

### Product Summary

| $V_{(BR)DSS}$ | $R_{DS(on)MAX}$ | $I_D$ |
|---------------|-----------------|-------|
| 60V           | $3\Omega@10V$   | 0.3A  |
|               | $4\Omega@4.5V$  |       |

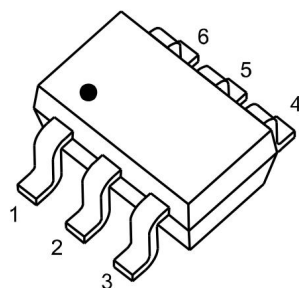
### Feature

- High power and current handling capability
- Surface mount package
- ESD protected

### Application

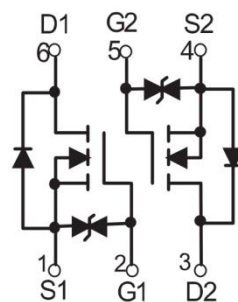
- Battery Switch
- DC/DC Converter

### Package

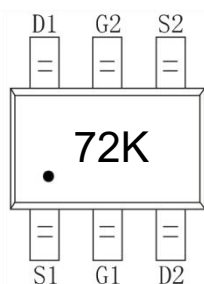


**SOT-363**

### Circuit diagram



### Marking



### Absolute maximum ratings ( $T_A=25^{\circ}\text{C}$ unless otherwise noted)

| Parameter                                   | Symbol          | Value           | Unit                 |
|---------------------------------------------|-----------------|-----------------|----------------------|
| Drain-Source Voltage                        | $V_{DS}$        | 60              | V                    |
| Gate-Source Voltage                         | $V_{GS}$        | $\pm 20$        | V                    |
| Continuous Drain Current                    | $I_D$           | 0.3             | A                    |
| Pulse Drain Current                         | $I_{DM}$        | 1.2             | A                    |
| Power Dissipation                           | $P_D$           | 0.15            | W                    |
| Thermal Resistance from Junction to Ambient | $R_{\theta JA}$ | 833             | $^{\circ}\text{C/W}$ |
| Operating Junction Temperature              | $T_J$           | $-55 \sim +150$ | $^{\circ}\text{C}$   |
| Storage Temperature                         | $T_{STG}$       | $-55 \sim +150$ | $^{\circ}\text{C}$   |

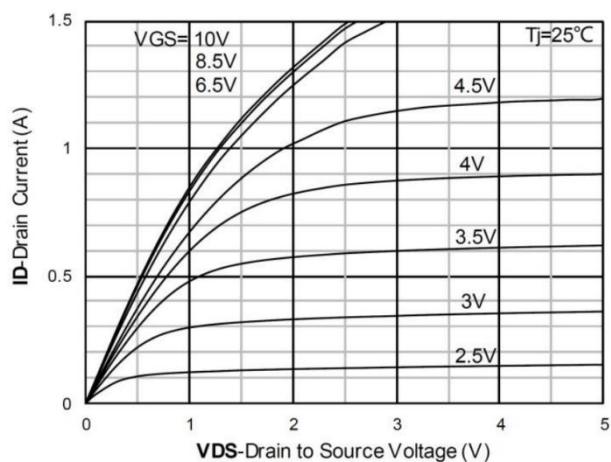
### Electrical characteristics ( $T_A=25^{\circ}\text{C}$ , unless otherwise noted)

