

## Features

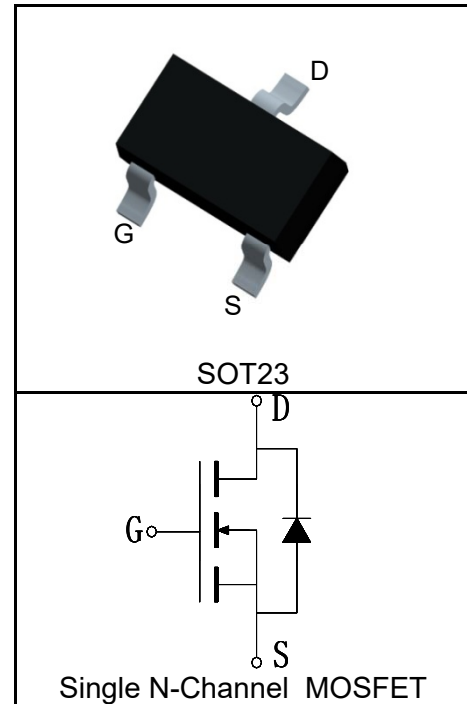
- 30V/3.5A,  
 $R_{DS(ON)} = 39m\Omega(Typ.)@V_{GS}=4.5V$   
 $R_{DS(ON)} = 52m\Omega(Typ.)@V_{GS}=2.5V$
- Low  $R_{DS(ON)}$
- Super High Dense Cell Design
- Reliable and Rugged

## Applications

- Load Switch



## Pin Description



## Absolute Maximum Ratings

| Symbol                                                                   | Parameter                                    | Rating                           | Unit               |
|--------------------------------------------------------------------------|----------------------------------------------|----------------------------------|--------------------|
| <b>Common Ratings</b> ( $T_A = 25^\circ\text{C}$ Unless Otherwise Noted) |                                              |                                  |                    |
| $V_{DSS}$                                                                | Drain-Source Voltage                         | 30                               | V                  |
| $V_{GSS}$                                                                | Gate-Source Voltage                          | $\pm 12$                         |                    |
| $T_J$                                                                    | Maximum Junction Temperature                 | 150                              | $^\circ\text{C}$   |
| $T_{STG}$                                                                | Storage Temperature Range                    | -55 to 150                       | $^\circ\text{C}$   |
| $I_S$                                                                    | Diode Continuous Forward Current             | $T_A = 25^\circ\text{C}$<br>1.3  | A                  |
| <b>Mounted on Large Heat Sink</b>                                        |                                              |                                  |                    |
| $I_{DP}^{(1)}$                                                           | 300 $\mu\text{s}$ Pulse Drain Current Tested | $T_A = 25^\circ\text{C}$<br>14   | A                  |
| $I_D^{(2)}$                                                              | Continuous Drain Current( $V_{GS}=4.5V$ )    | $T_A = 25^\circ\text{C}$<br>3.5  | A                  |
|                                                                          |                                              | $T_A = 70^\circ\text{C}$<br>2.8  |                    |
| $P_D$                                                                    | Maximum Power Dissipation                    | $T_A = 25^\circ\text{C}$<br>1    | W                  |
|                                                                          |                                              | $T_A = 70^\circ\text{C}$<br>0.64 |                    |
| $R_{\theta JC}$                                                          | Thermal Resistance-Junction to Case          | -                                | $^\circ\text{C/W}$ |
| $R_{\theta JA}^{(3)}$                                                    | Thermal Resistance-Junction to Ambient       | 125                              | $^\circ\text{C/W}$ |
| <b>Drain-Source Avalanche Ratings</b>                                    |                                              |                                  |                    |
| $E_{AS}^{(4)}$                                                           | Avalanche Energy, Single Pulsed              | TBD                              | mJ                 |

