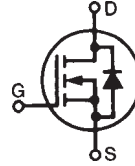


**X4-Class  
Power MOSFET™**
**IXTA130N15X4  
IXTA130N15X4-7**

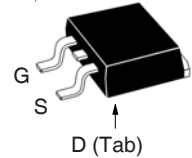
$$V_{DSS} = 150V$$

$$I_{D25} = 130A$$

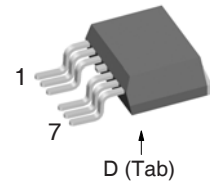
$$R_{DS(on)} \leq 8.0m\Omega$$

 N-Channel Enhancement Mode  
Avalanche Rated


TO-263 AA


 G = Gate      D = Drain  
S = Source      Tab = Drain

TO-263 (7-Leads)


 Pins: 1 - Gate  
2, 3, 5, 6, 7 - Source  
4 (Tab) - Drain

| Symbol     | Test Conditions  | Maximum Ratings   |            |
|------------|--|-------------------|------------|
| $V_{DSS}$  | $T_J = 25^\circ C$ to $150^\circ C$                                | 150               | V          |
| $V_{DGR}$  | $T_J = 25^\circ C$ to $150^\circ C$ , $R_{GS} = 1M\Omega$          | 150               | V          |
| $V_{GSS}$  | Continuous   | $\pm 20$          | V          |
| $V_{GSM}$  | Transient  | $\pm 30$          | V          |
| $I_{D25}$  | $T_C = 25^\circ C$   | 130               | A          |
| $I_{DM}$   | $T_C = 25^\circ C$ , Pulse Width Limited by $T_{JM}$               | 240               | A          |
| $I_A$      | $T_C = 25^\circ C$   | 65                | A          |
| $E_{AS}$   | $T_C = 25^\circ C$   | 800               | mJ         |
| $dv/dt$    | $I_S \leq I_{DM}$ , $V_{DD} \leq V_{DSS}$ , $T_J \leq 150^\circ C$ | 10                | V/ns       |
| $P_D$      | $T_C = 25^\circ C$   | 400               | W          |
| $T_J$      |  | -55 ... +150      | $^\circ C$ |
| $T_{JM}$   |  | 150               | $^\circ C$ |
| $T_{stg}$  |  | -55 ... +150      | $^\circ C$ |
| $T_L$      | Maximum Lead Temperature for Soldering                             | 300               | $^\circ C$ |
| $T_{SOLD}$ | 1.6 mm (0.062in.) from Case for 10s                                | 260               | $^\circ C$ |
| $F_C$      | Mounting Force   | 10.65 / 2.2..14.6 | N/lb       |
| Weight     | TO-263   | 2.5               | g          |
|            | TO-263 (7Leads)  | 3.0               | g          |

**Features**

- International Standard Packages
- Low  $R_{DS(ON)}$  and  $Q_G$
- Avalanche Rated
- Low Package Inductance

**Advantages**

- High Power Density
- Easy to Mount
- Space Savings

**Applications**

- Switch-Mode and Resonant-Mode Power Supplies
- DC-DC Converters
- PFC Circuits
- AC and DC Motor Drives
- Robotics and Servo Controls

| Symbol       | Test Conditions<br>( $T_J = 25^\circ C$ , Unless Otherwise Specified) | Characteristic Values |      |                          |
|--------------|---|-----------------------|------|--------------------------|
|              |   | Min.                  | Typ. | Max.                     |
| $BV_{DSS}$   | $V_{GS} = 0V$ , $I_D = 250\mu A$                                      | 150                   |      | V                        |
| $V_{GS(th)}$ | $V_{DS} = V_{GS}$ , $I_D = 250\mu A$                                  | 2.5                   |      | 4.5 V                    |
| $I_{GSS}$    | $V_{GS} = \pm 20V$ , $V_{DS} = 0V$                                    |                       |      | $\pm 100$ nA             |
| $I_{DSS}$    | $V_{DS} = V_{DSS}$ , $V_{GS} = 0V$<br>$T_J = 125^\circ C$             |                       |      | 5 $\mu A$<br>200 $\mu A$ |
| $R_{DS(on)}$ | $V_{GS} = 10V$ , $I_D = 0.5 \cdot I_{D25}$ , Notes 1&2                | 7.0                   | 8.0  | m $\Omega$               |

