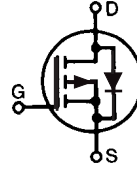


PolarP™ Power MOSFET
IXTC36P15P
IXTR36P15P
(Electrically Isolated Tab)

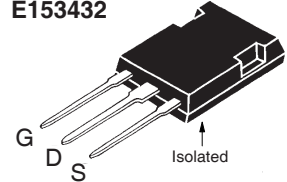
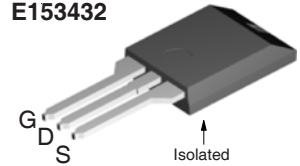
 P-Channel Enhancement Mode
 Avalanche Rated


$$V_{DSS} = -150V$$

$$I_{D25} = -22A$$

$$R_{DS(on)} \leq 120m\Omega$$

| Symbol | Test Conditions | Maximum Ratings | |
|---------------|--------------------------------------------------------------------|-------------------|------------|
| V_{DSS} | $T_J = 25^\circ C$ to $175^\circ C$ | -150 | V |
| V_{DGR} | $T_J = 25^\circ C$ to $175^\circ C$, $R_{GS} = 1M\Omega$ | -150 | V |
| V_{GSS} | Continuous | ± 20 | V |
| V_{GSM} | Transient | ± 30 | V |
| I_{D25} | $T_C = 25^\circ C$ | -22 | A |
| I_{DM} | $T_C = 25^\circ C$, Pulse Width Limited by T_{JM} | -100 | A |
| I_A | $T_C = 25^\circ C$ | -36 | A |
| E_{AS} | $T_C = 25^\circ C$ | 1.5 | J |
| dv/dt | $I_S \leq I_{DM}$, $V_{DD} \leq V_{DSS}$, $T_J \leq 175^\circ C$ | 10 | V/ns |
| P_D | $T_C = 25^\circ C$ | 150 | W |
| T_J | | -55 ... +175 | $^\circ C$ |
| T_{JM} | | 175 | $^\circ C$ |
| T_{stg} | | -55 ... +175 | $^\circ C$ |
| T_L | 1.6mm (0.062 in.) from Case for 10s | 300 | $^\circ C$ |
| T_{SOLD} | Plastic Body for 10s | 260 | $^\circ C$ |
| V_{ISOL} | 50/60 Hz, RMS, $t = 1$ minute | 2500 | V~ |
| F_C | Mounting Force (ISOPLUS220) | 11..65 / 25..14.6 | N/lb |
| F_C | Mounting Force (ISOPLUS247) | 20..120 / 4.5..27 | N/lb |
| Weight | ISOPLUS220 | 2 | g |
| | ISOPLUS247 | 5 | g |

ISOPLUS247 (IXTR)
 E153432

ISOPLUS220 (IXTC)
 E153432

 G = Gate D = Drain
 S = Source

Features

- Silicon Chip on Direct-Copper Bond (DCB) Substrate
- Isolated Mounting Surface
- 2500V~ Electrical Isolation
- Avalanche Rated
- Extended FBSOA
- Fast Intrinsic Diode
- Low $R_{DS(ON)}$ and Q_G

Advantages

- Easy to Mount
- Space Savings
- High Power Density

Applications

- High-Side Switching
- Push Pull Amplifiers
- DC Choppers
- Automatic Test Equipment
- Current Regulators
- Battery Charger Applications

| Symbol | Test Conditions ($T_J = 25^\circ C$, Unless Otherwise Specified) | Characteristic Values | | |
|--------------|-----------------------------------------------------------------------|-----------------------|------|----------------|
| | | Min. | Typ. | Max. |
| BV_{DSS} | $V_{GS} = 0V$, $I_D = -250\mu A$ | -150 | | V |
| $V_{GS(th)}$ | $V_{DS} = V_{GS}$, $I_D = -250\mu A$ | -3.0 | | -5.0 V |
| I_{GSS} | $V_{GS} = \pm 20V$, $V_{DS} = 0V$ | | | ± 100 nA |
| I_{DSS} | $V_{DS} = V_{DSS}$, $V_{GS} = 0V$ $T_J = 150^\circ C$ | | | -10 μA |
| | | | | -250 μA |
| $R_{DS(on)}$ | $V_{GS} = -10V$, $I_D = -18A$, Note 1 | | | 120 m Ω |

| Symbol | Test Conditions ($T_J = 25^\circ\text{C}$, Unless Otherwise Specified) | Characteristic Values | | |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|------|-------------------------|
| | | Min. | Typ. | Max. |
| g_{fs} | $V_{DS} = -10\text{V}$, $I_D = -18\text{A}$, Note 1 | 11 | 19 | S |
| C_{iss} | $V_{GS} = 0\text{V}$, $V_{DS} = -25\text{V}$, $f = 1\text{MHz}$ | | 2950 | pF |
| C_{oss} | | | 615 | pF |
| C_{rss} | | | 115 | pF |
| $t_{d(on)}$ | Resistive Switching Times $V_{GS} = -10\text{V}$, $V_{DS} = 0.5 \cdot V_{DSS}$, $I_D = -18\text{A}$ $R_G = 5\Omega$ (External) | | 28 | ns |
| t_r | | | 37 | ns |
| $t_{d(off)}$ | | | 45 | ns |
| t_f | | | 14 | ns |
| $Q_{g(on)}$ | $V_{GS} = -10\text{V}$, $V_{DS} = 0.5 \cdot V_{DSS}$, $I_D = -18\text{A}$ | | 55 | nC |
| Q_{gs} | | | 21 | nC |
| Q_{gd} | | | 20 | nC |
| R_{thJC} | | | | 1.00 $^\circ\text{C/W}$ |
| R_{thCS} | | 0.15 | | $^\circ\text{C/W}$ |

