

Description

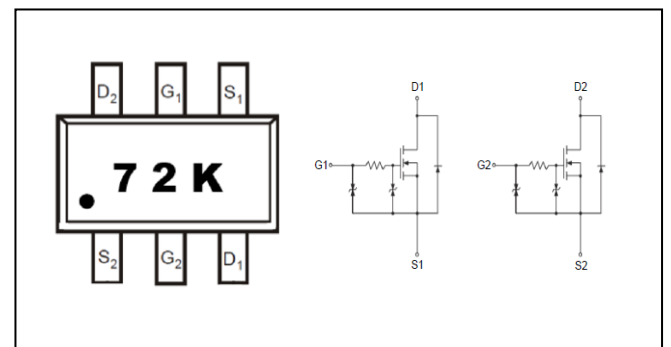
We declare that the material of product compliance with Rohs requirements and Halogen Free.
 ESD protected
 Low RDS(on)

- Low side load switch
- Level shift circuitis
- DC-DC converter
- Portable applications i.e. DSC, PDA, Cell Phone, etc.

Product Summary

| | | |
|------------------|-----|----------|
| V_{DS} | 60 | V |
| $R_{DS(ON),max}$ | 2.3 | Ω |
| I_D | 0.3 | A |

SOT-363 Pin Configuration



Absolute Maximum Ratings

| Symbol | Parameter | Rating | Units |
|------------------------|--|------------|------------|
| V_{DS} | Drain-Source Voltage | 60 | V |
| V_{GS} | Gate-Source Voltage | ± 20 | V |
| $I_D @ T_A=25^\circ C$ | Continuous Drain Current, $V_{GS} @ 10V^1$ | 300 | mA |
| $I_D @ T_A=70^\circ C$ | Continuous Drain Current, $V_{GS} @ 10V^1$ | 190 | mA |
| I_{DM} | Pulsed Drain Current ² | 0.65 | A |
| $P_D @ T_A=25^\circ C$ | Total Power Dissipation ³ | 0.35 | W |
| T_{STG} | Storage Temperature Range | -55 to 150 | $^\circ C$ |
| T_J | Operating Junction Temperature Range | -55 to 150 | $^\circ C$ |

Thermal Data

| Symbol | Parameter | Typ. | Max. | Unit |
|-----------------|--|------|------|--------------|
| $R_{\theta JA}$ | Thermal Resistance Junction-Ambient ¹ | --- | 300 | $^\circ C/W$ |



Electrical Characteristics (T_J=25 °C, unless otherwise noted)

| Symbol | Parameter | Conditions | Min. | Typ. | Max. | Unit |
|-------------------------------------|--|--|------|-------|------|-------|
| BV _{DSS} | Drain-Source Breakdown Voltage | V _{GS} =0V, I _D =250uA | 60 | --- | --- | V |
| ΔBV _{DSS} /ΔT _J | BV _{DSS} Temperature Coefficient | Reference to 25°C, I _D =1mA | --- | 0.054 | --- | V/°C |
| R _{DS(ON)} | Static Drain-Source On-Resistance ² | V _{GS} =10V, I _D =200mA | --- | 1.8 | 2.3 | Ω |
| | | V _{GS} =4.5V, I _D =100mA | --- | 2.3 | 3.0 | |
| V _{GS(th)} | Gate Threshold Voltage | V _{GS} =V _{DS} , I _D =250uA | 1.0 | 1.4 | 2.5 | V |
| ΔV _{GS(th)} | V _{GS(th)} Temperature Coefficient | | --- | -4.96 | --- | mV/°C |
| I _{DSS} | Drain-Source Leakage Current | V _{DS} =48V, V _{GS} =0V, T _J =25°C | --- | --- | 1 | uA |
| | | V _{DS} =48V, V _{GS} =0V, T _J =55°C | --- | --- | 5 | |
| I _{GSS} | Gate-Source Leakage Current | V _{GS} =±20V, V _{DS} =0V | --- | --- | ±10 | uA |
| g _{fs} | Forward Transconductance | V _{DS} =50V, I _D =200mA | --- | 0.16 | --- | S |
| Q _g | Total Gate Charge (4.5V) | V _{DS} =0.5V, V _{GS} =10V, I _D =200mA | --- | 0.5 | --- | nC |
| Q _{gs} | Gate-Source Charge | | --- | 0.2 | --- | |
| Q _{gd} | Gate-Drain Charge | | --- | 0.15 | --- | |
| T _{d(on)} | Turn-On Delay Time | V _{DD} =30V, V _{GEN} =10V, R _G =25Ω, I _D =500mA, R _L =60Ω, | --- | 6.7 | --- | ns |
| T _r | Rise Time | | --- | 12 | --- | |
| T _{d(off)} | Turn-Off Delay Time | | --- | 13 | --- | |
| T _f | Fall Time | | --- | 15 | --- | |
| C _{iss} | Input Capacitance | V _{DS} =30V, V _{GS} =0V, f=1MHz | --- | 18.5 | --- | pF |
| C _{oss} | Output Capacitance | | --- | 7.5 | --- | |
| C _{rss} | Reverse Transfer Capacitance | | --- | 4.2 | --- | |