| Symbol                              | Test Conditions<br>( $T_J = 25^\circ\text{C}$ , Unless Otherwise Specified)                                    | Characteristic Values                                |      |                         |
|-------------------------------------|--|--|------|-------------------------|
|                                     |  | Min.   | Typ. | Max                     |
| $g_{fs}$                            | $V_{DS} = 10\text{V}$ , $I_D = 60\text{A}$ , Note 1  | 70   | 120  | S                       |
| $R_{Gi}$                            | Gate Input Resistance  |  | 3.4  | $\Omega$                |
| $C_{iss}$                           | $V_{GS} = 0\text{V}$ , $V_{DS} = 25\text{V}$ , $f = 1\text{MHz}$   |  | 4770 | pF                      |
| $C_{oss}$                           |  |  | 710  | pF                      |
| $C_{rss}$                           |  |  | 3.5  | pF                      |
| <b>Effective Output Capacitance</b> |  |  |      |                         |
| $C_{o(er)}$                         | Energy related   | $V_{GS} = 0\text{V}$<br>$V_{DS} = 0.8 \cdot V_{DSS}$ | 560  | pF                      |
| $C_{o(tr)}$                         | Time related   |  | 1850 | pF                      |
| <b>Resistive Switching Times</b>    |  |  |      |                         |
| $t_{d(on)}$                         | $V_{GS} = 10\text{V}$ , $V_{DS} = 0.5 \cdot V_{DSS}$ , $I_D = 0.5 \cdot I_{D25}$<br>$R_G = 5\Omega$ (External) |  | 20   | ns                      |
| $t_r$                               |  |  | 27   | ns                      |
| $t_{d(off)}$                        |  |  | 100  | ns                      |
| $t_f$                               |  |  | 10   | ns                      |
| $Q_{g(on)}$                         | $V_{GS} = 10\text{V}$ , $V_{DS} = 0.5 \cdot V_{DSS}$ , $I_D = 0.5 \cdot I_{D25}$                               |  | 87   | nC                      |
| $Q_{gs}$                            |  |  | 24   | nC                      |
| $Q_{gd}$                            |  |  | 23   | nC                      |
| $R_{thJC}$                          |  |  |      | 0.31 $^\circ\text{C/W}$ |

**Source-Drain Diode**

| Symbol   | Test Conditions<br>( $T_J = 25^\circ\text{C}$ , Unless Otherwise Specified)   | Characteristic Values |      |       |
|----------|---|-----------------------|------|-------|
|          |   | Min.                  | Typ. | Max   |
| $I_S$    | $V_{GS} = 0\text{V}$  |                       |      | 130 A |
| $I_{SM}$ | Repetitive, pulse Width Limited by $T_{JM}$                                   |                       |      | 520 A |
| $V_{SD}$ | $I_F = 100\text{A}$ , $V_{GS} = 0\text{V}$ , Note 1                           |                       |      | 1.4 V |
| $t_{rr}$ | $I_F = 65\text{A}$ , $-di/dt = 100\text{A}/\mu\text{s}$<br>$V_R = 75\text{V}$ |                       | 93   | ns    |
| $Q_{RM}$ |   |                       | 310  | nC    |
| $I_{RM}$ |   |                       | 6.7  | A     |

- Notes: 1. Pulse test,  $t \leq 300\mu\text{s}$ , duty cycle,  $d \leq 2\%$ .  
2. On through-hole packages,  $R_{DS(on)}$  Kelvin test contact location must be 5mm or less from the package body.