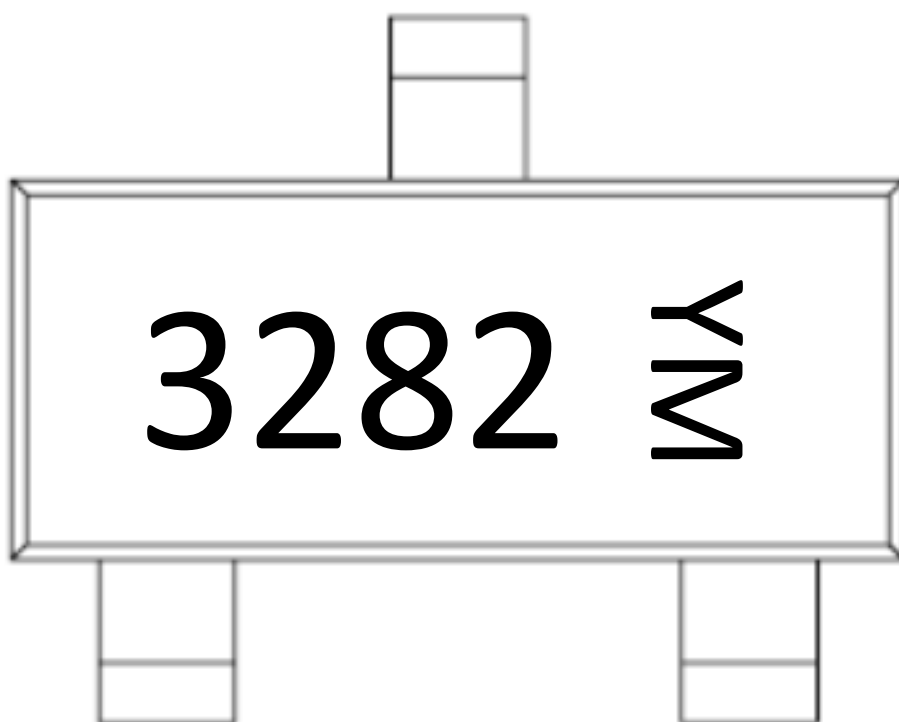
**Electrical Characteristics** ( $T_A=25^{\circ}\text{C}$  Unless Otherwise Noted)

| Symbol                                   | Parameter                        | Test Condition                                                                           | KS3282AA              |      |      | Unit |
|------------------------------------------|----------------------------------|------------------------------------------------------------------------------------------|-----------------------|------|------|------|
|                                          |                                  |                                                                                          | Min.                  | Typ. | Max. |      |
|                                          |                                  |                                                                                          |                       |      |      |      |
| BV <sub>DSS</sub>                        | Drain-Source Breakdown Voltage   | V <sub>GS</sub> =0V, I <sub>DS</sub> =250μA                                              | 30                    |      |      | V    |
| I <sub>DSS</sub>                         | Zero Gate Voltage Drain Current  | V <sub>DS</sub> =30V, V <sub>GS</sub> =0V                                                |                       |      | 1    | μA   |
|                                          |                                  |                                                                                          | T <sub>J</sub> =125°C |      | 30   |      |
| V <sub>GS(th)</sub>                      | Gate Threshold Voltage           | V <sub>DS</sub> =V <sub>GS</sub> , I <sub>DS</sub> =250μA                                | 0.5                   | 0.9  | 1.4  | V    |
| I <sub>GSS</sub>                         | Gate Leakage Current             | V <sub>GS</sub> =±12V, V <sub>DS</sub> =0V                                               |                       |      | ±100 | nA   |
| R <sub>DS(ON)</sub> <sup>⑤</sup>         | Drain-Source On-state Resistance | V <sub>GS</sub> =4.5V, I <sub>DS</sub> =4A                                               |                       | 39   | 55   | mΩ   |
|                                          |                                  | V <sub>GS</sub> =2.5V, I <sub>DS</sub> =2A                                               |                       | 52   | 75   | mΩ   |
| Diode Characteristics                    |                                  |                                                                                          |                       |      |      |      |
| V <sub>SD</sub> <sup>⑤</sup>             | Diode Forward Voltage            | I <sub>SD</sub> =2A, V <sub>GS</sub> =0V                                                 |                       | 0.83 | 1.2  | V    |
| t <sub>rr</sub>                          | Reverse Recovery Time            | I <sub>SD</sub> =2A, dI <sub>SD</sub> /dt=100A/μs                                        |                       | 7    |      | ns   |
| Q <sub>rr</sub>                          | Reverse Recovery Charge          |                                                                                          |                       | 15   |      | nC   |
| Dynamic Characteristics <sup>⑥</sup>     |                                  |                                                                                          |                       |      |      |      |
| R <sub>G</sub>                           | Gate Resistance                  | V <sub>GS</sub> =0V, V <sub>DS</sub> =0V, F=1MHz                                         |                       | 1.6  |      | Ω    |
| C <sub>iss</sub>                         | Input Capacitance                | V <sub>GS</sub> =0V,<br>V <sub>DS</sub> =15V,<br>Frequency=1.0MHz                        |                       | 410  |      | pF   |
| C <sub>oss</sub>                         | Output Capacitance               |                                                                                          |                       | 65   |      |      |
| C <sub>rss</sub>                         | Reverse Transfer Capacitance     |                                                                                          |                       | 40   |      |      |
| t <sub>d(ON)</sub>                       | Turn-on Delay Time               | V <sub>DD</sub> =15V, I <sub>DS</sub> =2A,<br>V <sub>GEN</sub> =4.5V, R <sub>G</sub> =6Ω |                       | 9    |      | ns   |
| t <sub>r</sub>                           | Turn-on Rise Time                |                                                                                          |                       | 11   |      |      |
| t <sub>d(OFF)</sub>                      | Turn-off Delay Time              |                                                                                          |                       | 24   |      |      |
| t <sub>f</sub>                           | Turn-off Fall Time               |                                                                                          |                       | 6    |      |      |
| Gate Charge Characteristics <sup>⑥</sup> |                                  |                                                                                          |                       |      |      |      |
| Q <sub>g</sub>                           | Total Gate Charge                | V <sub>DS</sub> =15V, V <sub>GS</sub> =4.5V,<br>I <sub>DS</sub> =2A                      |                       | 7    |      | nC   |
| Q <sub>gs</sub>                          | Gate-Source Charge               |                                                                                          |                       | 1.8  |      |      |
| Q <sub>gd</sub>                          | Gate-Drain Charge                |                                                                                          |                       | 2.5  |      |      |

