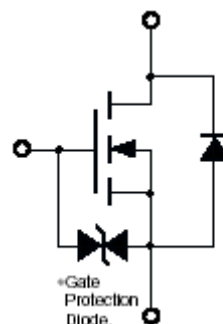
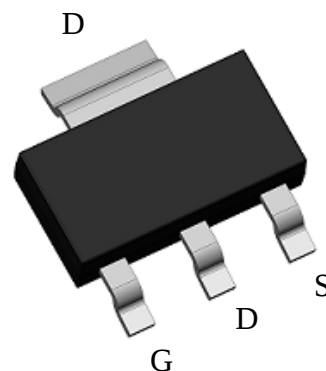


## N-Channel Enhancement Mode MOSFET

### Features:

- Low Gate Charge
- Simple Drive Requirement
- ESD protected gate
- Pb-free lead plating & Halogen-free package

SOT-223



G : Gate D : Drain  
S : Source

### Ordering Information

| Device       | Package                                                  | Shipping               |
|--------------|----------------------------------------------------------|------------------------|
| KL B095N10KR | SOT-223<br>(Pb-free lead plating & Halogen-free package) | 2500 pcs / Tape & Reel |

### Absolute Maximum Ratings (T<sub>c</sub>=25°C, unless otherwise noted)

| Parameter                                                             | Symbol                            | Limits   | Unit |
|-----------------------------------------------------------------------|-----------------------------------|----------|------|
| Drain-Source Voltage                                                  | V <sub>DS</sub>                   | 100      | V    |
| Gate-Source Voltage                                                   | V <sub>GS</sub>                   | ±20      |      |
| Continuous Drain Current @ T <sub>A</sub> =25°C, V <sub>GS</sub> =10V | I <sub>D</sub>                    | 3.3      | A    |
| Continuous Drain Current @ T <sub>A</sub> =70°C, V <sub>GS</sub> =10V |                                   | 2.6      |      |
| Pulsed Drain Current *1                                               | I <sub>DM</sub>                   | 16       |      |
| Avalanche Current @ L=0.1mH                                           | I <sub>AS</sub>                   | 6        |      |
| Avalanche Energy @ L=1mH, I <sub>D</sub> =6A, V <sub>DD</sub> =50V *2 | E <sub>AS</sub>                   | 18       | mJ   |
| Repetitive Avalanche Energy @ L=0.05mH                                | E <sub>AR</sub>                   | 0.625    |      |
| Total Power Dissipation @ T <sub>A</sub> =25°C                        | P <sub>D</sub>                    | 2.5      | W    |
| Total Power Dissipation @ T <sub>A</sub> =70°C                        |                                   | 1.6      |      |
| Operating Junction and Storage Temperature Range                      | T <sub>j</sub> , T <sub>stg</sub> | -55~+150 | °C   |

Note : \*1. Pulse width limited by maximum junction temperature

\*2. Guaranteed by design, not by 100% test.

### Thermal Data

| Parameter                                    | Symbol           | Value     | Unit |
|----------------------------------------------|------------------|-----------|------|
| Thermal Resistance, Junction-to-case, max    | R <sub>θJC</sub> | 18.5      | °C/W |
| Thermal Resistance, Junction-to-ambient, max | R <sub>θJA</sub> | 50 (Note) |      |

Note : When mounted on a 1 in<sup>2</sup> pad of 2 oz. copper.

