

## SOT-363 Plastic-Encapsulate MOSFET

### 50V Dual N-Channel MOSFET

#### Product Summary

| $V_{(BR)DSS}$ | $R_{DS(on)TYP}$ | $I_D$ |
|---------------|-----------------|-------|
| 50V           | 0.8Ω@10V        | 0.34A |
|               | 0.85Ω@4.5V      |       |

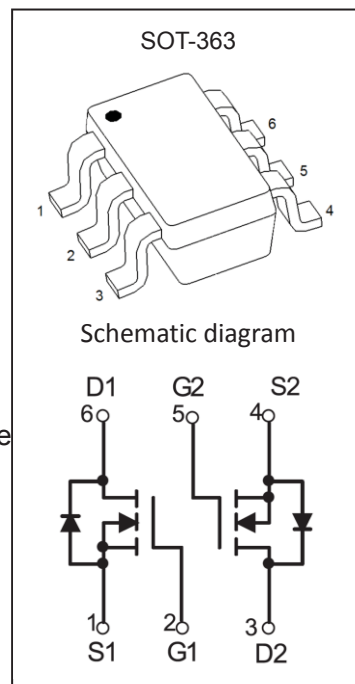
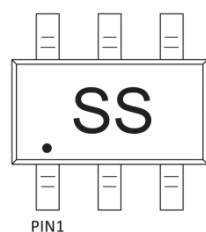
#### Feature

- High density cell design for extremely low  $R_{DS(on)}$
- Rugged and Reliable

#### Application

- Direct Logic-Level Interface: TTL/CMOS
- Drivers: Relays, Solenoids, Lamps, Hammers, Display, Memories, Transistors, etc.
- Battery Operated Systems
- Solid-State Relays

#### MARKING:



#### ABSOLUTE MAXIMUM RATINGS ( $T_a=25^{\circ}\text{C}$ unless otherwise noted)

| Parameter                                   | Symbol          | Value     | Unit                 |
|---------------------------------------------|-----------------|-----------|----------------------|
| Drain-Source Voltage                        | $V_{DS}$        | 50        | V                    |
| Gate-Source Voltage                         | $V_{GS}$        | ±20       | V                    |
| Continuous Drain Current                    | $I_D$           | 0.34      | A                    |
| Power Dissipation                           | $P_D$           | 150       | mW                   |
| Thermal Resistance from Junction to Ambient | $R_{\theta JA}$ | 833       | $^{\circ}\text{C/W}$ |
| Junction Temperature                        | $T_J$           | 150       | $^{\circ}\text{C}$   |
| Storage Temperature                         | $T_{STG}$       | -55~ +150 | $^{\circ}\text{C}$   |

