Description

IXYS offers a unique series of discrete 2500V and 4000V VHV IGBTs providing a myriad of benefits to system designers in high voltage applications. The very high voltage and current ratings of these parts, coupled with simplified MOS Gate Control greatly reduce the complexity of high voltage switching. These parts are offered in IXYS ISOPLUS™ packaging to enable simpler mounting with improved reliability.

IXYS VHV IGBTs vastly simplify the circuitry needed for switching in high voltage designs. They can enable the use of a single device in systems whose circuits use multiple cascaded lower voltage switches. This device consolidation reduces the numbers of power devices, while also improving cost and efficiency by eliminating complex drive and voltage balancing components. In those applications using high voltage thyristors, designers sacrifice the ability to easily turn-off the switch without greatly increasing circuit complexity. VHV IGBTs have the ability to turn switch current on and off, enabling the designer to implement signal modulation schemes for improved efficiency and wave shaping, as well as enabling load disconnect for improved systems safety.

IXYS proprietary ISOPLUS discrete packaging improves the simplicity, reliability and efficiency of high voltage systems. The previously offered IXLF19N250A comes in IXYS ISOPLUS i4-Pac™, while the IXEL40N400 is offered in IXYS newly designated ISOPLUS i5-Pac™. All of IXYS ISOPLUS packages are manufactured with an internal DCB isolated substrate, are UL registered and provide integral backside case isolation. These packages provide for improved creepage distance to simply compliance with regulatory spacing requirements. Their ceramic substrate enhances device reliability by greatly improving thermal and power cycling. An isolated backside simplifies mounting and with superior isolated thermal impedance. Thermal performance can be further improved by combining IXYS ISOPLUS package use with clip backside simplifies mounting with improved reliability.

ISOPLUS™ Packages with Internal Alumina DCB Isolation

Provides 2500V, UL recognized isolation with superior thermal performance (E153422).

* IXYS Patented Packages, Patent No. 6,404,065

Package Outline Drawings

**Features**
- Very High Voltage Ratings – 2500V, 4000V
- Very High Current Ratings – 19A, 40A
- ISOPLUS i4-Pac™ and i5-Pac™ – Superior Isolated Packaging
- MOS FET-like Turn-on

**Applications**
- Pulse Circuits, Capacitor Discharge
- High Voltage Power Supplies
- High Voltage EMR, Discharge Relay Replacement
- High Voltage Test Equipment
- Laser and X-Ray Generators

**Benefits**
- Replace Multiple Cascoded MOSFETs or IGBTs
- Replace High Voltage Thyristors, Enabling True Switching
- Simplify Package Isolation With 2500V RMS Isolation
- Improved Lead to Lead Creepage Distance
- UL Registered Packages
- Superior Isolated Thermal Impedance in Discrete Packaging
- Improved Reliability, Power Cycling
IXYS offers a unique series of discrete 2500V and 4000V VHV IGBTs providing a myriad of benefits to system designers in high voltage applications. The very high voltage and current ratings of these parts, coupled with simplified MOS Gate-Control greatly reduce the complexity of high voltage switching. These parts are offered in IXYS ISOPLUS™ packaging to enable simpler mounting with improved reliability.

IXYS VHV IGBTs vastly simplify the circuitry needed for switching in high voltage designs. They can enable the use of a single device in systems whose circuits use multiple cascoded lower voltage switches. This device consolidation reduces the numbers of power devices, while also improving cost and efficiency by eliminating complex drive and voltage balancing components. In those applications using high voltage thyristors, designers sacrifice the ability to easily turn-off the switch without greatly increasing circuit complexity. VHV IGBTs have the ability to improve efficiency and wave shaping, as well as enabling load disconnect for improved systems safety.

IXYS proprietary ISOPLUS discrete packaging improves the simplicity, reliability and efficiency of high voltage systems. The previously offered IXLF19N250A comes in IXYS ISOPLUS i4-Pac™, while the IXEL40N400 is offered in IXYS newly designated ISOPLUS i5-PAC™. All of IXYS ISOPLUS packages are manufactured with an internal DCB isolated substrate, are UL registered and provide integral backside case isolation. These packages provide for improved creepage and wave shaping, as well as enabling load disconnect for improved systems safety.

IXYS ISOPLUS™ technology can be found on the IXYS website or the IXYS 2004/5 Selector Guide, page 23.

A broad range of high voltage applications stand to benefit from the simplicity offered by these convenient, discrete VHV IGBTs. Automated Test Equipment generating or measuring high voltage, pulse circuits and capacitor discharge applications, high voltage power supplies, laser and x-ray generation systems can all be designed more simply, with reduced cost and complexity. Traditional high voltage EMRs and discharge relays also can be replaced, reducing system complexity and improving overall reliability.

**Features**
- Very High Voltage Ratings – 2500V, 4000V
- High Current Ratings – 16A, 40A
- ISOPLUS 4-Pac™ and i5-Pac™ – Superior Isolated Packaging
- MOS Gate Turn-on

**Applications**
- Pulse Circuits, Capacitor Discharge
- High Voltage Power Supplies
- High Voltage EMR, Discharge Relay Replacement
- High Voltage Test Equipment
- Laser and X-Ray Generators

**Benefits**
- Replace Multiple Cascoded MOSFETs or IGBTs
- Replace High Voltage Thyristors, Enabling True Switching
- Simplify Package Isolation With 2500V RMS Switching
- Improved Lead to Lead Creepage Distance
- UL Registered Packages
- Superior Isolated Thermal Impedance in Discrete Packaging
- Improved Reliability, Power Cycling

**Summary Table**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>VCES</th>
<th>IU @ 25ºC, ITL</th>
<th>Id, max @ 25ºC, ITL</th>
<th>Et (inductive, typ)</th>
<th>Tj = 125ºC, ITL</th>
<th>RthJC</th>
<th>RthJC</th>
<th>Package</th>
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<td>IXLF19N250A</td>
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<td>40A</td>
<td>3.95V</td>
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IXYS Patented Packages, Patent No. 6,404,065

**ISOPLUS™ Packages with Internal Alumina DCB Isolation**

- Provides 2500V, UL recognized isolation with superior thermal performance (E15342).
- Improves temperature cycling and power cycling capability.
- Cost effective clip mounting.

**Package Outline Drawings**

**ISOPLUS 4-Pac™**

**ISOPLUS 5-Pac™**