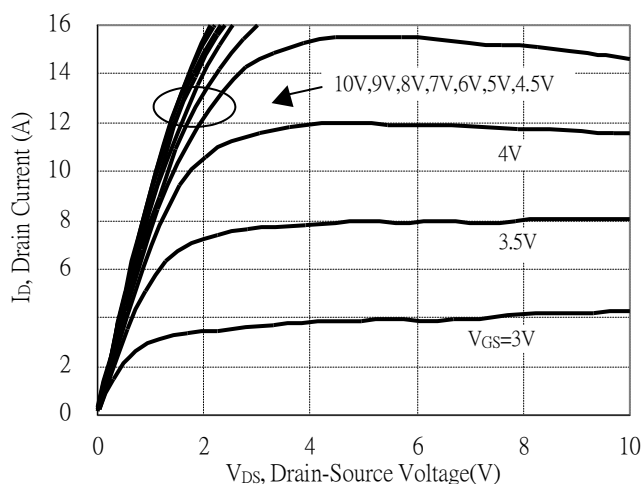
### Characteristics (T<sub>c</sub>=25°C, unless otherwise specified)

| Symbol                    | Min. | Typ. | Max. | Unit | Test Conditions                                                                    |
|---------------------------|------|------|------|------|------------------------------------------------------------------------------------|
| Static                    |      |      |      |      |                                                                                    |
| BV <sub>DSS</sub>         | 100  | -    | -    | V    | V <sub>GS</sub> =0V, I <sub>D</sub> =250μA                                         |
| V <sub>GS(th)</sub>       | 1    | -    | 2.5  |      | V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA                           |
| G <sub>FS</sub> *1        | -    | 2.9  | -    | S    | V <sub>DS</sub> =10V, I <sub>D</sub> =1A                                           |
| I <sub>GSS</sub>          | -    | -    | ±10  | μA   | V <sub>GS</sub> =±16V, V <sub>DS</sub> =0V                                         |
| I <sub>DSS</sub>          | -    | -    | 1    |      | V <sub>DS</sub> =80V, V <sub>GS</sub> =0V                                          |
|                           | -    | -    | 25   |      | V <sub>DS</sub> =80V, V <sub>GS</sub> =0V, T <sub>j</sub> =125°C                   |
| R <sub>DS(ON)</sub> *1    | -    | 107  | 140  | mΩ   | V <sub>GS</sub> =10V, I <sub>D</sub> =2A                                           |
|                           | -    | 127  | 180  |      | V <sub>GS</sub> =4.5V, I <sub>D</sub> =2A                                          |
| Dynamic                   |      |      |      |      |                                                                                    |
| Q <sub>g</sub> *1, 2      | -    | 6.7  | 10   | nC   | V <sub>DS</sub> =80V, V <sub>GS</sub> =10V, I <sub>D</sub> =2A                     |
| Q <sub>gs</sub> *1, 2     | -    | 1.1  | 1.7  |      |                                                                                    |
| Q <sub>gd</sub> *1, 2     | -    | 1.6  | 2.4  |      |                                                                                    |
| t <sub>d(ON)</sub> *1, 2  | -    | 5.2  | 7.8  | ns   | V <sub>DS</sub> =50V, I <sub>D</sub> =2A, V <sub>GS</sub> =10V, R <sub>G</sub> =1Ω |
| t <sub>r</sub> *1, 2      | -    | 16.6 | 24.9 |      |                                                                                    |
| t <sub>d(OFF)</sub> *1, 2 | -    | 17   | 25.5 |      |                                                                                    |
| t <sub>f</sub> *1, 2      | -    | 5.2  | 7.8  |      |                                                                                    |