**ADVANCE TECHNICAL INFORMATION**

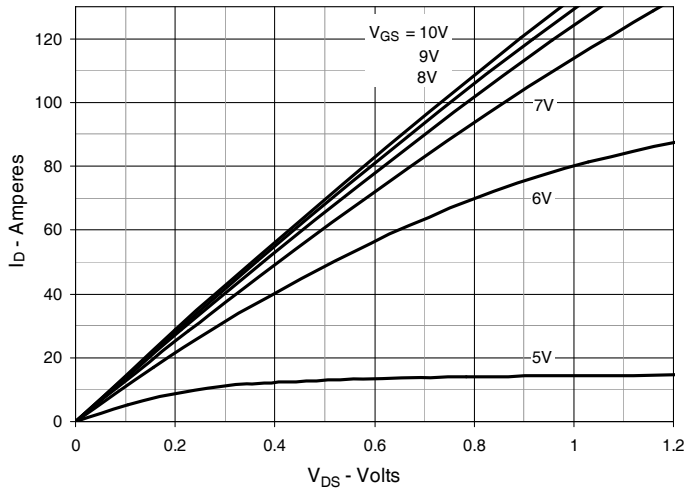
The product presented herein is under development. The Technical Specifications offered are derived from a subjective evaluation of the design, based upon prior knowledge and experience, and constitute a "considered reflection" of the anticipated result. IXYS reserves the right to change limits, test conditions, and dimensions without notice.

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

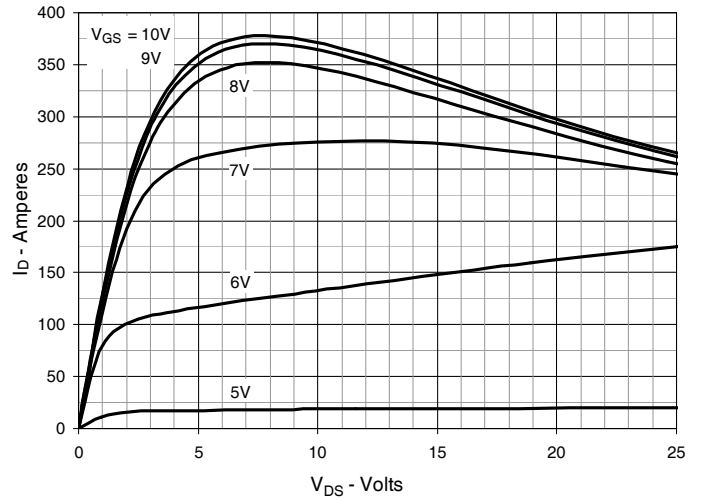
IXYS MOSFETs and IGBTs are covered by one or more of the following U.S. patents:

|           |           |           |           |              |              |              |              |              |             |
|-----------|-----------|-----------|-----------|--------------|--------------|--------------|--------------|--------------|-------------|
| 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    | 7,005,734 B2 | 7,157,338B2 |
| 4,860,072 | 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    |             |

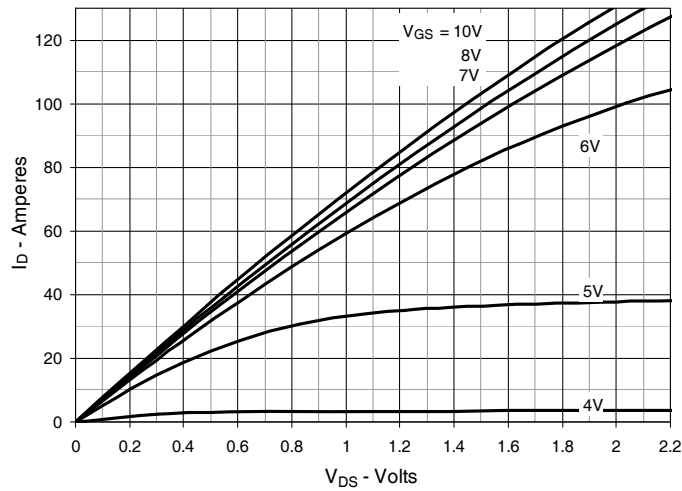
**Fig. 1. Output Characteristics @  $T_J = 25^\circ\text{C}$**