- Notes:
- ① Pulse width limited by safe operating area.
  - ② Calculated continuous current based on maximum allowable junction temperature.
  - ③ When mounted on 1 inch square copper board,  $t \leq 10\text{sec}$ . The value in any given application depends on the user's specific board design.
  - ④ Limited by  $T_{Jmax}$ . Starting  $T_J = 25^{\circ}\text{C}$ .
  - ⑤ Pulse test; Pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$ .
  - ⑥ Guaranteed by design, not subject to production testing.

## Ordering and Marking Information

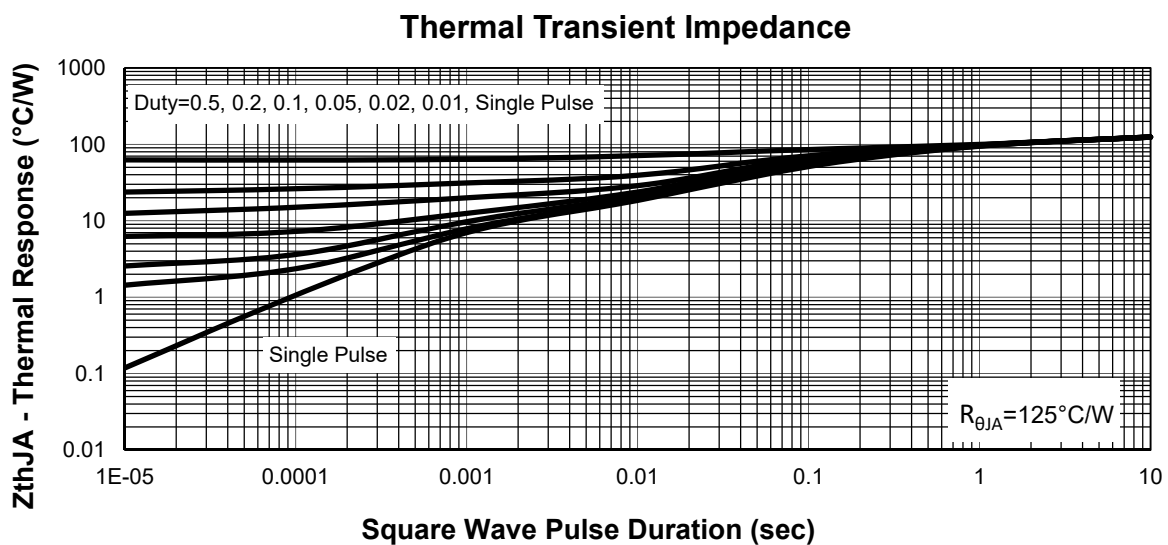
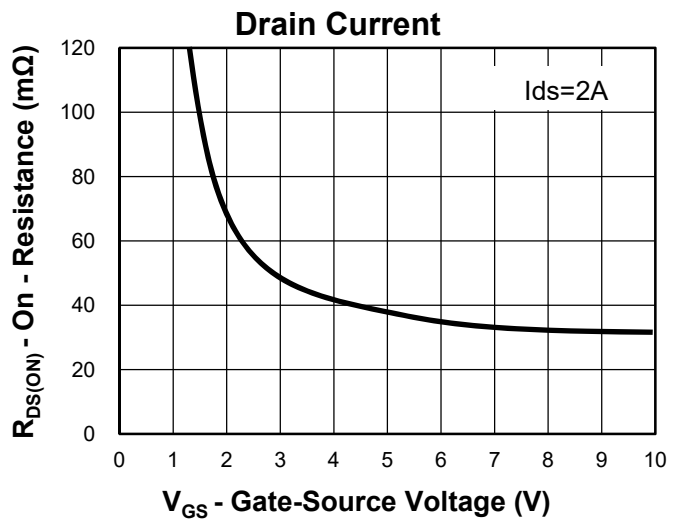
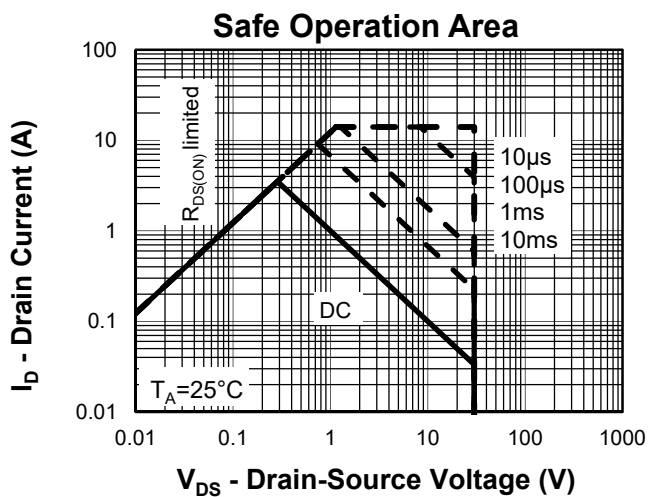
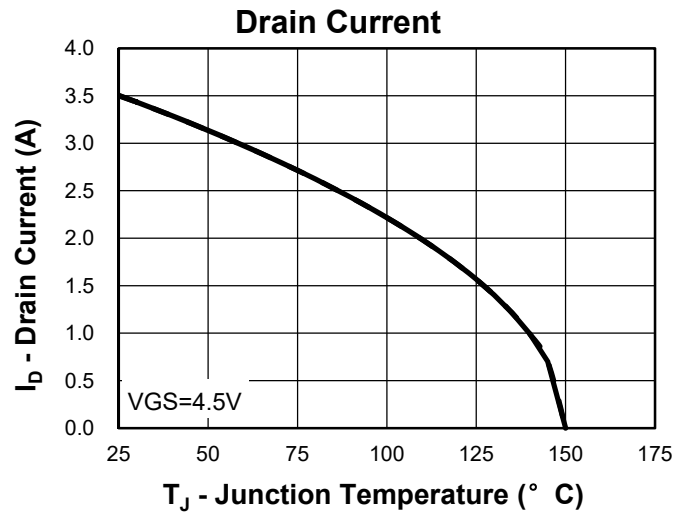
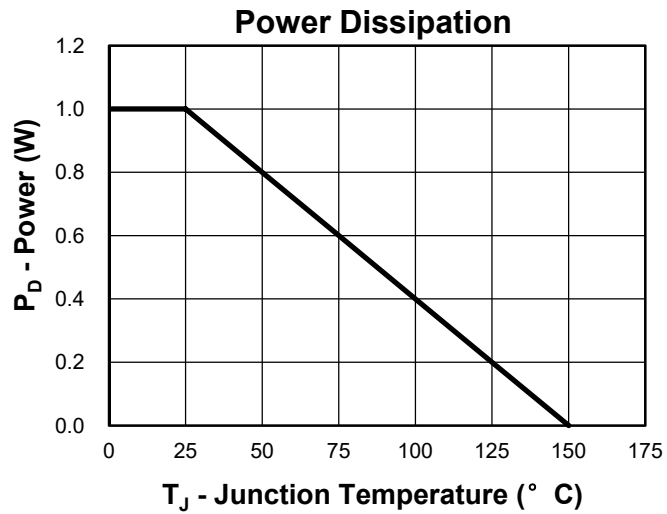
| Device   | Package | Packaging | Quantity | Reel Size | Tape width |
|----------|---------|-----------|----------|-----------|------------|
| KS3282AA | SOT23   | Tape&Reel | 3000     | 7"        | 8mm        |