| Parameter                             | Symbol        | Test Condition                                       | Min. | Typ. | Max.     | Unit     |
|---------------------------------------|---------------|------------------------------------------------------|------|------|----------|----------|
| Static Characteristics                |               |                                                      |      |      |          |          |
| Drain-source breakdown voltage        | $V_{(BR)DSS}$ | $V_{GS}=0V, I_D=250\mu A$                            | 60   |      |          | V        |
| Zero gate voltage drain current       | $I_{DSS}$     | $V_{DS}=48V, V_{GS}=0V$                              |      |      | 1        | $\mu A$  |
| Gate-body leakage current             | $I_{GSS}$     | $V_{DS}=0V, V_{GS}=\pm 20V$                          |      |      | $\pm 10$ | $\mu A$  |
| Gate threshold voltage                | $V_{GS(th)}$  | $V_{DS}=V_{GS}, I_D=250\mu A$                        | 1    | 1.5  | 2.5      | V        |
| Drain-source on-resistance            | $R_{DS(on)}$  | $V_{GS}=10V, I_D=0.2A$                               |      | 1.7  | 3        | $\Omega$ |
|                                       |               | $V_{GS}=4.5V, I_D=0.1A$                              |      | 1.8  | 4        |          |
| Dynamic characteristics <sup>1)</sup> |               |                                                      |      |      |          |          |
| Input Capacitance                     | $C_{iss}$     | $V_{DS}=25V, V_{GS}=0V, f=1MHz$                      |      | 28   |          | pF       |
| Output Capacitance                    | $C_{oss}$     |                                                      |      | 10   |          |          |
| Reverse Transfer Capacitance          | $C_{rss}$     |                                                      |      | 5    |          |          |
| Total Gate Charge                     | $Q_g$         | $V_{DS}=10V, V_{GS}=4.5V, I_D=0.3A$                  |      | 1.7  |          | nC       |
| Gate-Source Charge                    | $Q_{gs}$      |                                                      |      | 0.35 |          |          |
| Gate-Drain Charge                     | $Q_{gd}$      |                                                      |      | 0.5  |          |          |
| Turn-on delay time                    | $t_{d(on)}$   | $V_{DS}=30V, V_{GS}=10V, I_D=0.3A$<br>$R_G=25\Omega$ |      | 3    |          | nS       |
| Turn-on rise time                     | $t_r$         |                                                      |      | 17   |          |          |
| Turn-off delay time                   | $t_{d(off)}$  |                                                      |      | 10   |          |          |
| Turn-off fall time                    | $t_f$         |                                                      |      | 21   |          |          |
| Source-Drain Diode characteristics    |               |                                                      |      |      |          |          |
| Diode Forward Current                 | $I_S$         |                                                      |      |      | 0.3      | A        |
| Diode Forward voltage                 | $V_{SD}$      | $V_{GS}=0V, I_S=1A, T_J=25^{\circ}C$                 |      |      | 1.2      | V        |

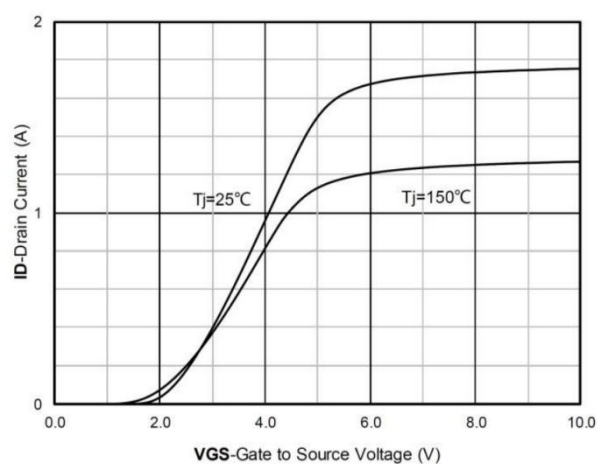
Notes:

1) Guaranteed by design, not subject to production testing.