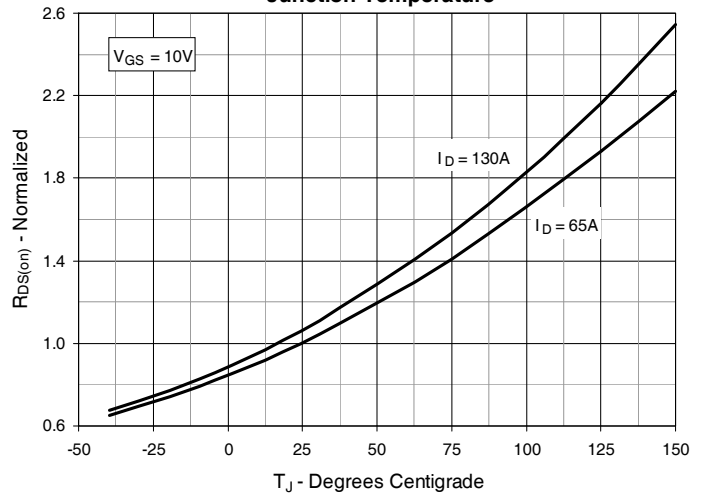
**Fig. 2. Extended Output Characteristics @  $T_J = 25^\circ\text{C}$**



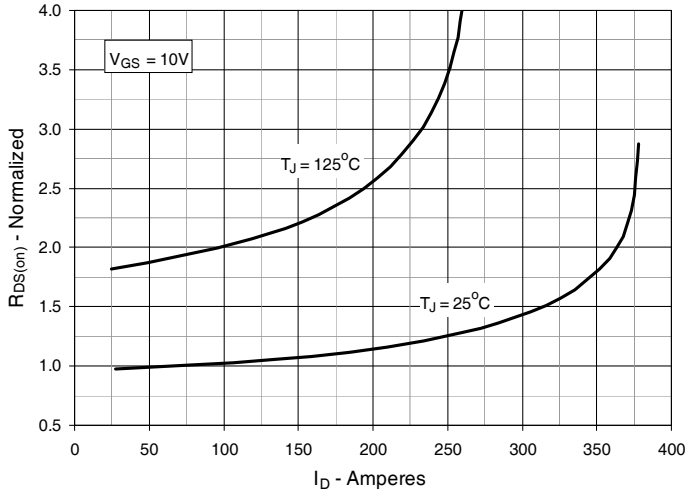
**Fig. 3. Output Characteristics @  $T_J = 125^\circ\text{C}$**



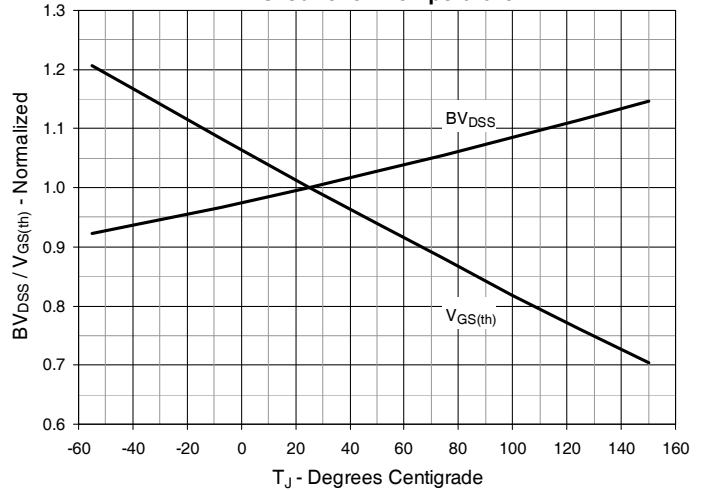
**Fig. 4.  $R_{DS(on)}$  Normalized to  $I_D = 65\text{A}$  Value vs. Junction Temperature**



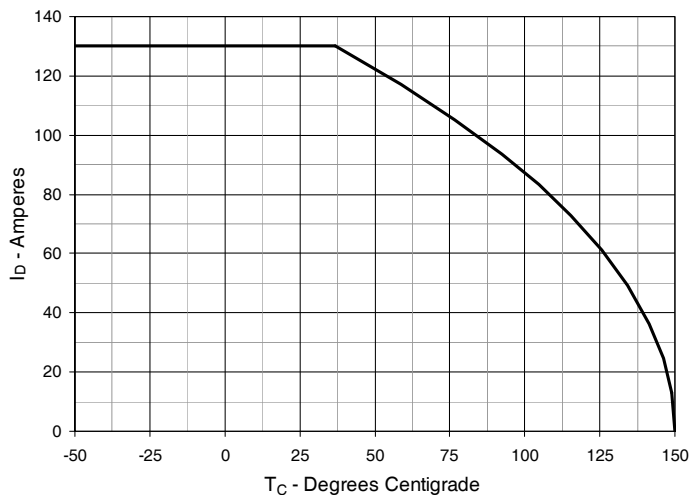
**Fig. 5.  $R_{DS(on)}$  Normalized to  $I_D = 65\text{A}$  Value vs. Drain Current**