Diode Characteristics

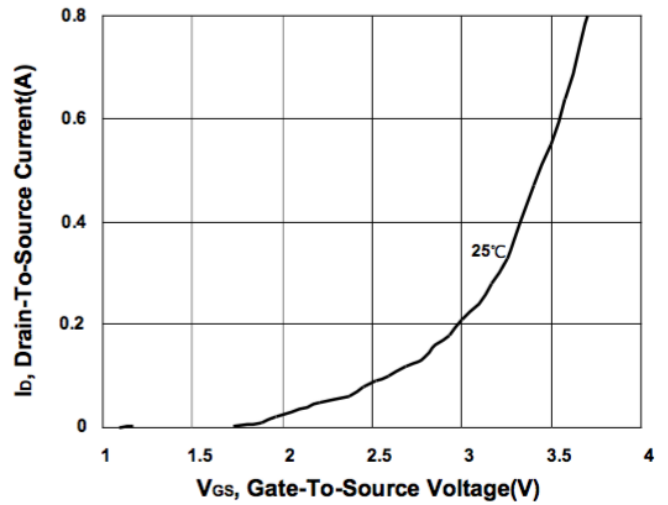
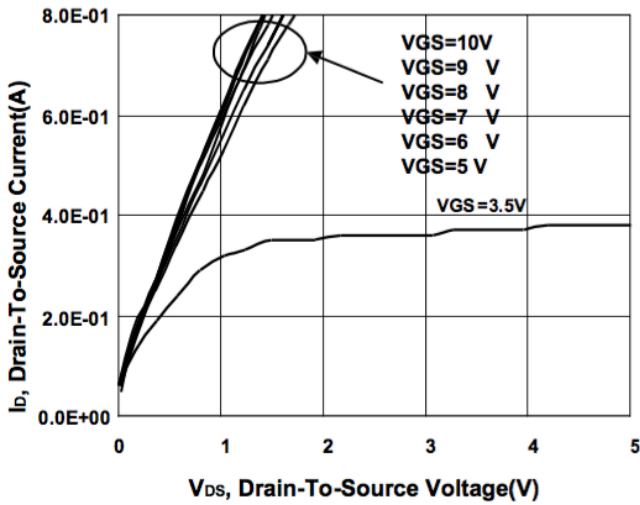
| Symbol | Parameter | Conditions | Min. | Typ. | Max. | Unit |
|-----------------|--|---|------|------|------|------|
| I _S | Continuous Source Current ^{1,4} | V _G =V _D =0V, Force Current | --- | --- | 300 | mA |
| I _{SM} | Pulsed Source Current ^{2,4} | | --- | --- | 0.65 | A |
| V _{SD} | Diode Forward Voltage ² | V _{GS} =0V, I _S =0.5A, T _J =25°C | --- | --- | 1.2 | V |

Note :

