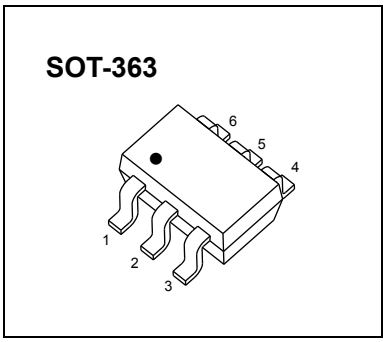
N-channel MOSFET

# SOT-363 Plastic-Encapsulate MOSFETS

| $V_{(BR)DSS}$ | $R_{DS(on)}$MAX | $I_D$ |
|---|---|---|
| 60V | 5Ω@10V | 340mA |
| | 5.3Ω@4.5V | |



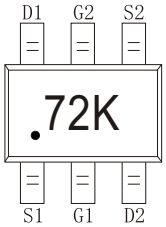

## FEATURE

- High density cell design for Low $R_{DS(on)}$
- Voltage controlled small signal switch
- Rugged and reliable
- High saturation current capability
- ESD protected

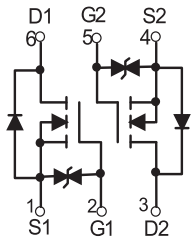
## APPLICATION

- Load Switch for Portable Devices
- DC/DC Converter

## MARKING




## Equivalent Circuit




## MOSFET MAXIMUM RATINGS ($T_a$ = 25℃ unless otherwise noted)

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $V_{DS}$ | Drain-Source voltage | 60 | V |
| $V_{GS}$ | Gate-Source voltage | ±20 | V |
| $I_D$ | Drain Current | 340 | mA |
| $P_D$ | Power Dissipation | 0.15 | W |
| $T_J$ | Junction Temperature | 150 | ℃ |
| $T_{stg}$ | Storage Temperature | -55-150 | ℃ |
| $R_{\theta JA}$ | Thermal Resistance fromJunction to Ambient | 833 | ℃ /W |

## MOSFET ELECTRICAL CHARACTERISTICS

**$T_a$=25℃ unless otherwise specified**

| Parameter | Symbol | Test Condition | Min | Typ | Max | Units |
|---|---|---|---|---|---|---|
| **Static Characteristics** | | | | | | |
| Drain-Source Breakdown Voltage | $V_{DS}$ | $V_{GS}$ = 0V, $I_D$ =250μA | 60 | | | V |
| Gate Threshold Voltage* | $V_{GS(th)}$ | $V_{DS}$ =$V_{GS}$, $I_D$ =1mA | 1 | 1.3 | 2.5 | V |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | $V_{DS}$ =48V,$V_{GS}$ = 0V | | | 1 | μA |
| Gate –Source leakage current | $I_{GSS1}$ | $V_{GS}$ =±20V, $V_{DS}$ = 0V | | | ±10 | μA |
| Drain-Source On-Resistance* | $R_{DS(on)}$ | $V_{GS}$ = 4.5V, $I_D$ =200mA | | 1.1 | 5.3 | Ω |
| | | $V_{GS}$ =10V,$I_D$ =500mA | | 0.9 | 5 | Ω |
| Diode Forward Voltage | $V_{SD}$ | $V_{GS}$=0V, $I_S$=300mA | | | 1.5 | V |
| Recovered charge | $Q_r$ | $V_{GS}$=0V,$I_S$=300mA,$V_R$=25V, $dI_S/dt$=-100A/μs | | 30 | | nC |
| **Dynamic Characteristics**** | | | | | | |
| Input Capacitance | $C_{iss}$ | $V_{DS}$ =10V,$V_{GS}$ =0V,f =1MHz | | | 40 | pF |
| Output Capacitance | $C_{oss}$ | | | | 30 | pF |
| Reverse Transfer Capacitance | $C_{rss}$ | | | | 10 | pF |
| **Switching Characteristics**** | | | | | | |
| Turn-On Delay Time | $t_{d(on)}$ | $V_{GS}$=10V,$V_{DD}$=50V,$R_G$=50Ω, $R_{GS}$=50Ω, $R_L$=250Ω | | | 10 | ns |
| Turn-Off Delay Time | $t_{d(off)}$ | | | | 15 | ns |
| Reverse recovery Time | $t_{rr}$ | $V_{GS}$=0V,$I_S$=300mA,$V_R$=25V, $dI_S/dt$=-100A/μs | | 30 | | ns |
| **GATE-SOURCE ZENER DIODE** | | | | | | |
| Gate-Source Breakdown Voltage | $BV_{GSO}$ | $I_{gs}$=±1mA (Open Drain) | ±21.5 | | ±30 | V |