Source-Drain Diode

| Symbol | Test Conditions ($T_J = 25^\circ\text{C}$, Unless Otherwise Specified) | Characteristic Values | | |
|----------|--------------------------------------------------------------------------------------------------|-----------------------|------|---------------|
| | | Min. | Typ. | Max. |
| I_s | $V_{GS} = 0\text{V}$ | | | -36 A |
| I_{SM} | Repetitive, Pulse Width Limited by T_{JM} | | | -100 A |
| V_{SD} | $I_F = -18\text{A}$, $V_{GS} = 0\text{V}$, Note 1 | | | -3.0 V |
| t_{rr} | $I_F = -25$, $-di/dt = -100\text{A}/\mu\text{s}$ $V_R = -100\text{V}$, $V_{GS} = 0\text{V}$ | | 150 | ns |
| Q_{RM} | | | 2.0 | μC |

Note 1: Pulse test, $t \leq 300\mu\text{s}$, duty cycle, $d \leq 2\%$.

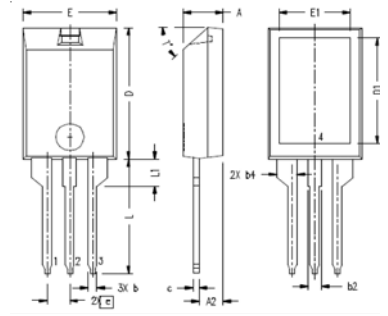
PRELIMINARY TECHNICAL INFORMATION

The product presented herein is under development. The Technical Specifications offered are derived from data gathered during objective characterizations of preliminary engineering lots; but also may yet contain some information supplied during a pre-production design evaluation. IXYS reserves the right to change limits, test conditions, and dimensions without notice.

IXYS Reserves the Right to Change Limits, Test Conditions, and Dimensions.

IXYS MOSFETs and IGBTs are covered 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 7,005,734 B2 7,157,338B2
by one or more of the following U.S. patents: 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 7,063,975 B2
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 7,071,537

ISOPLUS220™ Outline

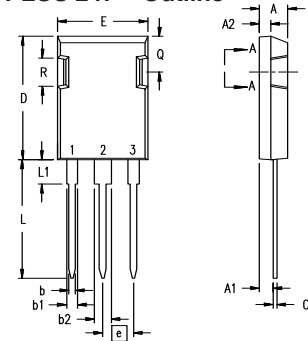


Note:
Bottom heatsink (Pin 4) is electrically isolated from Pin 1, 2, or 3.

| SYM | INCHES | | MILLIMETERS | |
|-----|------------|------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | .157 | .197 | 4.00 | 5.00 |
| A2 | .098 | .118 | 2.50 | 3.00 |
| b | .035 | .051 | 0.90 | 1.30 |
| b2 | .049 | .065 | 1.25 | 1.65 |
| b4 | .093 | .100 | 2.35 | 2.55 |
| c | .028 | .039 | 0.70 | 1.00 |
| D | .591 | .630 | 15.00 | 16.00 |
| D1 | .472 | .512 | 12.00 | 13.00 |
| E | .394 | .433 | 10.00 | 11.00 |
| E1 | .295 | .335 | 7.50 | 8.50 |
| e | .100 BASIC | | 2.55 BASIC | |
| L | .512 | .571 | 13.00 | 14.50 |
| L1 | .118 | .138 | 3.00 | 3.50 |
| T* | | | 42.5* | 47.5* |

Ref: IXYS CO 0177 R0

ISOPLUS 247™ Outline



Terminals: 1 - Gate
2 - Drain (Collector)
3 - Source (Emitter)
4 - Drain (Collector)

| Dim. | Millimeter | | Inches | |
|----------------|------------|-------|----------|-------|
| | Min. | Max. | Min. | Max. |
| A | 4.83 | 5.21 | .190 | .205 |
| A ₁ | 2.29 | 2.54 | .090 | .100 |
| A ₂ | 1.91 | 2.16 | .075 | .085 |
| b | 1.14 | 1.40 | .045 | .055 |
| b ₁ | 1.91 | 2.13 | .075 | .084 |
| b ₂ | 2.92 | 3.12 | .115 | .123 |
| 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 | 19.81 | 20.32 | .780 | .800 |
| L1 | 3.81 | 4.32 | .150 | .170 |
| Q | 5.59 | 6.20 | .220 | 0.244 |
| R | 4.32 | 4.83 | .170 | .190 |



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