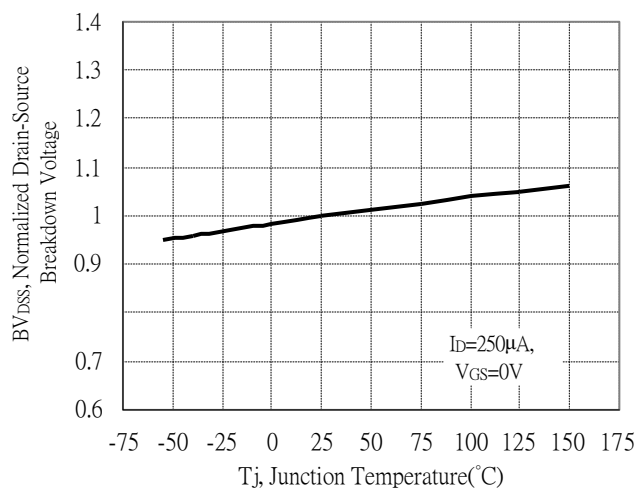


## Typical Characteristics

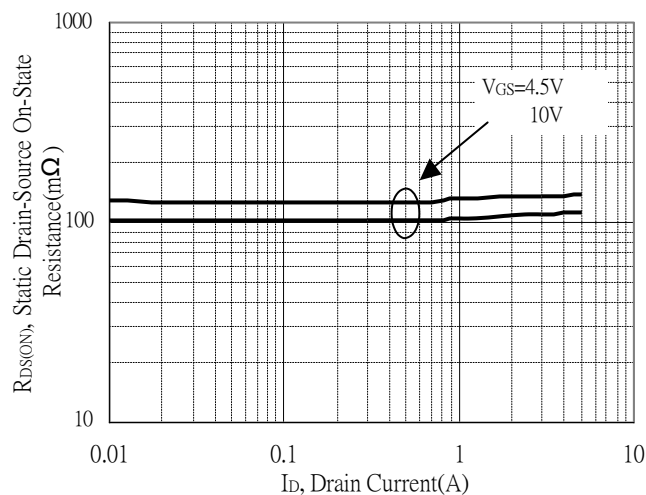
Typical Output Characteristics



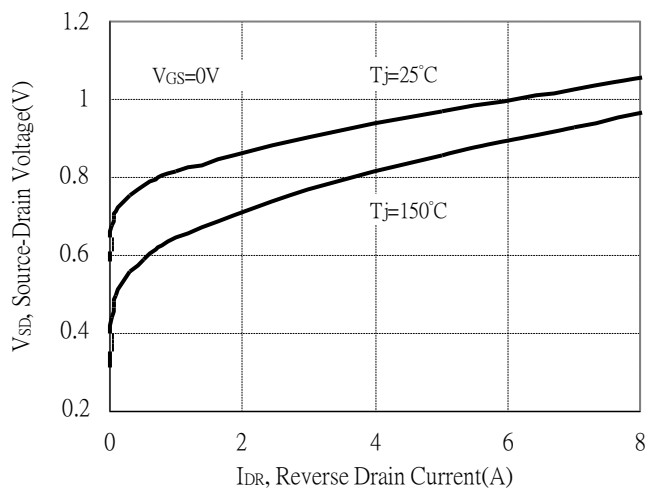
Breakdown Voltage vs Junction Temperature



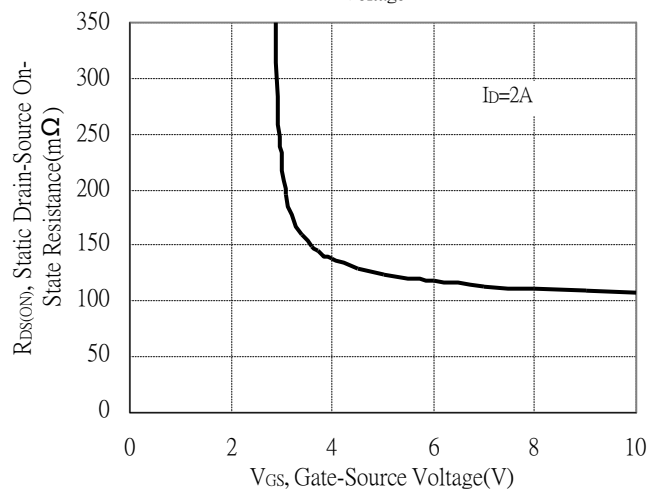
Static Drain-Source On-State resistance vs Drain Current