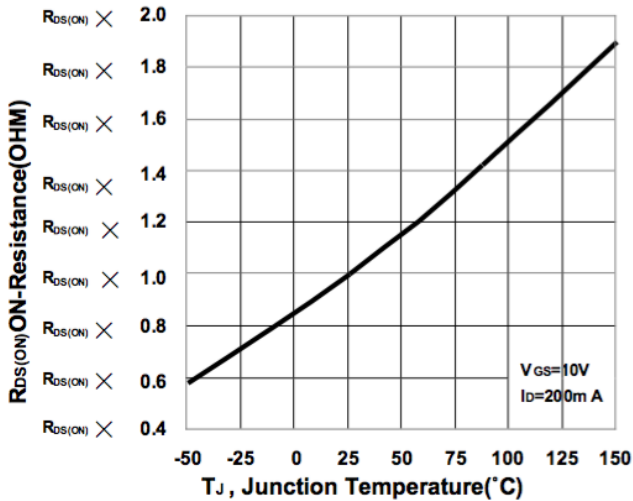
- 1.The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
- 2.The data tested by pulsed, pulse width ≤ 300us, duty cycle ≤ 2%
- 3.The power dissipation is limited by 150°C junction temperature.
- 4.The data is theoretically the same as I_D and I_{DM}, in real applications, should be limited by total power dissipation.



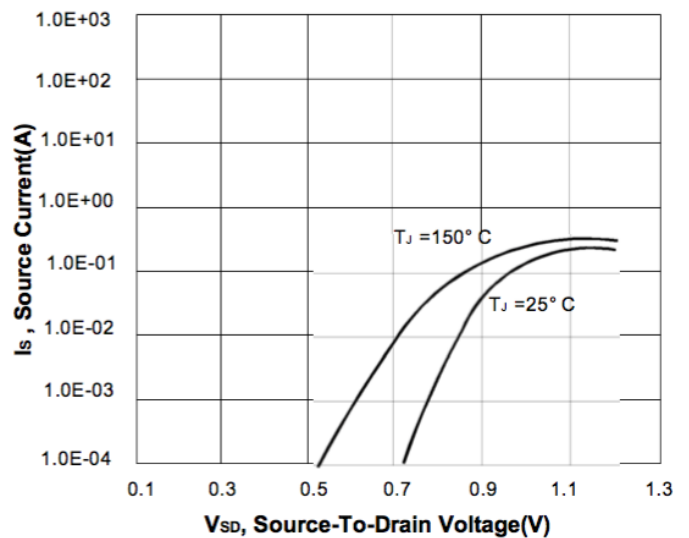
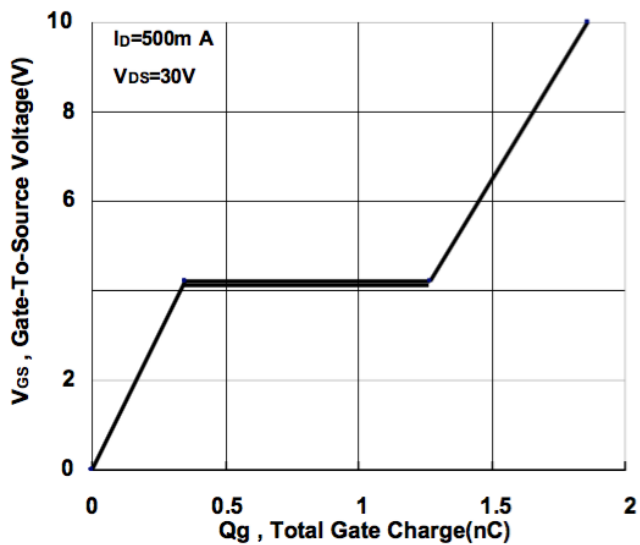
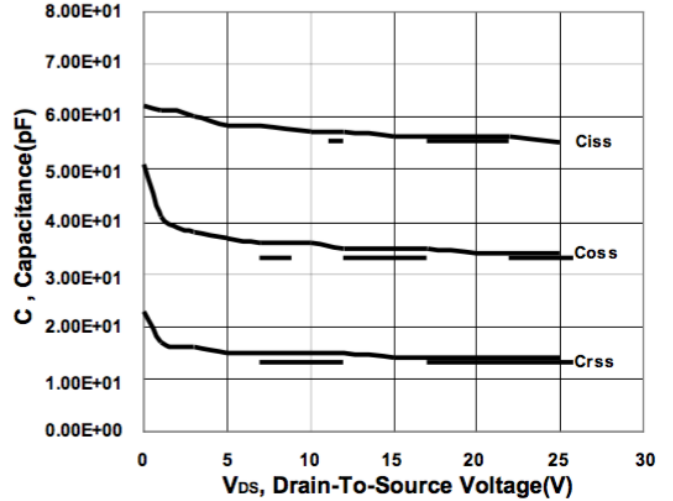
Typical Characteristics