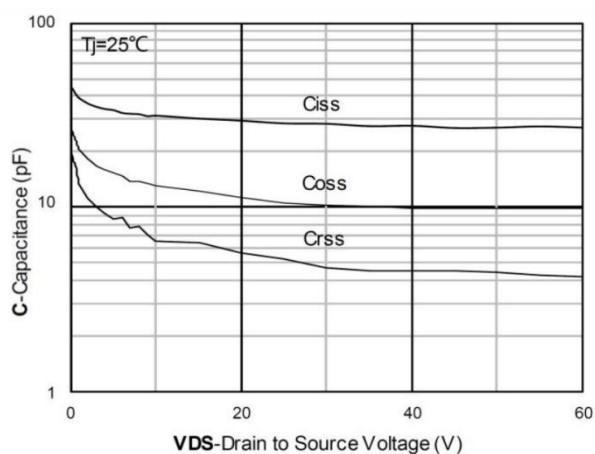
### Typical Characteristics



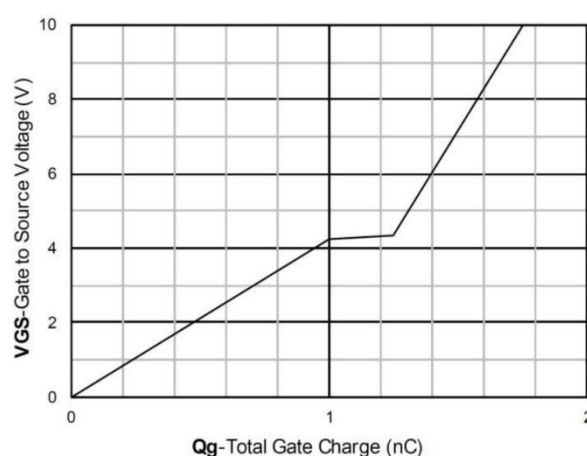
Output Characteristics



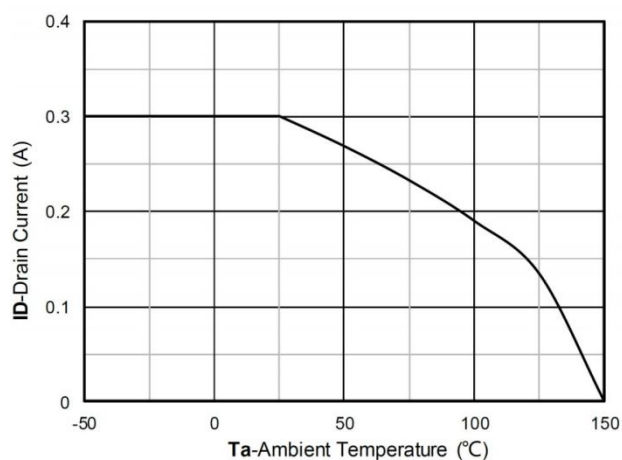
Transfer Characteristics



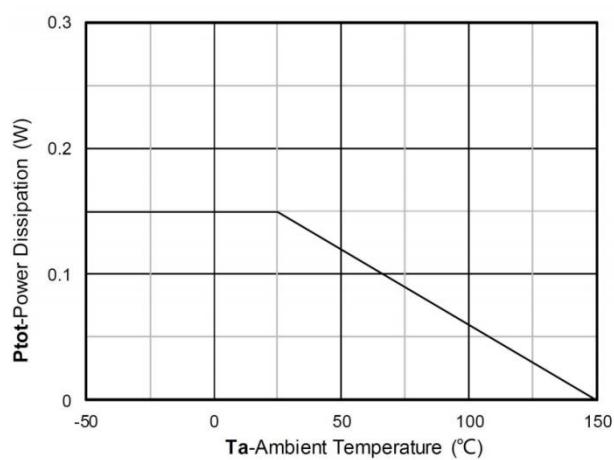
Capacitance Characteristics



Gate Charge

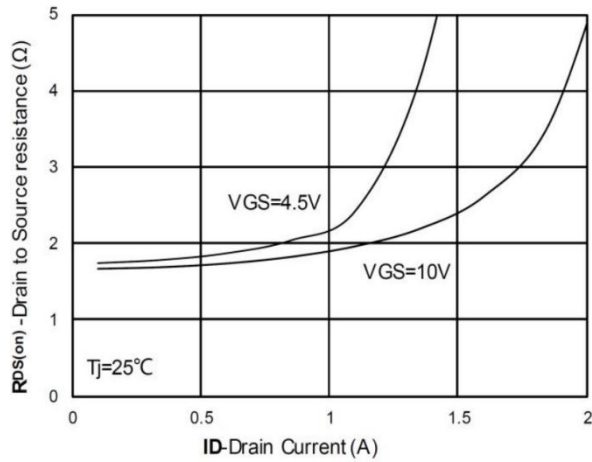