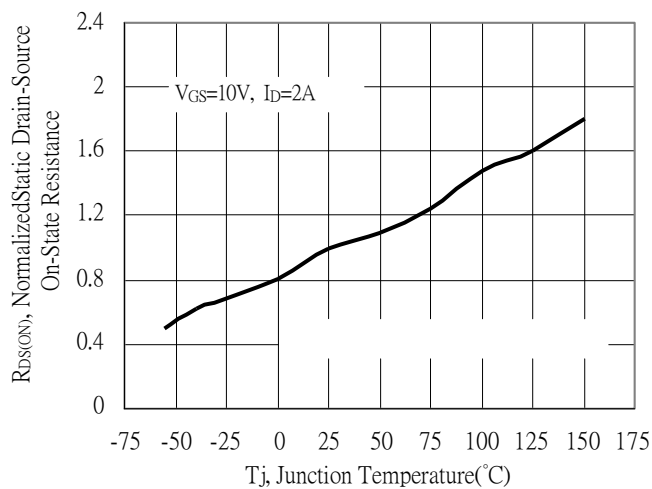
Reverse Drain Current vs Source-Drain Voltage



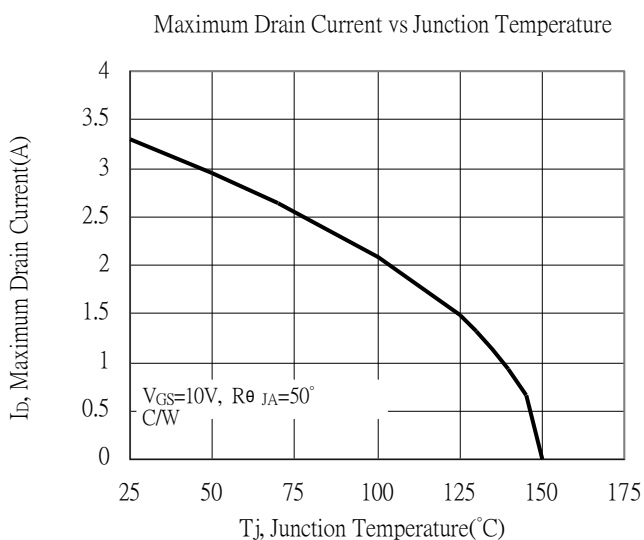
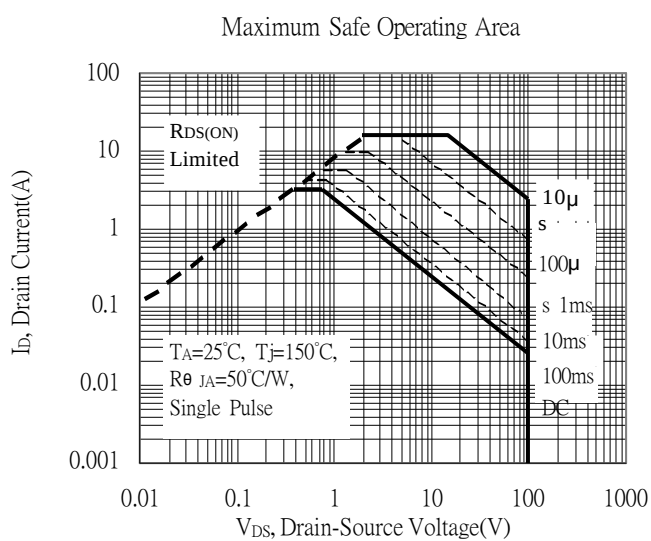
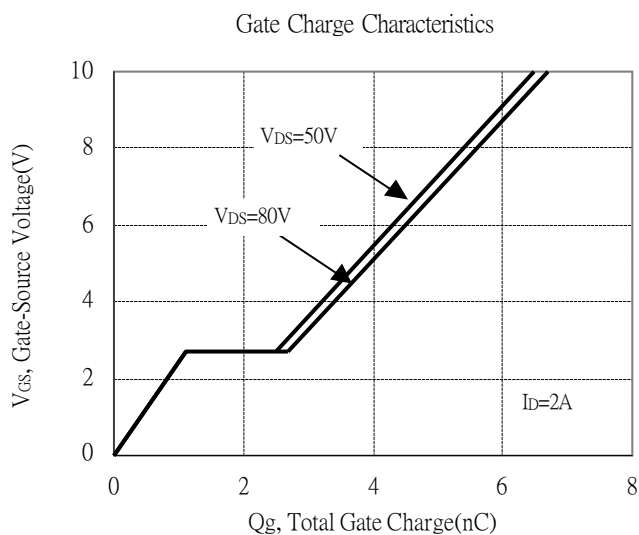