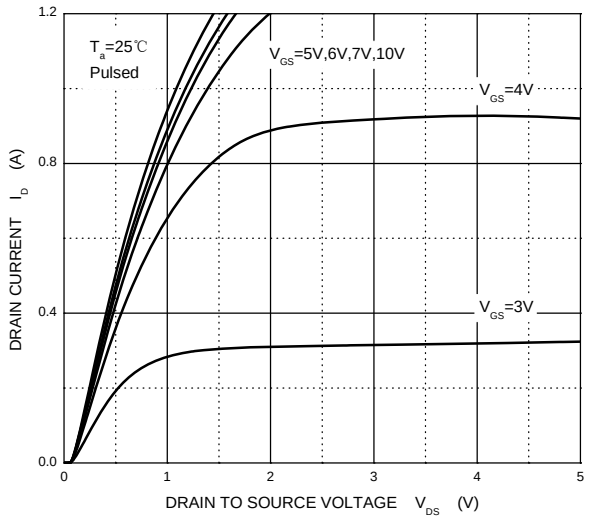
**Notes :**

*Pulse Test : Pulse Width ≤300μs, Duty Cycle ≤2%.

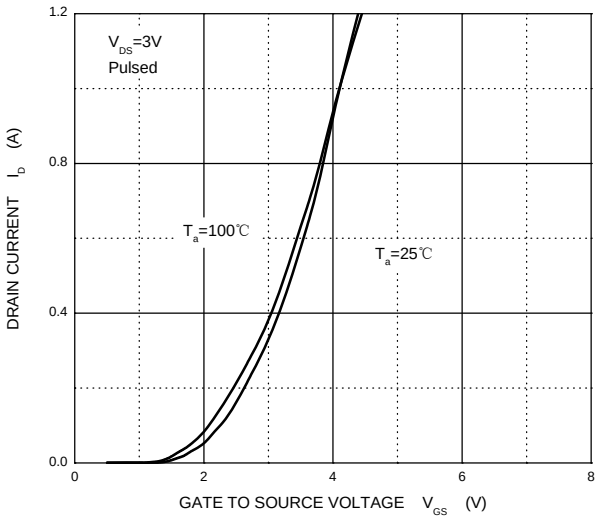
**These parameters have no way to verify.