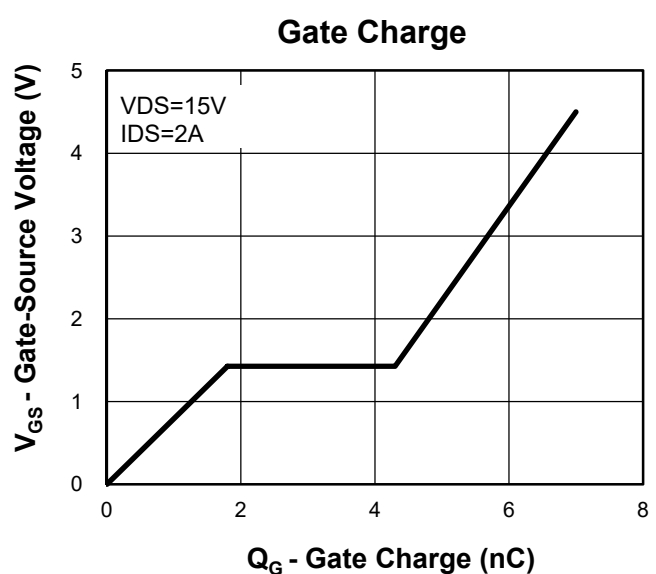
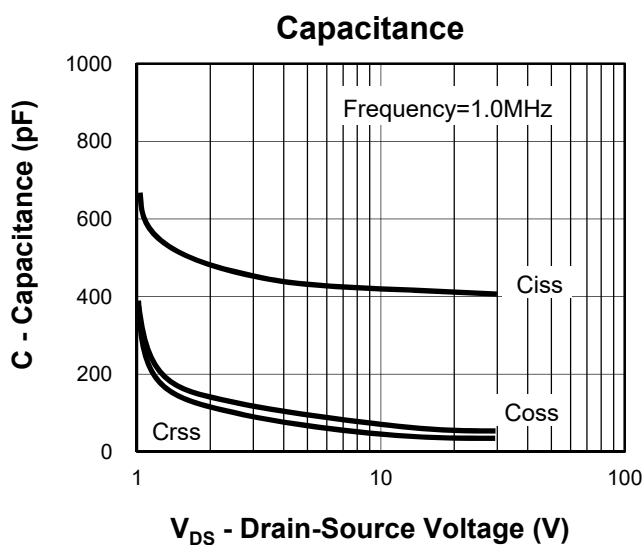
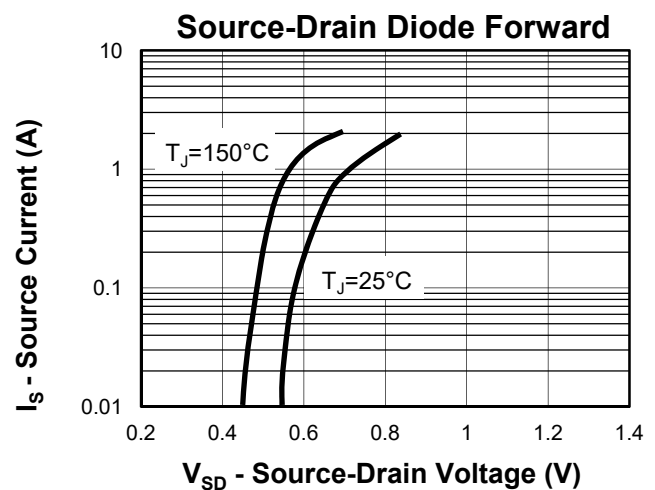