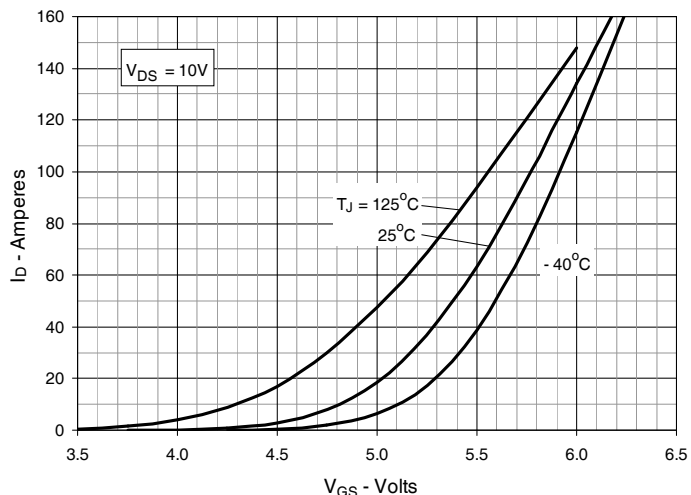
**Fig. 6. Normalized Breakdown & Threshold Voltages vs. Junction Temperature**



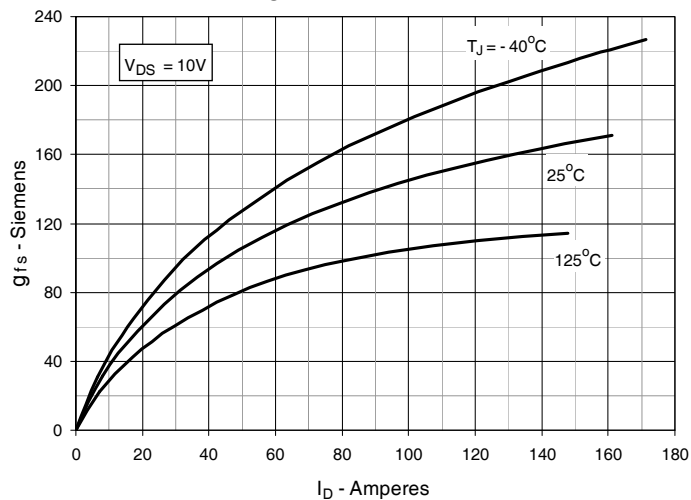
**Fig. 7. Maximum Drain Current vs. Case Temperature**



