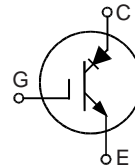


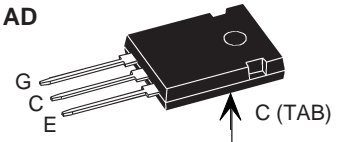
IGBT with Reverse Blocking capability

IXRH 50N80
IXRH 50N60

$V_{CES} = 600 / 800V$
 $I_{C25} = 60 A$
 $V_{CE(sat)} = 2.5 V$
 $t_f = 75 ns$



TO-247 AD



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

| IGBT | | | |
|-----------|---|-----------------|-------------|
| Symbol | Conditions | Maximum Ratings | |
| V_{CES} | $T_{VJ} = 25^{\circ}C$ to $150^{\circ}C$ | IXRH 50N80 | ± 800 V |
| | | IXRH 50N60 | ± 600 V |
| V_{GES} | | | ± 20 V |
| I_{C25} | $T_C = 25^{\circ}C$ | | 60 A |
| I_{C90} | $T_C = 90^{\circ}C$ | | 40 A |
| I_{CM} | $V_{GE} = 0/15 V$; $R_G = 22 \Omega$; $T_{VJ} = 125^{\circ}C$ | | 80 A |
| V_{CEK} | RBSOA, Clamped inductive load; $L = 100 \mu H$ | | 500 V |
| P_{tot} | $T_C = 25^{\circ}C$ | | 300 W |

Features

- IGBT with NPT (non punch through) structure
- reverse blocking capability independent from gate voltage
 - function of series diode monolithically integrated
 - no external series diode required
 - soft reverse recovery
- positive temperature coefficient of saturation voltage
 - optimum current distribution when paralleled
- Epoxy of TO 247 package meets UL 94V-0

Applications

converters requiring reverse blocking capability:

- current source inverters
- matrix converters
- bi-directional switches
- resonant converters
- induction heating
- auxiliary switches for soft switching in the main current path

| Symbol | Conditions | Characteristic Values ($T_{VJ} = 25^{\circ}C$, unless otherwise specified) | | | |
|--|---|--|--------------------------------------|----------------------------------|----------|
| | | min. | typ. | max. | |
| $V_{CE(sat)}$ | $I_C = 40 A$; $V_{GE} = 15 V$; $T_{VJ} = 25^{\circ}C$ $T_{VJ} = 125^{\circ}C$ | | 2.5 3.0 | 3.1 V V | |
| $V_{GE(th)}$ | $I_C = 2 mA$; $V_{GE} = V_{CE}$ | 4 | | 8 V | |
| I_{CES} | $V_{CE} = 0.8 V_{CES}$; $V_{GE} = 0 V$; $T_{VJ} = 25^{\circ}C$ $T_{VJ} = 125^{\circ}C$ | | 3.0 | 0.4 mA mA | |
| I_{GES} | $V_{CE} = 0 V$; $V_{GE} = \pm 20 V$ | | | 500 nA | |
| $t_{d(on)}$ t_r $t_{d(off)}$ t_f E_{on} E_{off} | Inductive load, $T_{VJ} = 125^{\circ}C$ $V_{CE} = 500 V$; $I_C = 40 A$ $V_{GE} = 0/15 V$; $R_G = 22 \Omega$ | | 80 100 380 75 3.6 2.1 | ns ns ns ns mJ mJ | |
| C_{ies} | | $V_{CE} = 25 V$; $V_{GE} = 0 V$; $f = 1 MHz$ | | 4 | nF |
| Q_{Gon} | | $V_{CE} = 500V$; $V_{GE} = 15 V$; $I_C = 40 A$ | | 150 | nC |
| I_{RM} t_{rr} | | $I_F = 40 A$; $di_c/dt = -400 A/\mu s$; $T_{VJ} = 125^{\circ}C$ $V_{CE} = -500 V$; $V_{GE} = 15 V$ | | 58 840 | A ns |
| R_{thJC} | | | | | 0.42 K/W |

IXYS reserves the right to change limits, test conditions and dimensions.

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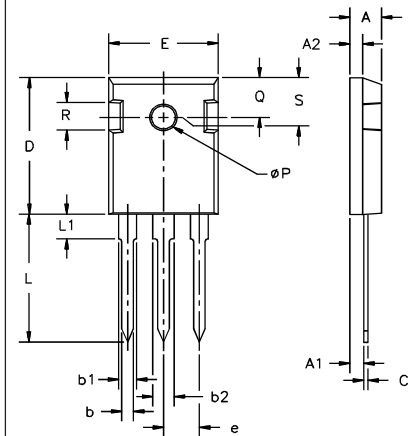
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Component

| Symbol | Conditions | Maximum Ratings | |
|-----------|--------------------------|-----------------|----|
| T_{VJ} | | -55...+150 | °C |
| T_{stg} | | -55...+125 | °C |
| M_d | mounting torque | 0.8 - 1.2 | Nm |
| F_C | mounting force with clip | 20...120 | N |

| Symbol | Conditions | Characteristic Values | | |
|---------------|------------------------|-----------------------|------|------|
| | | min. | typ. | max. |
| R_{thCH} | with heatsink compound | | 0.25 | K/W |
| Weight | | | 6 | g |

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 |
| 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 |