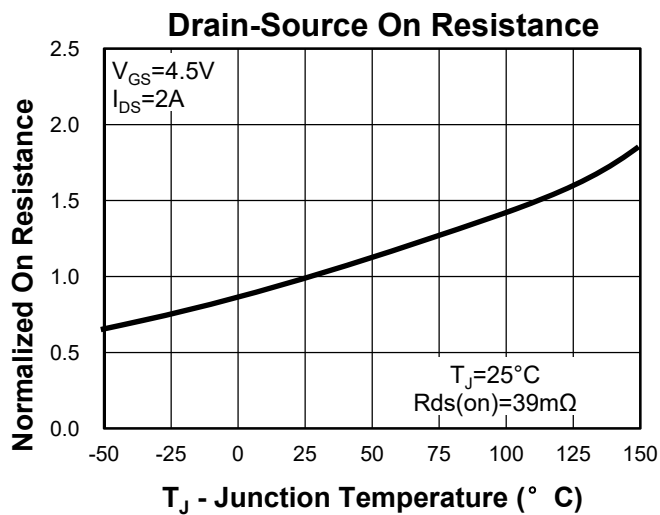
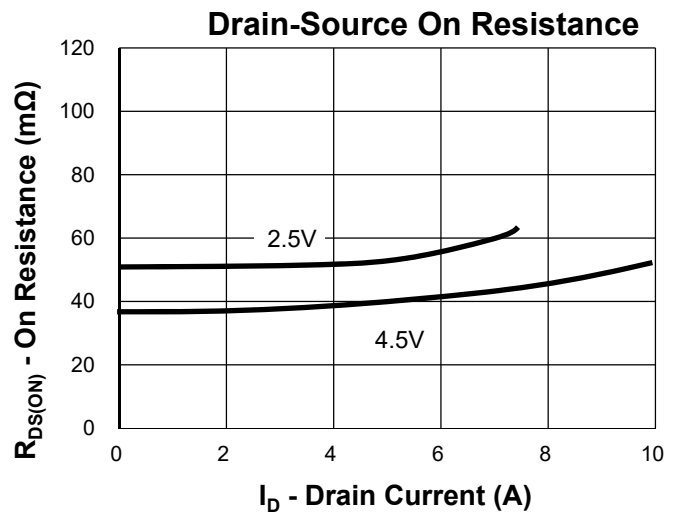
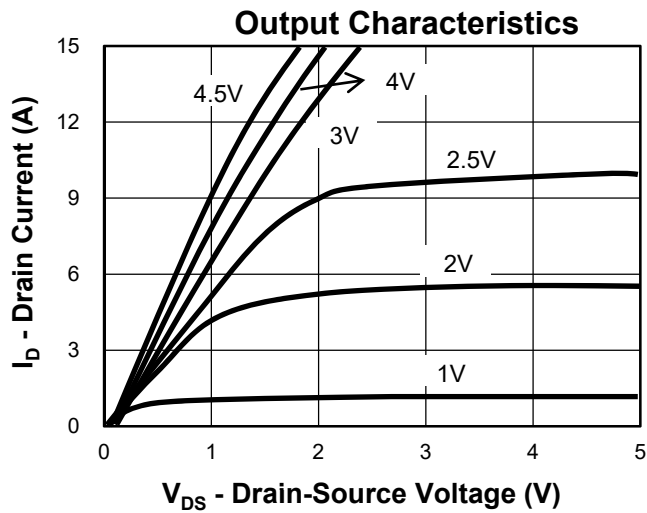
Y =Year,2017-A,2018-B,etc.

