | max.     |
| $g_{fs}$     | $I_C = I_{C90}$ ; $V_{CE} = 10\text{ V}$ ,<br>Pulse test, $t \leq 300\text{ }\mu\text{s}$ , duty cycle $\leq 2\%$                                                                                                                                                                                                                          | 6                                                                                 | 15   | S        |
| $C_{ies}$    | $V_{CE} = 25\text{ V}$ , $V_{GE} = 0\text{ V}$ , $f = 1\text{ MHz}$                                                                                                                                                                                                                                                                        |                                                                                   | 1500 | pF       |
| $C_{oes}$    |                                                                                                                                                                                                                                                                                                                                            |                                                                                   | 175  | pF       |
| $C_{res}$    |                                                                                                                                                                                                                                                                                                                                            |                                                                                   | 40   | pF       |
| $Q_g$        | $I_C = I_{C90}$ ; $V_{GE} = 15\text{ V}$ , $V_{CE} = 0.5 V_{CES}$                                                                                                                                                                                                                                                                          |                                                                                   | 100  | nC       |
| $Q_{ge}$     |                                                                                                                                                                                                                                                                                                                                            |                                                                                   | 20   | nC       |
| $Q_{gc}$     |                                                                                                                                                                                                                                                                                                                                            |                                                                                   | 60   | nC       |
| $t_{d(on)}$  | <b>Inductive load, <math>T_J = 25^\circ\text{C}</math></b><br>$I_C = I_{C90}$ , $V_{GE} = 15\text{ V}$ , $L = 300\text{ }\mu\text{H}$ ,<br>$V_{CE} = 0.8 V_{CES}$ , $R_G = R_{off} = 82\text{ }\Omega$<br>Remarks: Switching times<br>may increase<br>for $V_{CE}(\text{Clamp}) > 0.8 \cdot V_{CES}$ ,<br>higher $T_J$ or increased $R_G$  |                                                                                   | 100  | ns       |
| $t_{ri}$     |                                                                                                                                                                                                                                                                                                                                            |                                                                                   | 200  | ns       |
| $t_{d(off)}$ |                                                                                                                                                                                                                                                                                                                                            |                                                                                   | 500  | ns       |
| $t_{fi}$     |                                                                                                                                                                                                                                                                                                                                            | 17N100                                                                            | 750  | ns       |
|              |                                                                                                                                                                                                                                                                                                                                            | 17N100A                                                                           | 450  | ns       |
| $E_{off}$    |                                                                                                                                                                                                                                                                                                                                            | 17N100A                                                                           | 3    | mJ       |
| $t_{d(on)}$  | <b>Inductive load, <math>T_J = 125^\circ\text{C}</math></b><br>$I_C = I_{C90}$ , $V_{GE} = 15\text{ V}$ , $L = 300\text{ }\mu\text{H}$ ,<br>$V_{CE} = 0.8 V_{CES}$ , $R_G = R_{off} = 82\text{ }\Omega$<br>Remarks: Switching times<br>may increase<br>for $V_{CE}(\text{Clamp}) > 0.8 \cdot V_{CES}$ ,<br>higher $T_J$ or increased $R_G$ |                                                                                   | 100  | ns       |
| $t_{ri}$     |                                                                                                                                                                                                                                                                                                                                            |                                                                                   | 200  | ns       |
| $E_{on}$     |                                                                                                                                                                                                                                                                                                                                            |                                                                                   | 2.5  | mJ       |
| $t_{d(off)}$ |                                                                                                                                                                                                                                                                                                                                            |                                                                                   | 700  | ns       |
| $t_{fi}$     |                                                                                                                                                                                                                                                                                                                                            | 17N100                                                                            | 1200 | ns       |
|              |                                                                                                                                                                                                                                                                                                                                            | 17N100A                                                                           | 750  | ns       |
| $E_{off}$    |                                                                                                                                                                                                                                                                                                                                            | 17N100                                                                            | 8    | mJ       |
|              |                                                                                                                                                                                                                                                                                                                                            | 17N100A                                                                           | 6    | mJ       |
| $R_{thJC}$   |                                                                                                                                                                                                                                                                                                                                            |                                                                                   |      | 0.83 K/W |
| $R_{thCK}$   |                                                                                                                                                                                                                                                                                                                                            |                                                                                   | 0.25 | K/W      |

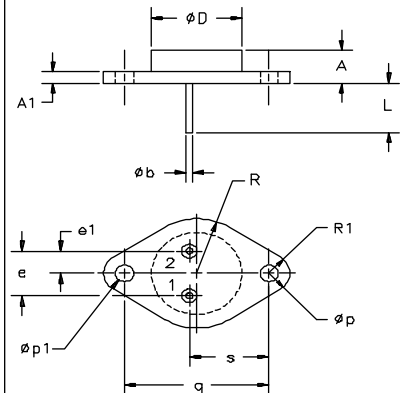
IXGH 17N100 and IXGH 17N100 A characteristic curves are located on the IXGH 17N100U1 and IXGH 17N100AU1 data sheets.

TO-247 AD Outline



| SYM | INCHES   |      | MILLIMETERS |       |
|-----|----------|------|-------------|-------|
|     | MIN      | MAX  | MIN         | MAX   |
| A   | .185     | .209 | 4.7         | 5.3   |
| A1  | .087     | .102 | 2.2         | 2.54  |
| A2  | .059     | .098 | 2.2         | 2.6   |
| b   | .040     | .055 | 1.0         | 1.4   |
| b1  | .065     | .084 | 1.65        | 2.13  |
| b2  | .113     | .123 | 2.87        | 3.12  |
| C   | .016     | .031 | .4          | .8    |
| D   | .819     | .845 | 20.80       | 21.46 |
| E   | .610     | .640 | 15.75       | 16.26 |
| e   | .215 BSC |      | 5.45 BSC    |       |
| L   | .780     | .800 | 19.81       | 20.32 |
| L1  |          | .177 |             | 4.50  |
| ØP  | .140     | .144 | 3.55        | 3.65  |
| Q   | .212     | .244 | 5.4         | 6.2   |
| R   | .170     | .216 | 4.32        | 5.49  |
| S   | .242 BSC |      | 6.15 BSC    |       |

TO-204AE Outline



| SYM | INCHES    |      | MILLIMETERS |       |
|-----|-----------|------|-------------|-------|
|     | MIN       | MAX  | MIN         | MAX   |
| A   | .250      | .450 | 6.4         | 11.4  |
| A1  | .060      | .135 | 1.53        | 3.42  |
| Øb  | .057      | .063 | 1.45        | 1.60  |
| ØD  | .875      |      | 22.22       |       |
| e   | .420      | .440 | 10.67       | 11.17 |
| e1  | .205      | .225 | 5.21        | 5.71  |
| L   | .440      | .480 | 11.18       | 12.19 |
| Øp  | .151      | .165 | 3.84        | 4.19  |
| Øp1 | .151      | .165 | 3.84        | 4.19  |
| q   | 1.187 BSC |      | 30.15 BSC   |       |
| R   | .495      | .525 | 12.58       | 13.33 |
| R1  | .131      | .188 | 3.33        | 4.77  |
| s   | .655      | .675 | 16.64       | 17.14 |

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



---

Disclaimer Notice - Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at [www.littelfuse.com/disclaimer-electronics](http://www.littelfuse.com/disclaimer-electronics).