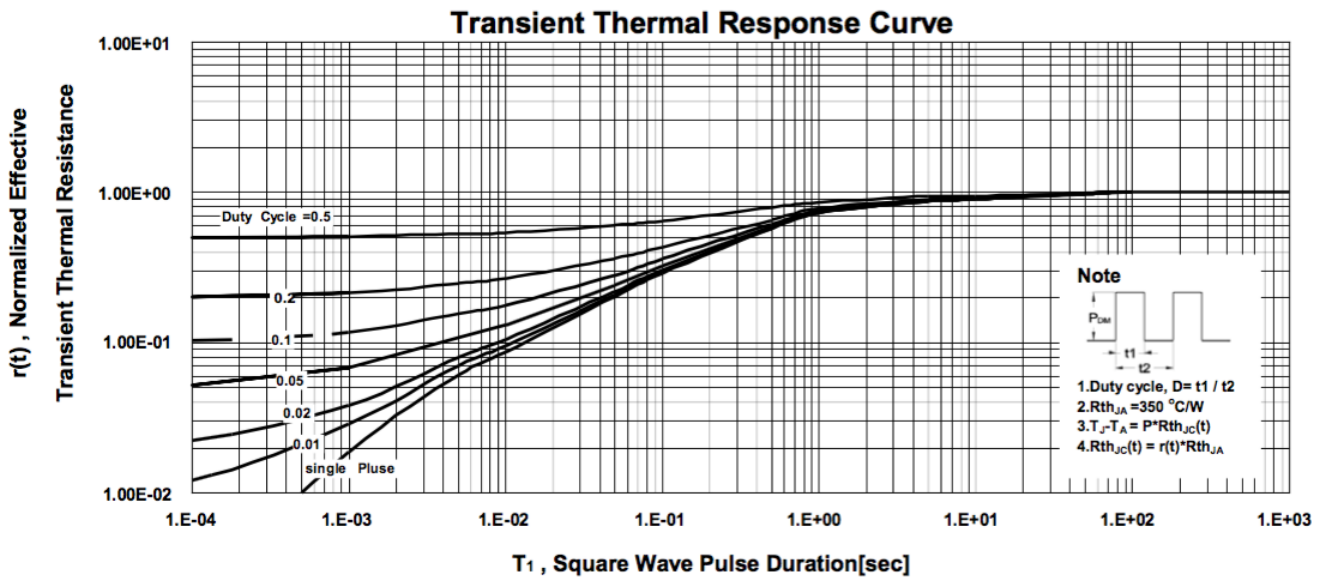
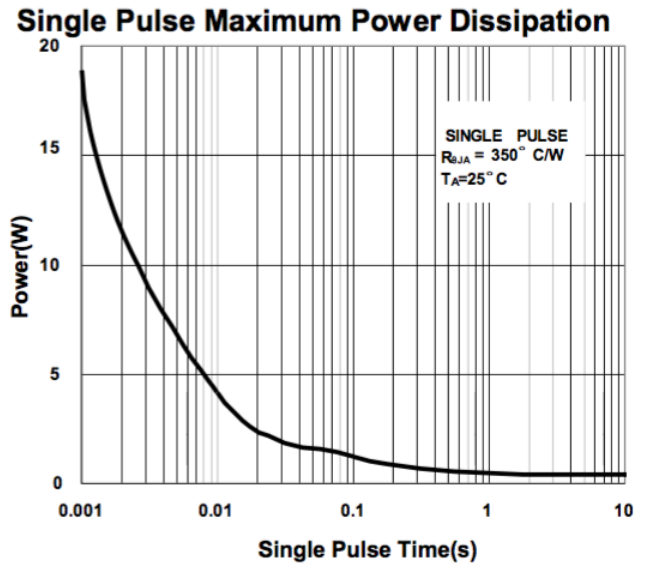
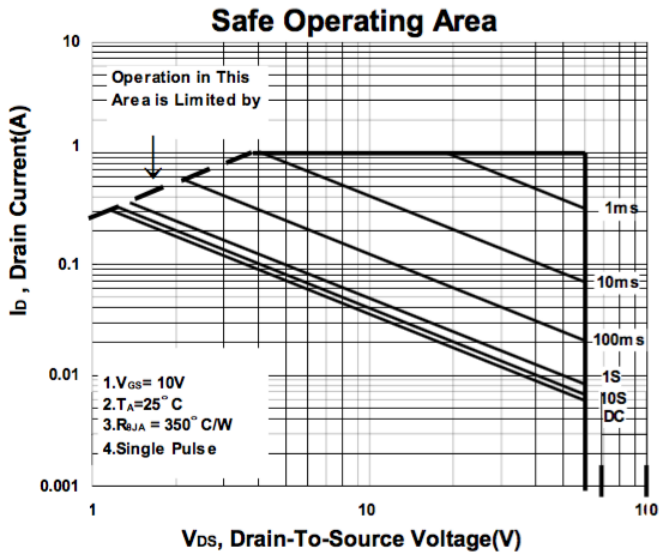