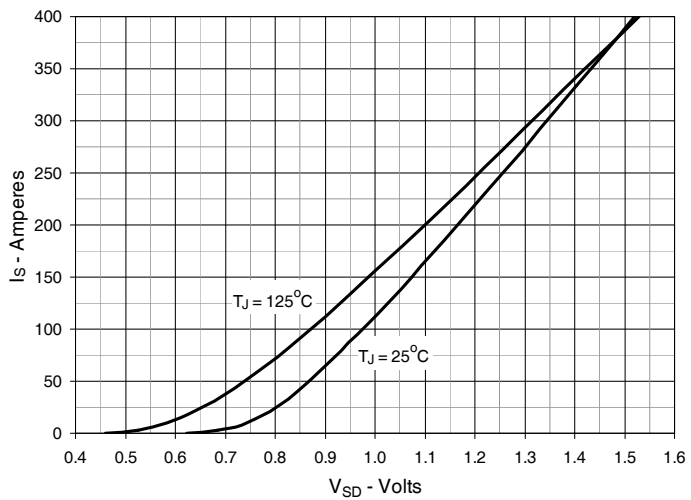
**Fig. 8. Input Admittance**



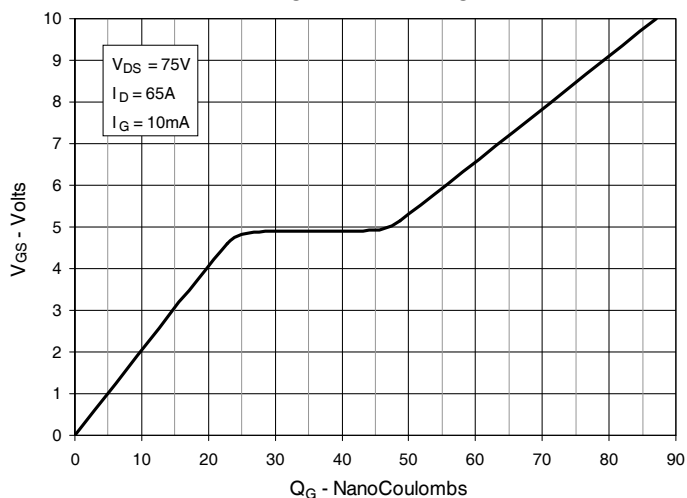
**Fig. 9. Transconductance**



**Fig. 10. Forward Voltage Drop of Intrinsic Diode**



**Fig. 11. Gate Charge**



**Fig. 12. Capacitance**

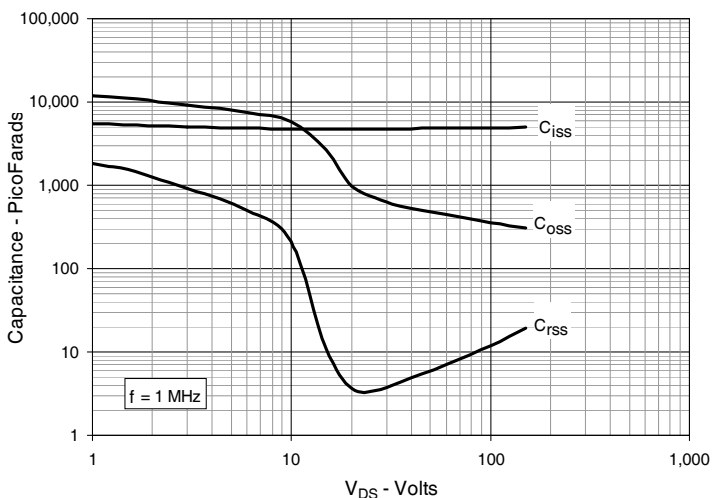


Fig. 13. Output Capacitance Stored Energy