Current dissipation

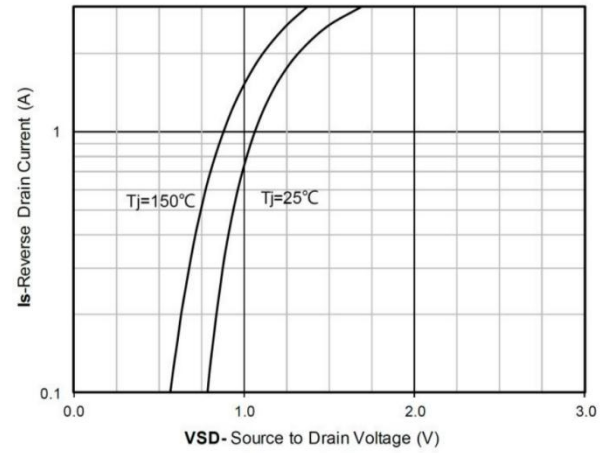


Power dissipation

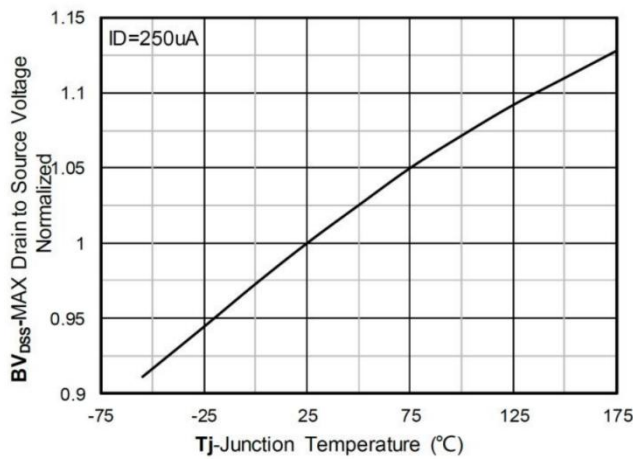
### Typical Characteristics



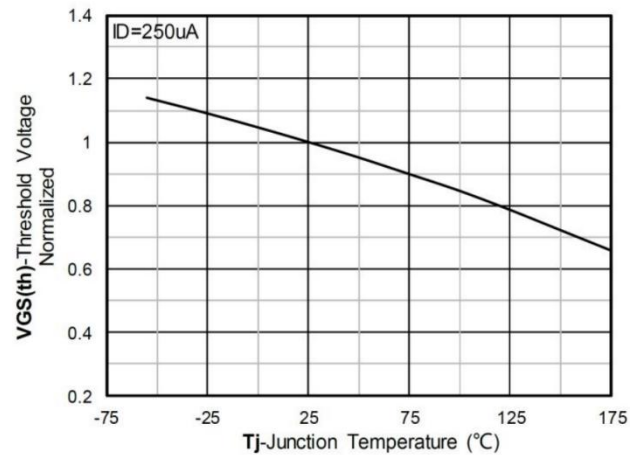
$R_{DS(on)}$  VS Drain Current



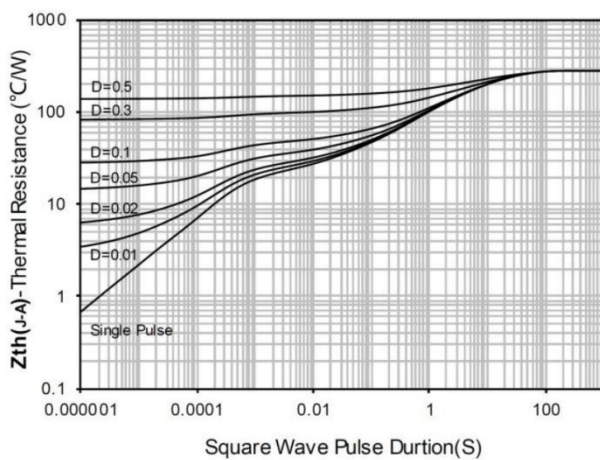
Forward characteristics of reverse diode