On-Resistance VS Temperature



Capacitance Characteristic

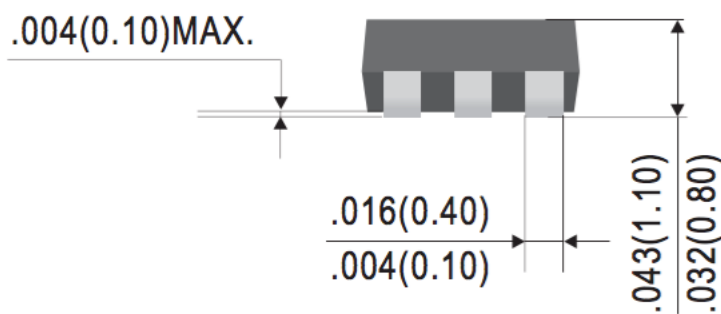
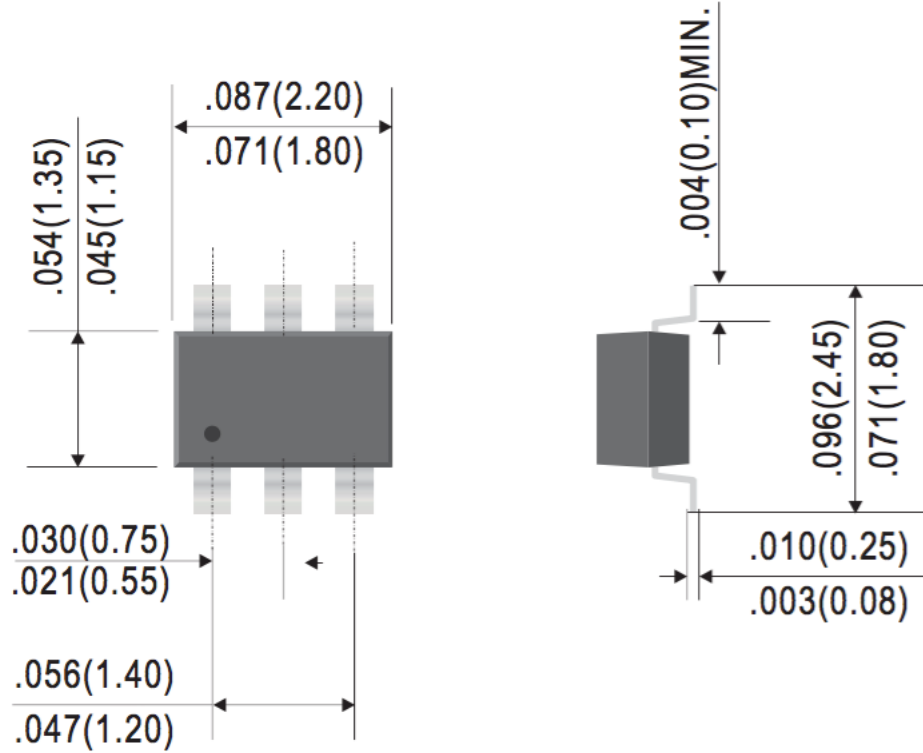






Ordering Information

| Part Number | Package code | Packaging |
|-------------|--------------|----------------|
| HSSK2N7002 | SOT-363 | 3000/Tape&Reel |



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