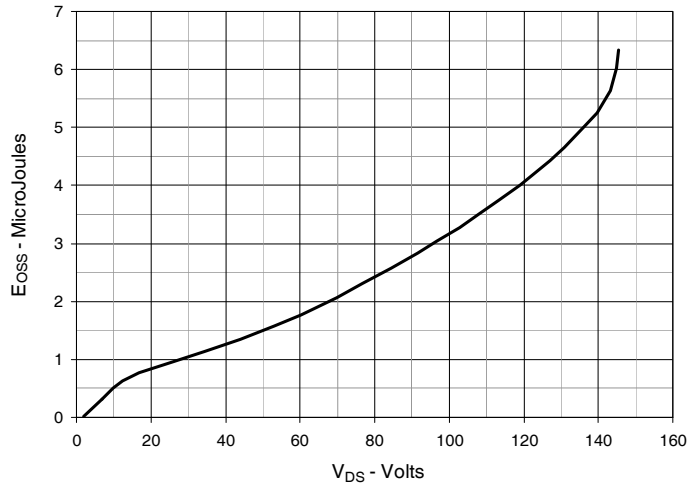


Fig. 14. Forward-Bias Safe Operating Area

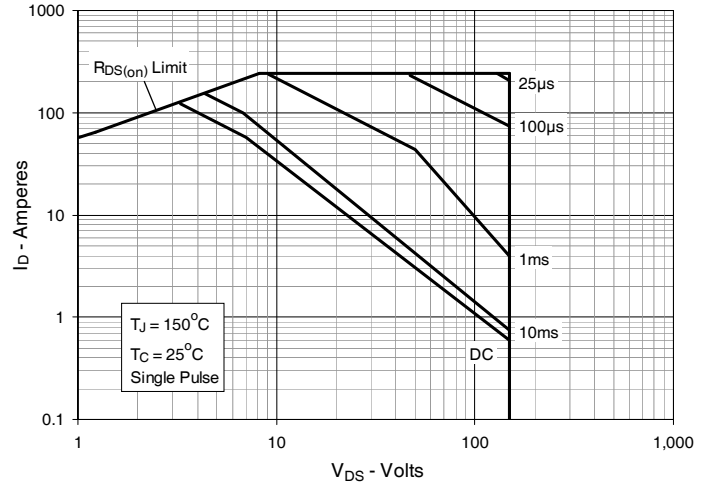
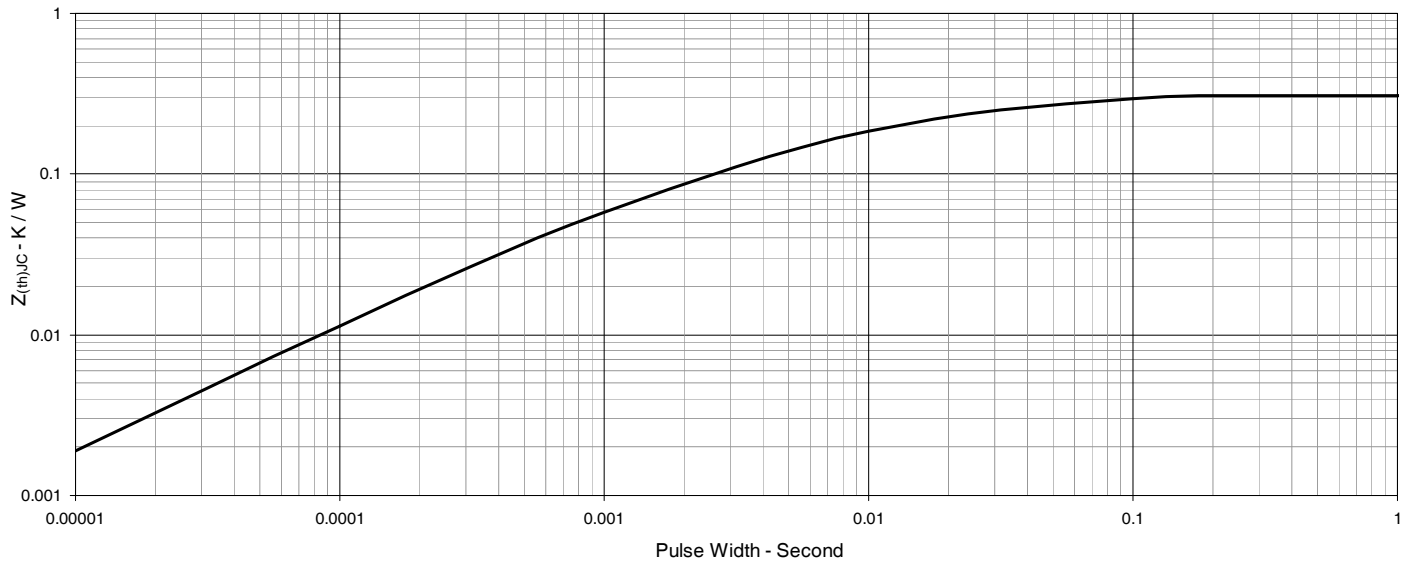
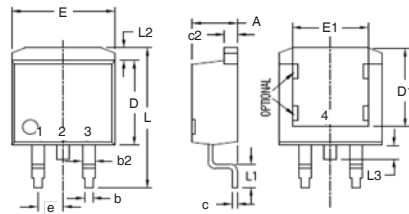


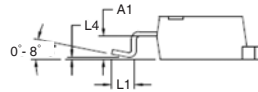
Fig. 15. Maximum Transient Thermal Impedance