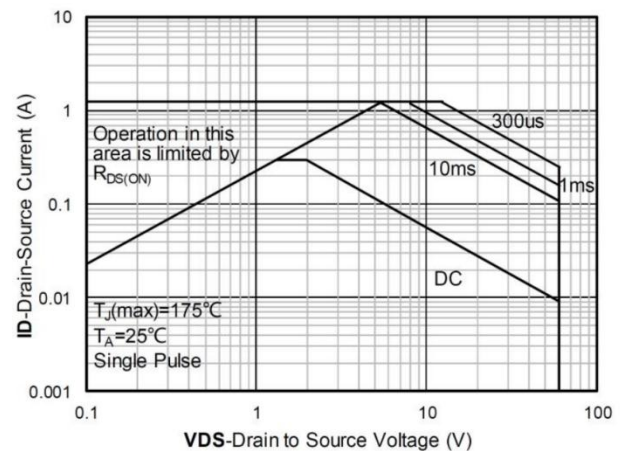
Normalized breakdown voltage



Normalized Threshold voltage

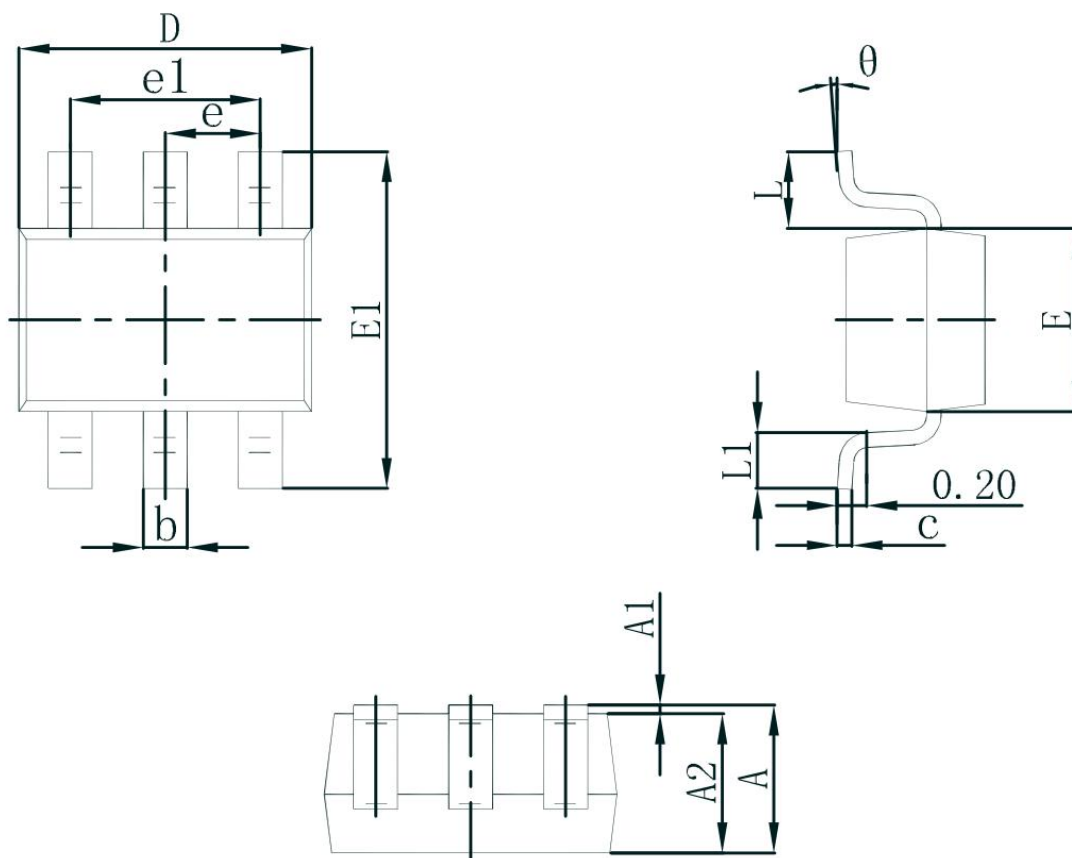


Maximum Transient Thermal Impedance



Safe Operation Area

## SOT-363 Package Information



| 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      | 1.800                     | 2.200 | 0.071                | 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°    |