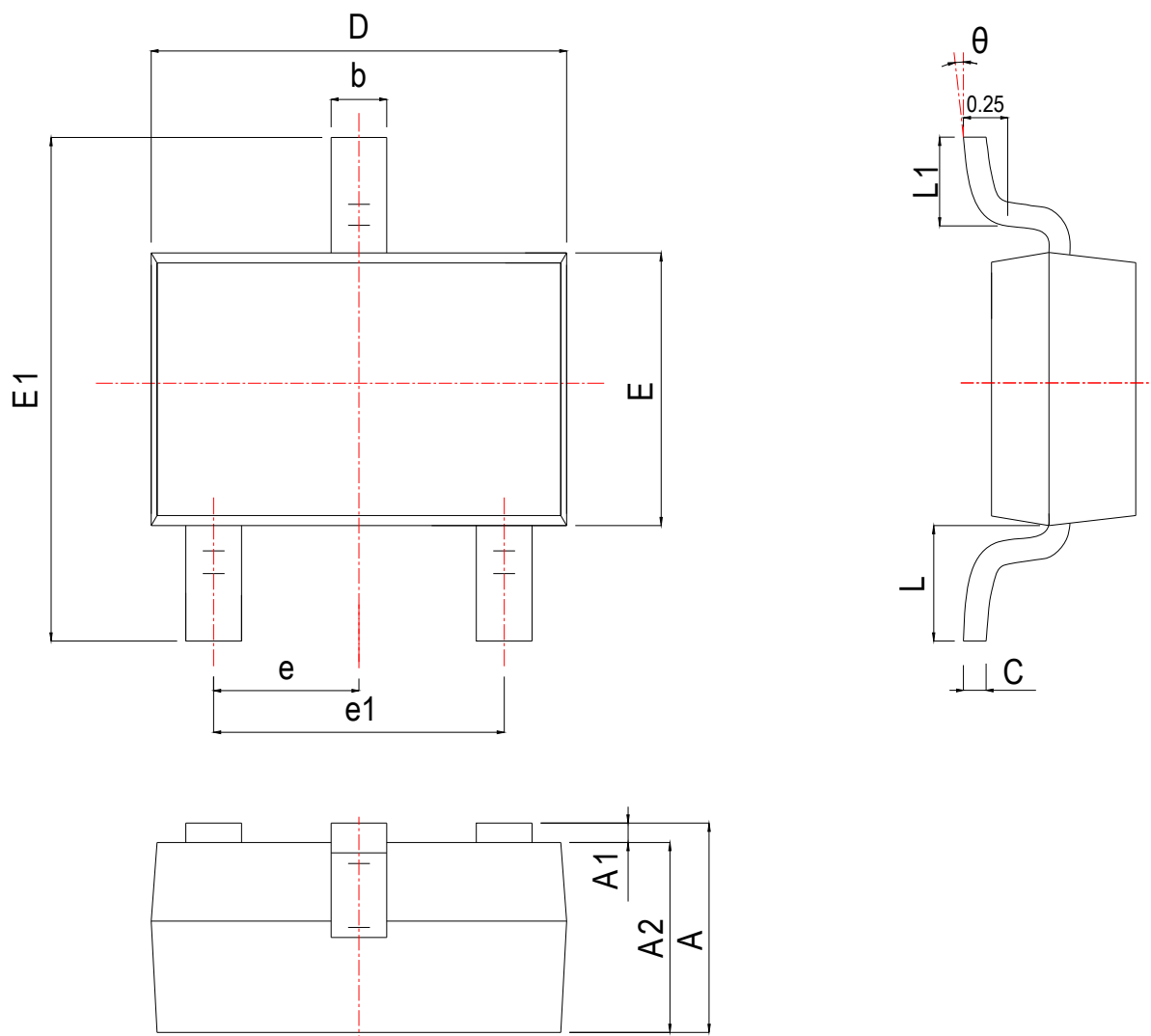
M =Month,Jan-1,Feb-2,....Sep-9,Oct-A,Nov-B,Dec-C.