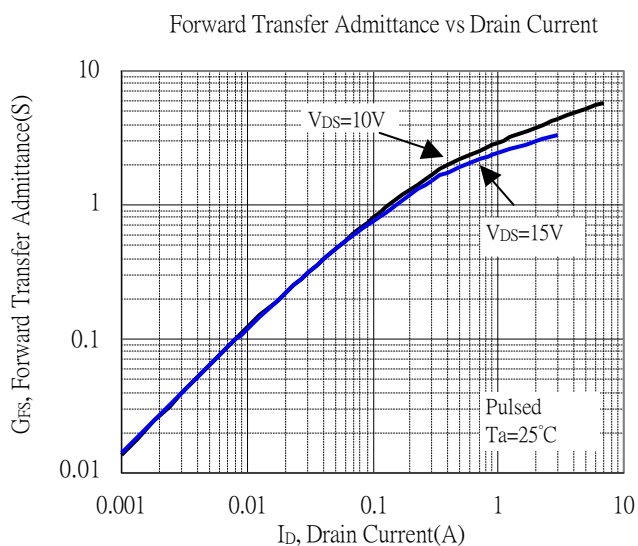
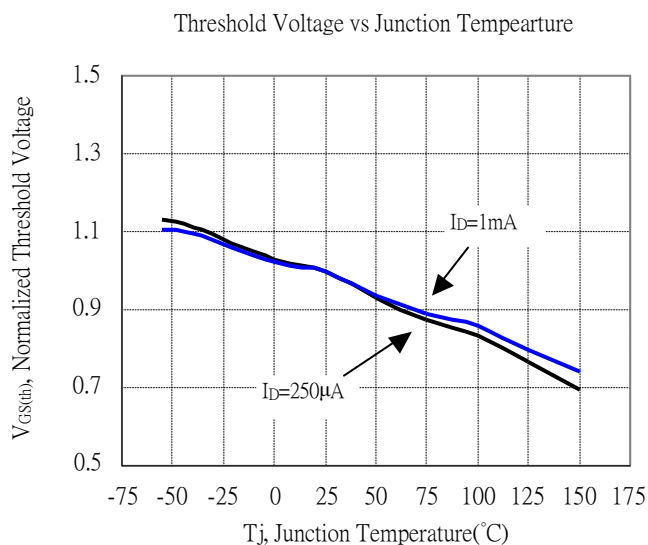
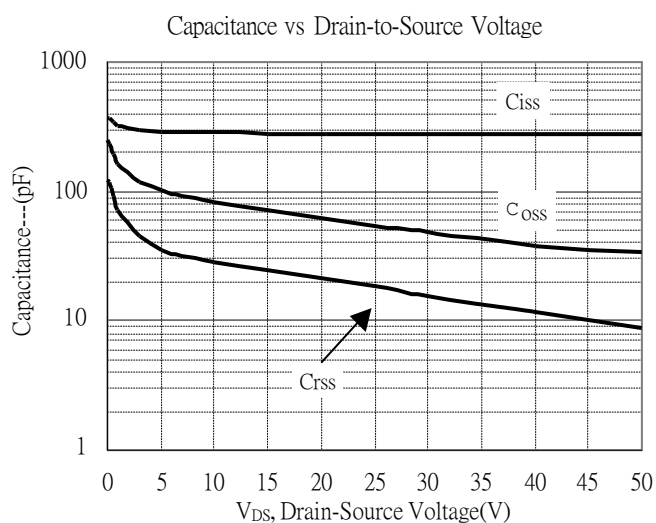
Static Drain-Source On-State Resistance vs Gate-Source Voltage