### TO-263 (IXTA) Outline

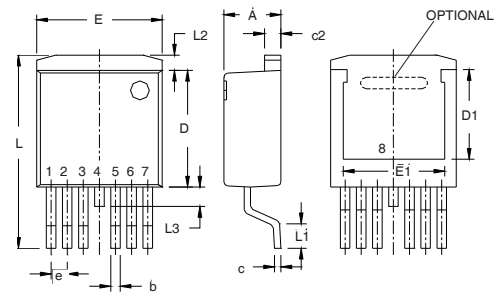


1 = Gate  
2,4 = Drain  
3 = Source

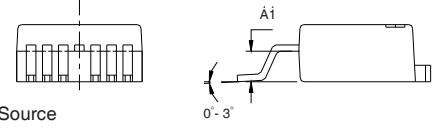


| SYM | INCHES   |      | MILLIMETERS |       |
|-----|----------|------|-------------|-------|
|     | MIN      | MAX  | MIN         | MAX   |
| A   | .160     | .190 | 4.06        | 4.83  |
| A1  | .080     | .110 | 2.03        | 2.79  |
| b   | .020     | .039 | 0.51        | 0.99  |
| b2  | .045     | .055 | 1.14        | 1.40  |
| c   | .016     | .029 | 0.40        | 0.74  |
| c2  | .045     | .055 | 1.14        | 1.40  |
| D   | .340     | .380 | 8.64        | 9.65  |
| D1  | .315     | .350 | 8.00        | 8.89  |
| E   | .380     | .410 | 9.65        | 10.41 |
| E1  | .245     | .320 | 6.22        | 8.13  |
| e   | .100 BSC |      | 2.54 BSC    |       |
| L   | .575     | .625 | 14.61       | 15.88 |
| L1  | .090     | .110 | 2.29        | 2.79  |
| L2  | .040     | .055 | 1.02        | 1.40  |
| L3  | .050     | .070 | 1.27        | 1.78  |
| L4  | 0        | .005 | 0           | 0.13  |

### TO-263 (7-lead) (IXTA..7) Outline



Pins: 1 - Gate  
2,3,5,6,7 - Source  
4, 8 - Drain



| SYM | INCHES   |      | MILLIMETER |       |
|-----|----------|------|------------|-------|
|     | MIN      | MAX  | MIN        | MAX   |
| A   | .170     | .185 | 4.30       | 4.70  |
| A1  | .085     | .104 | 2.15       | 2.65  |
| b   | .026     | .035 | 0.65       | 0.90  |
| c   | .016     | .024 | 0.40       | 0.60  |
| c2  | .049     | .055 | 1.25       | 1.40  |
| D   | .355     | .370 | 9.00       | 9.40  |
| D1  | .272     | .280 | 6.90       | 7.10  |
| E   | .386     | .402 | 9.80       | 10.20 |
| E1  | .311     | .319 | 7.90       | 8.10  |
| e   | .050 BSC |      | 1.27 BSC   |       |
| L   | .591     | .614 | 15.00      | 15.60 |
| L1  | .091     | .110 | 2.30       | 2.80  |
| L2  | .039     | .059 | 1.00       | 1.50  |
| L3  | .000     | .059 | 0.00       | 1.50  |



---

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).

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [MOSFET](#) category:*

*Click to view products by [IXYS](#) manufacturer:*

Other Similar products are found below :

[614233C](#) [648584F](#) [IRFD120](#) [JANTX2N5237](#) [FCA20N60\\_F109](#) [FDZ595PZ](#) [2SK2545\(Q,T\)](#) [405094E](#) [423220D](#) [TPCC8103,L1Q\(CM](#)  
[MIC4420CM-TR](#) [VN1206L](#) [614234A](#) [715780A](#) [NTNS3166NZT5G](#) [SSM6J414TU,LF\(T](#) [751625C](#) [BUK954R8-60E](#) [NTE6400](#) [SQJ402EP-](#)  
[T1-GE3](#) [2SK2614\(TE16L1,Q\)](#) [2N7002KW-FAI](#) [DMN1017UCP3-7](#) [EFC2J004NUZTDG](#) [ECH8691-TL-W](#) [FCAB21350L1](#) [P85W28HP2F-](#)  
[7071](#) [DMN1053UCP4-7](#) [NTE221](#) [NTE222](#) [NTE2384](#) [NTE2903](#) [NTE2941](#) [NTE2945](#) [NTE2946](#) [NTE2960](#) [NTE2967](#) [NTE2969](#) [NTE2976](#)  
[NTE6400A](#) [NTE2910](#) [NTE2916](#) [NTE2956](#) [NTE2911](#) [DMN2080UCB4-7](#) [TK10A80W,S4X\(S](#) [SSM6P69NU,LF](#) [DMP22D4UFO-7B](#)  
[DMN1006UCA6-7](#) [DMN16M9UCA6-7](#)