

### Features

- Fast switching
- Green Device Available
- Suit for 1.5V Gate Drive Applications

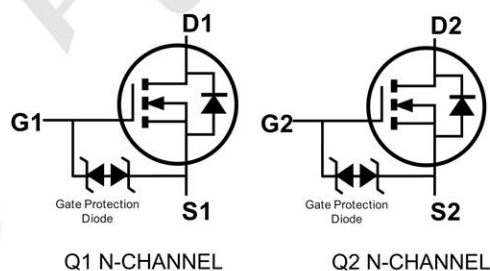
### Application

- Notebook
- Load Switch
- Networking
- Hand-held Instruments

### Package and Pin Configuration



### Circuit diagram



**Marking: 72K**

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

| Parameter  |                             | Symbol         | Limit      | Unit               |
|--|-----------------------------|----------------|------------|--------------------|
| Drain-Source Voltage                                     |                             | $V_{DS}$       | 60         | V                  |
| Gate-Source Voltage                                      |                             | $V_{GS}$       | $\pm 20$   | V                  |
| Continuous Drain Current ( $T_J = 150^{\circ}\text{C}$ ) | $T_A = 25^{\circ}\text{C}$  | $I_D$          | 0.3        | A                  |
|  | $T_A = 100^{\circ}\text{C}$ |                | 0.19       |                    |
| Drain Current-Pulsed (Note 1)                            |                             | $I_{DM}$       | 0.8        | A                  |
| Maximum Power Dissipation                                |                             | $P_D$          | 0.35       | W                  |
| Operating Junction and Storage Temperature Range         |                             | $T_J, T_{STG}$ | -55 To 150 | $^{\circ}\text{C}$ |

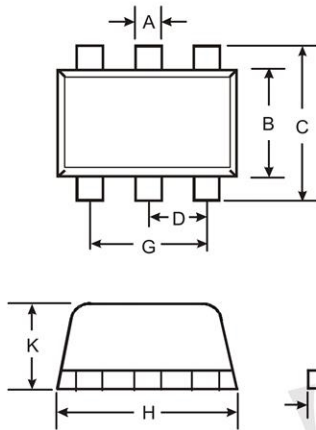
### Thermal Characteristic

|  |                 |     |                             |
|--|-----------------|-----|-----------------------------|
| Thermal Resistance, Junction-to-Ambient (Note 2) | $R_{\theta JA}$ | 350 | $^{\circ}\text{C}/\text{W}$ |
|--|-----------------|-----|-----------------------------|

**Electrical Characteristics (  $T_A = 25^\circ\text{C}$  unless otherwise noted )**

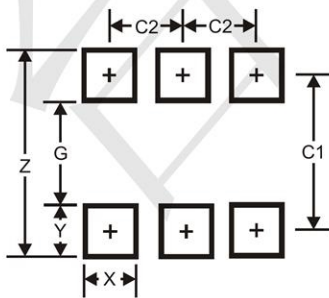
| Parameter                                 | Symbol       | Condition  | Min | Typ | Max      | Unit     |
|---|--------------|--|-----|-----|----------|----------|
| <b>Off Characteristics</b>                |              |  |     |     |          |          |
| Drain-Source Breakdown Voltage            | $BV_{DSS}$   | $V_{GS}=0V, I_D=250\mu A$                                | 60  |     | -        | V        |
| Zero Gate Voltage Drain Current           | $I_{DSS}$    | $V_{DS}=60V, V_{GS}=0V$                                  | -   | -   | 1        | $\mu A$  |
| Gate-Body Leakage Current                 | $I_{GSS}$    | $V_{GS}=\pm 10V, V_{DS}=0V$                              | -   | -   | $\pm 1$  | $\mu A$  |
|   |              | $V_{GS}=\pm 20V, V_{DS}=0V$                              | -   |     | $\pm 10$ | $\mu A$  |
| <b>On Characteristics (Note 3)</b>        |              |  |     |     |          |          |
| Gate Threshold Voltage                    | $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=250\mu A$                            | 1   | 1.6 |          |          |
| Drain-Source On-State Resistance          | $R_{DS(on)}$ | $V_{GS}=4.5V, I_D=0.2A$                                  | -   | 1.9 | 2.5      | $\Omega$ |
|   |              | $V_{GS}=10V, I_D=0.3A$                                   | -   | 1.8 | 2.2      | $\Omega$ |
| Forward Transconductance                  | $g_{FS}$     | $V_{DS}=10V, I_D=0.2A$                                   | 0.1 | -   | -        | S        |
| <b>Dynamic Characteristics (Note 4)</b>   |              |  |     |     |          |          |
| Input Capacitance                         | $C_{iss}$    | $V_{DS}=30V, V_{GS}=0V,$<br>$F=1.0MHz$                   |     | 27  |          | PF       |
| Output Capacitance                        | $C_{oss}$    |  |     | 18  |          | PF       |
| Reverse Transfer Capacitance              | $C_{rss}$    |  |     | 2   |          | PF       |
| <b>Switching Characteristics (Note 4)</b> |              |  |     |     |          |          |
| Turn-on Delay Time                        | $t_{d(on)}$  | $V_{DD}=30V, I_D=0.2A$<br>$V_{GS}=10V, R_{GEN}=10\Omega$ | -   | 10  | -        | nS       |
| Turn-on Rise Time                         | $t_r$        |  | -   | 50  | -        | nS       |
| Turn-Off Delay Time                       | $t_{d(off)}$ |  | -   | 17  | -        | nS       |
| Turn-Off Fall Time                        | $t_f$        |  | -   | 10  | -        | nS       |
| Total Gate Charge                         | $Q_g$        | $V_{DS}=10V, I_D=0.3A,$<br>$V_{GS}=4.5V$                 | -   | 1.7 | 3        | nC       |
| <b>Drain-Source Diode Characteristics</b> |              |  |     |     |          |          |
| Diode Forward Voltage (Note 3)            | $V_{SD}$     | $V_{GS}=0V, I_S=0.2A$                                    | -   | -   | 1.2      | V        |
| Diode Forward Current (Note 2)            | $I_S$        |  | -   | -   | 0.3      | A        |

SOT-563 Package Outline Drawing



| SOT563               |      |      |      |
|----------------------|------|------|------|
| Dim                  | Min  | Max  | Typ  |
| A                    | 0.15 | 0.30 | 0.20 |
| B                    | 1.10 | 1.25 | 1.20 |
| C                    | 1.55 | 1.70 | 1.60 |
| D                    | -    | -    | 0.50 |
| G                    | 0.90 | 1.10 | 1.00 |
| H                    | 1.50 | 1.70 | 1.60 |
| K                    | 0.55 | 0.60 | 0.60 |
| L                    | 0.10 | 0.30 | 0.20 |
| M                    | 0.10 | 0.18 | 0.11 |
| All Dimensions in mm |      |      |      |

**Suggested Pad Layout**



| Dimensions | Value (in mm) |
|------------|---------------|
| Z          | 2.2           |
| G          | 1.2           |
| X          | 0.375         |
| Y          | 0.5           |
| C1         | 1.7           |
| C2         | 0.5           |