Drain-Source On-State Resistance vs Junction Temperature

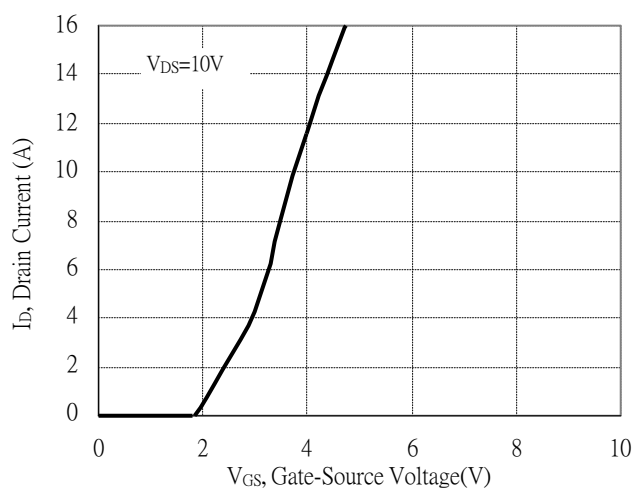


## Typical Characteristics(Cont.)

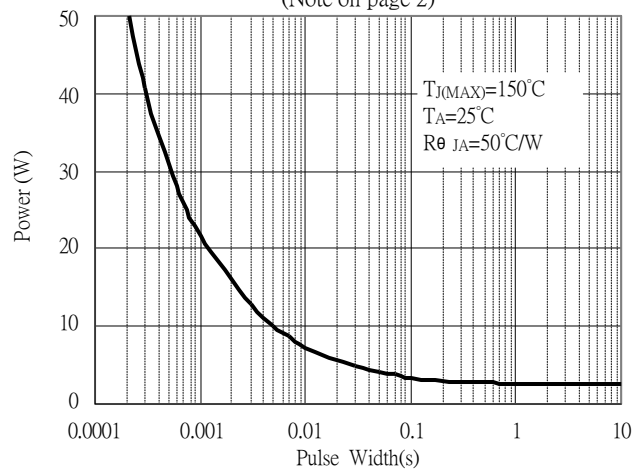


## Typical Characteristics(Cont.)

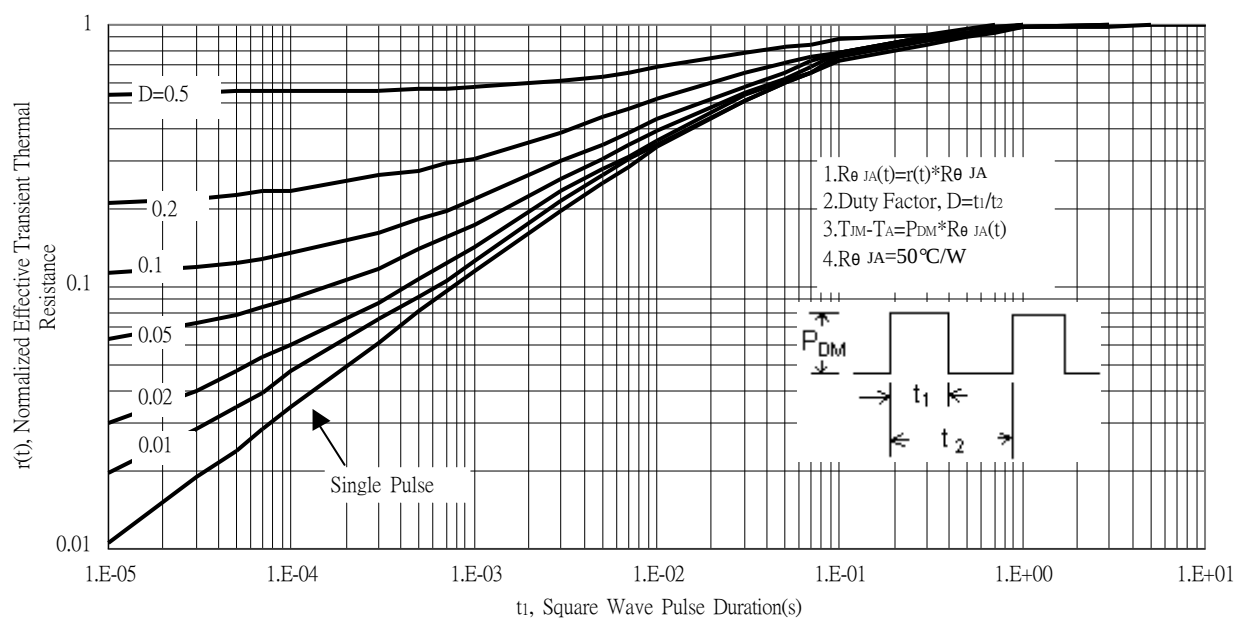
Typical Transfer Characteristics



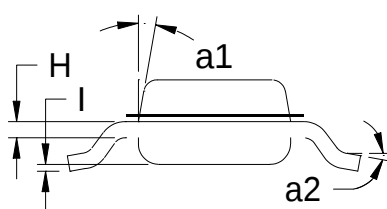
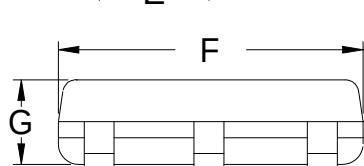
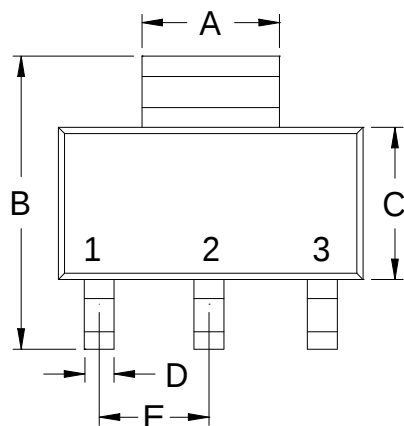
Single Pulse Power Rating, Junction to Ambient  
 (Note on page 2)



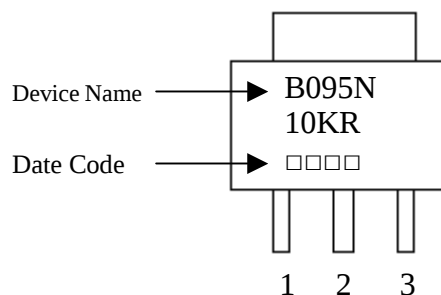
Transient Thermal Response Curves



## SOT-223 Dimension



Marking:



Style: Pin 1.Gate 2.Drain 3.Source

3-Lead SOT-223 Plastic  
 Surface Mounted Package  
 Code: L3

\*: Typical

| DIM | Inches  |        | Millimeters |      | DIM | Inches |        | Millimeters |      |
|-----|---------|--------|-------------|------|-----|--------|--------|-------------|------|
|     | Min.    | Max.   | Min.        | Max. |     | Min.   | Max.   | Min.        | Max. |
| A   | 0.1142  | 0.1220 | 2.90        | 3.10 | G   | 0.0551 | 0.0709 | 1.40        | 1.80 |
| B   | 0.2638  | 0.2874 | 6.70        | 7.30 | H   | 0.0098 | 0.0138 | 0.25        | 0.35 |
| C   | 0.1299  | 0.1457 | 3.30        | 3.70 | I   | 0.0008 | 0.0039 | 0.02        | 0.10 |
| D   | 0.0236  | 0.0315 | 0.60        | 0.80 | a1  | *13°   | -      | *13°        | -    |
| E   | *0.0906 | -      | *2.30       | -    | a2  | 0°     | 10°    | 0°          | 10°  |
| F   | 0.2480  | 0.2638 | 6.30        | 6.70 |     |        |        |             |      |