## Typical Characteristics



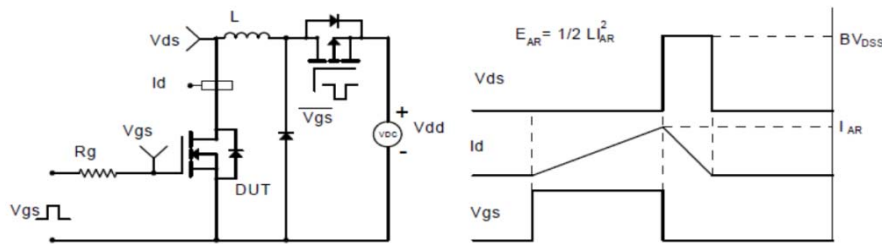
## Typical Characteristics



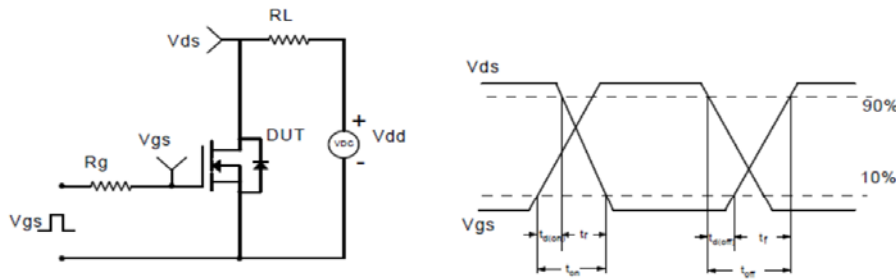
**Package Information**
**SOT23**


| SYMBOL   | MM        |       |       | INCH      |       |       |
|----------|-----------|-------|-------|-----------|-------|-------|
|          | MIN       | NOM   | MAX   | MIN       | NOM   | MAX   |
| A        | 0.900     | 1.025 | 1.150 | 0.035     | 0.040 | 0.045 |
| A1       | 0.050     | 0.075 | 0.100 | 0.002     | 0.003 | 0.004 |
| A2       | 0.900     | 0.975 | 1.020 | 0.035     | 0.038 | 0.040 |
| b        | 0.300     | 0.400 | 0.500 | 0.012     | 0.016 | 0.020 |
| c        | 0.080     | 0.115 | 0.150 | 0.003     | 0.005 | 0.006 |
| D        | 2.800     | 2.900 | 3.000 | 0.110     | 0.114 | 0.118 |
| E        | 1.200     | 1.300 | 1.400 | 0.047     | 0.051 | 0.055 |
| E1       | 2.250     | 2.400 | 2.550 | 0.089     | 0.094 | 0.100 |
| e        | 0.950 TYP |       |       | 0.037 TYP |       |       |
| e1       | 1.800     | 1.900 | 2.000 | 0.071     | 0.075 | 0.079 |
| L        | 0.540 REF |       |       | 0.021 REF |       |       |
| L1       | 0.400     | 0.500 | 0.600 | 0.016     | 0.018 | 0.020 |
| $\theta$ | 0°        | *     | 8°    | 0°        | *     | 8°    |

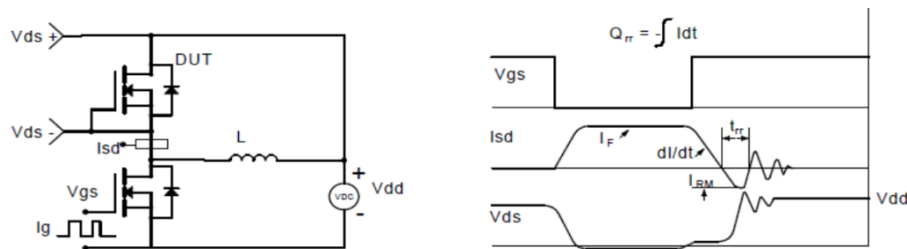
### Avalanche Test Circuit and Waveforms



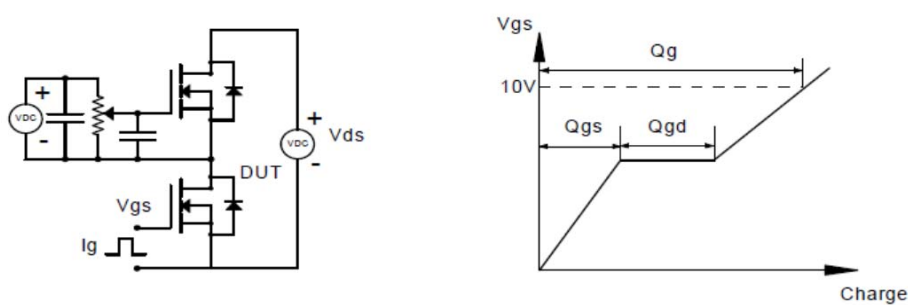
### Switching Time Test Circuit and Waveforms



### Diode Recovery Test Circuit and Waveforms



### Gate Charge Test Circuit and Waveform



### Customer Service

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