## Typical Characteristics

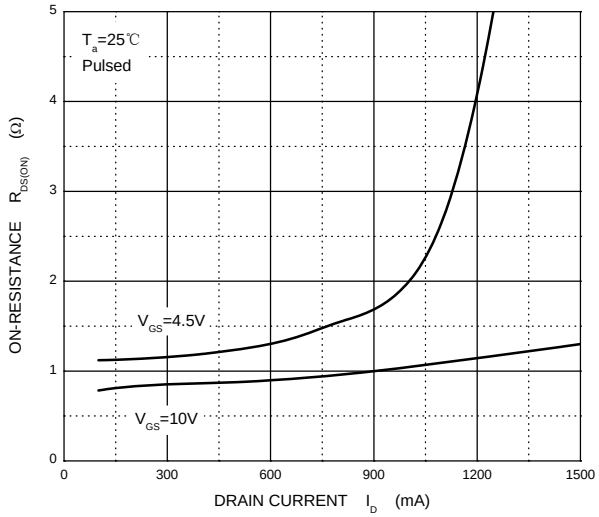
Output Characteristics



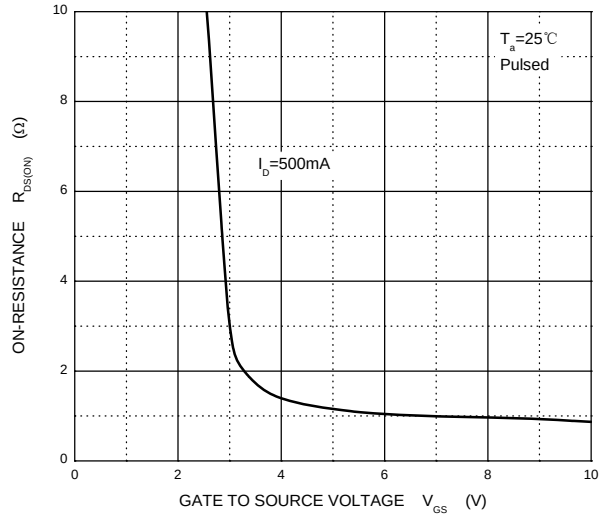

Transfer Characteristics



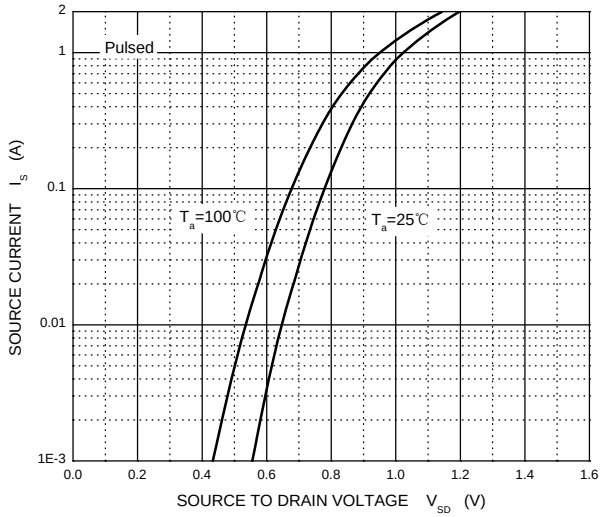

$R_{DS(ON)}$ —— $I_D$



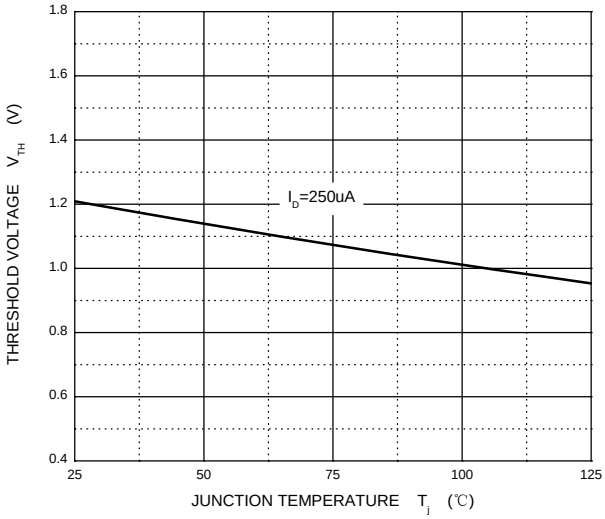

$R_{DS(ON)}$ —— $V_{GS}$



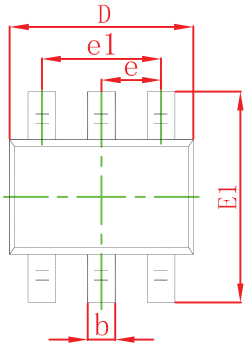

$I_S$ —— $V_{SD}$

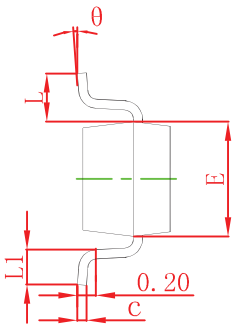


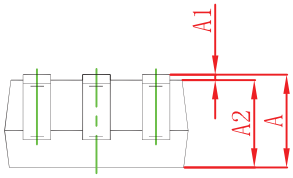

Threshold Voltage



## SOT-363 Package Outline Dimensions

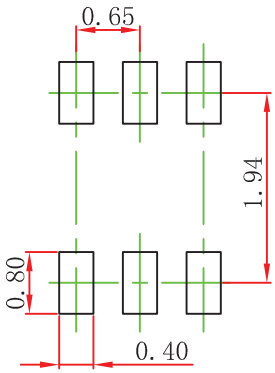



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|---|---|---|---|---|
| | Min | Max | Min | Max |
| A | 0.900 | 1.100 | 0.035 | 0.043 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 0.900 | 1.000 | 0.035 | 0.039 |
| b | 0.150 | 0.350 | 0.006 | 0.014 |
| c | 0.100 | 0.150 | 0.004 | 0.006 |
| 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:± 0.05mm.
3.The pad layout is for reference purposes only.