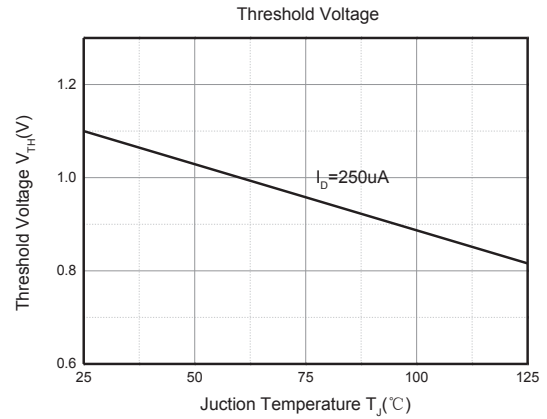
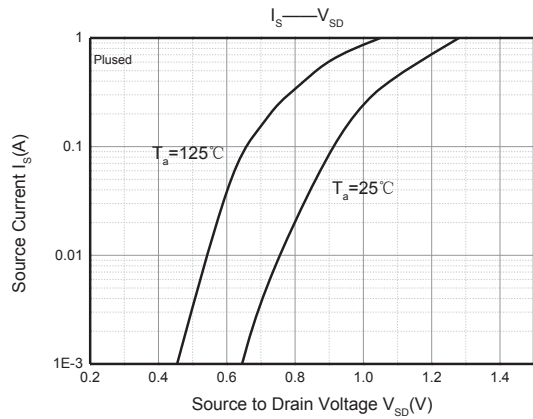
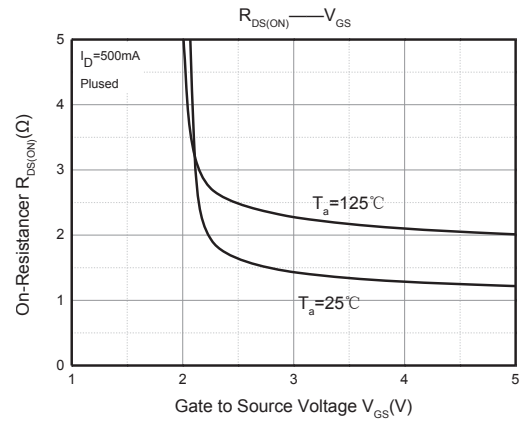
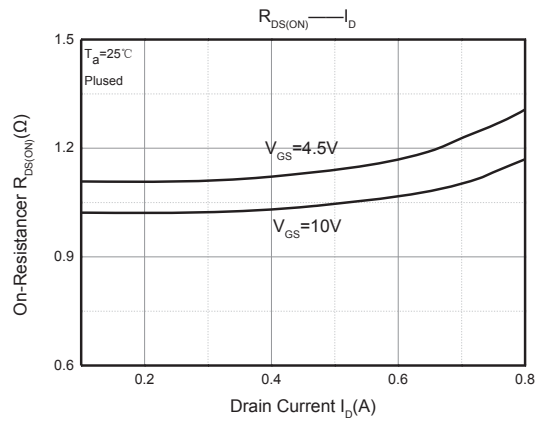
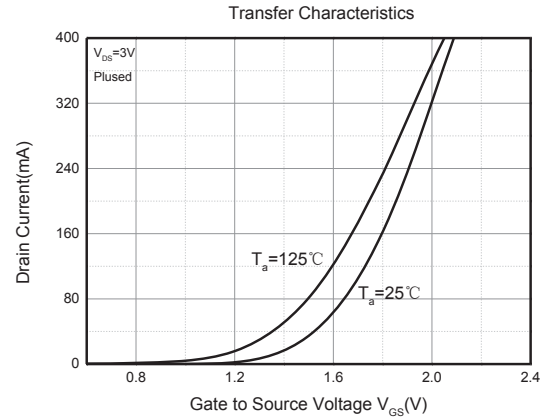
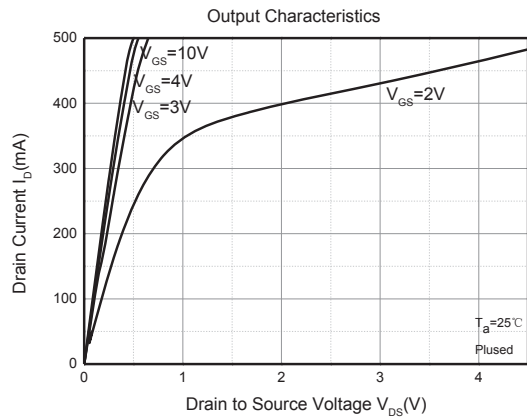
## Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

| Parameter                                       | Symbol               | Test Condition                                                                         | Min | Type | Max  | Unit |
|-------------------------------------------------|----------------------|----------------------------------------------------------------------------------------|-----|------|------|------|
| Static Characteristics                          |                      |                                                                                        |     |      |      |      |
| Drain-source breakdown voltage                  | V <sub>(BR)DSS</sub> | V <sub>GS</sub> = 0V, I <sub>D</sub> =250μA                                            | 50  |      |      | V    |
| Zero gate voltage drain current                 | I <sub>DSS</sub>     | V <sub>DS</sub> =50V,V <sub>GS</sub> = 0V                                              |     |      | 0.5  | μA   |
| Gate-body leakage current                       | I <sub>GSS</sub>     | V <sub>GS</sub> =±20V, V <sub>DS</sub> = 0V                                            |     |      | ±100 | nA   |
| Gate threshold voltage <sup>1</sup>             | V <sub>GS(th)</sub>  | V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =1mA                                 | 0.8 | 1.1  | 1.5  | V    |
| Drain-source on-resistance <sup>1</sup>         | R <sub>DS(on)</sub>  | V <sub>GS</sub> =10V, I <sub>D</sub> =220mA                                            |     | 0.8  | 2.5  | Ω    |
|                                                 |                      | V <sub>GS</sub> =4.5V, I <sub>D</sub> =220mA                                           |     | 0.85 | 3.0  |      |
| Forward tranconductance <sup>1</sup>            | g <sub>FS</sub>      | V <sub>DS</sub> =10V, I <sub>D</sub> =220mA                                            |     | 0.15 |      | S    |
| Dynamic characteristics <sup>2</sup>            |                      |                                                                                        |     |      |      |      |
| Input Capacitance                               | C <sub>iss</sub>     | V <sub>DS</sub> =25V,V <sub>GS</sub> =0V,f=1MHz                                        |     | 26.5 |      | pF   |
| Output Capacitance                              | C <sub>oss</sub>     |                                                                                        |     | 12.9 |      |      |
| Reverse Transfer Capacitance                    | C <sub>rss</sub>     |                                                                                        |     | 5.9  |      |      |
| Switching Characteristics <sup>1,2</sup>        |                      |                                                                                        |     |      |      |      |
| Turn-on delay time                              | t <sub>d(on)</sub>   | V <sub>DD</sub> =30V,I <sub>D</sub> =290mA,<br>V <sub>GS</sub> =10V,R <sub>G</sub> =6Ω |     |      | 5    | nS   |
| Turn-on rise time                               | t <sub>r</sub>       |                                                                                        |     |      | 18   |      |
| Turn-off delay time                             | t <sub>d(off)</sub>  |                                                                                        |     |      | 36   |      |
| Turn-off fall time                              | t <sub>f</sub>       |                                                                                        |     |      | 14   |      |
| Source-Drain Diode characteristics <sup>1</sup> |                      |                                                                                        |     |      |      |      |
| Diode Forward voltage                           | V <sub>DS</sub>      | I <sub>S</sub> =440mA, V <sub>GS</sub> = 0V                                            |     |      | 1.4  | V    |

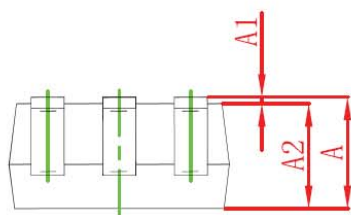
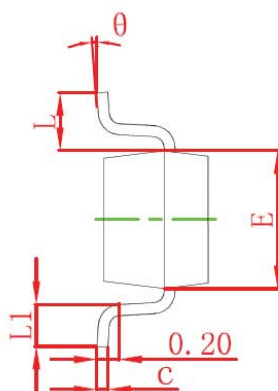
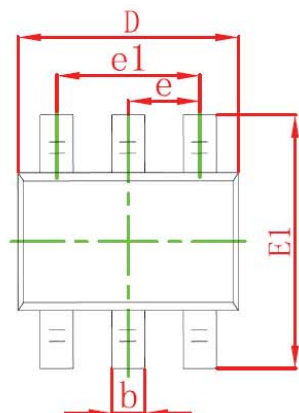
### Notes:

1. Pulse Test ; Pulse Width ≤300μs, Duty Cycle ≤2%.
2. These parameters have no way to verify.

## Typical Characteristics

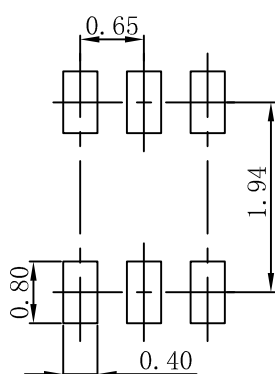


## SOT-363 Package Outline Dimensions



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min                       | Max   | Min                  | Max   |
| A      | 0.900                     | 1.100 | 0.035                | 0.043 |
| A1     | 0.000                     | 0.100 | 0.000                | 0.004 |
| A2     | 0.900                     | 1.000 | 0.035                | 0.039 |
| b      | 0.150                     | 0.350 | 0.006                | 0.014 |
| c      | 0.100                     | 0.150 | 0.004                | 0.006 |
| D      | 2.000                     | 2.200 | 0.079                | 0.087 |
| E      | 1.150                     | 1.350 | 0.045                | 0.053 |
| E1     | 2.150                     | 2.400 | 0.085                | 0.094 |
| e      | 0.650 TYP                 |       | 0.026 TYP            |       |
| e1     | 1.200                     | 1.400 | 0.047                | 0.055 |
| L      | 0.525 REF                 |       | 0.021 REF            |       |
| L1     | 0.260                     | 0.460 | 0.010                | 0.018 |
| θ      | 0°                        | 8°    | 0°                   | 8°    |

## SOT-363 Suggested Pad Layout



### Note:

1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05\text{mm}$ .
3. The pad layout is for reference purposes only.

### NOTICE

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