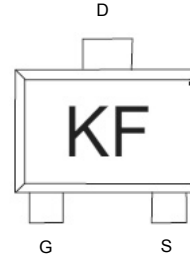


Main Product Characteristics

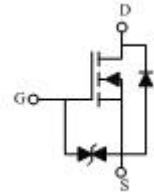
| | |
|-----------------|------------|
| $V_{(BR)DSS}$ | 20V |
| $R_{DS(on)MAX}$ | 380mΩ@4.5V |
| | 450mΩ@2.5V |
| | 800mΩ@1.8V |
| I_D | 0.75A |



SOT-723



Marking and Pin Assignment



Schematic Diagram

Features and Benefits

- Advanced MOSFET process technology
- Ideal for battery operated systems, load switching, power converters and other general purpose applications
- Low on-resistance with low gate charge
- Fast switching and reverse body recovery



Description

The S3134K utilizes the latest techniques to achieve high cell density and low on-resistance. These features make this device extremely efficient and reliable for use in high efficiency switch mode power supply and a wide variety of other applications.

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

| Parameter | Symbol | Value | Unit |
|--|-----------------|-------------|-----------------|
| Drain-Source Voltage | V_{DS} | 20 | V |
| Typical Gate-Source Voltage | V_{GS} | ±12 | V |
| Continuous Drain Current ¹ | I_D | 0.75 | A |
| Pulsed Drain Current ($t_p=10 \mu s$) | I_{DM} | 1.8 | A |
| Power Dissipation ¹ | P_D | 150 | mW |
| Thermal Resistance from Junction to Ambient ¹ | $R_{\theta JA}$ | 833 | $^{\circ}C / W$ |
| Junction Temperature | T_J | 150 | $^{\circ}C$ |
| Storage Temperature | T_{STG} | -55 to +150 | $^{\circ}C$ |
| Lead Temperature for Soldering Purposes(1/8" from case for 10 s) | T_L | 260 | $^{\circ}C$ |

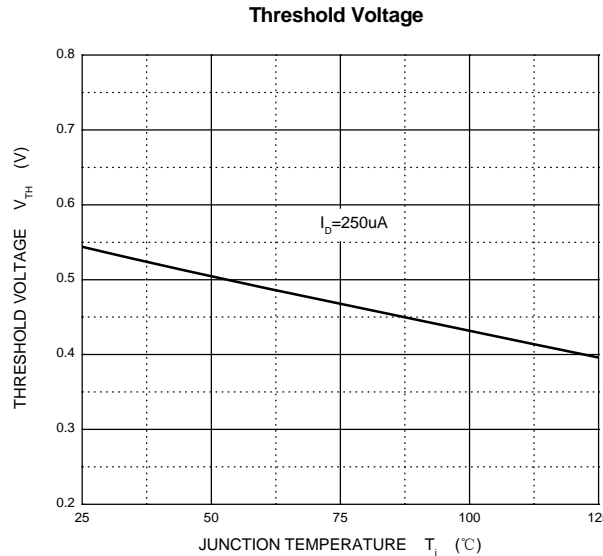
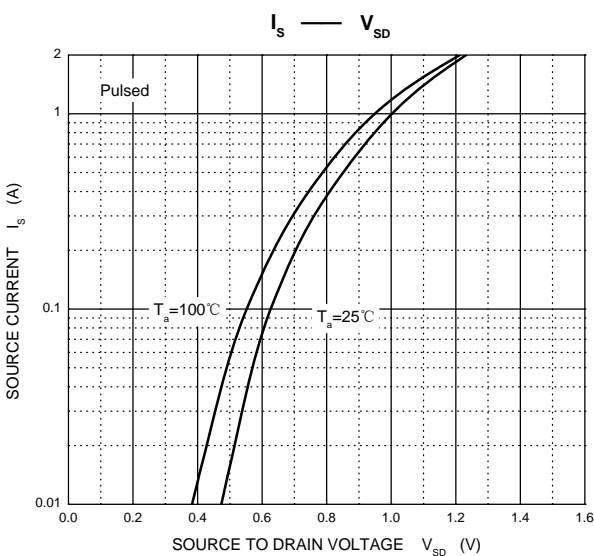
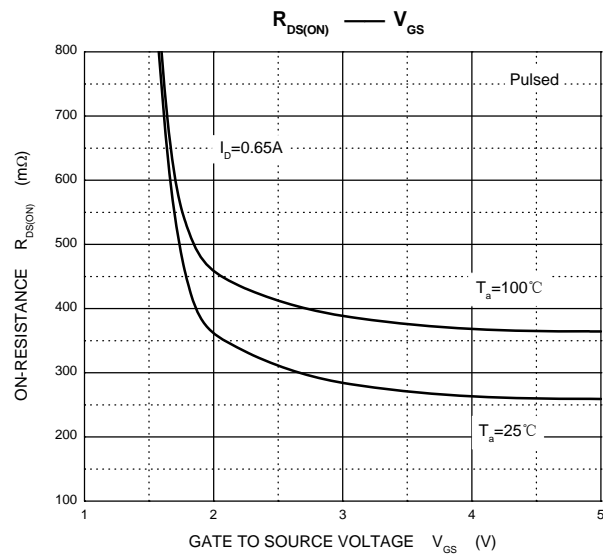
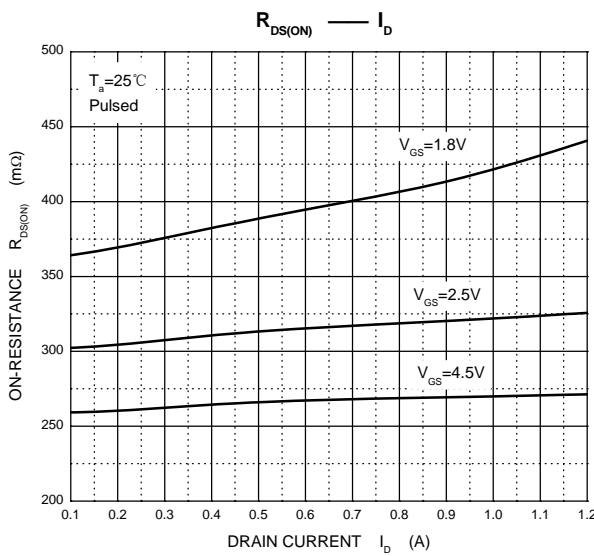
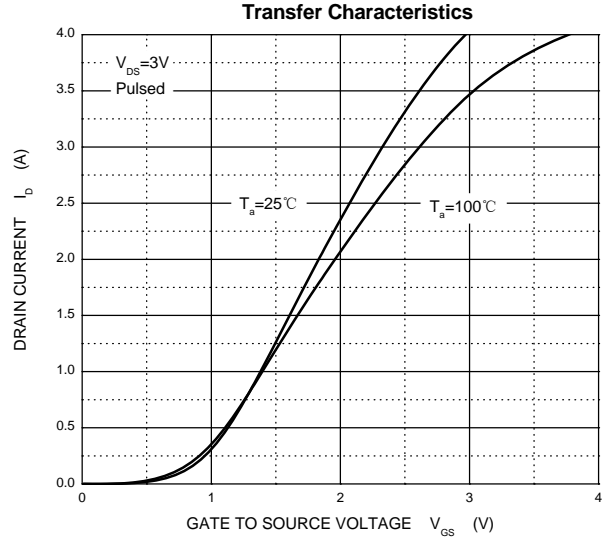
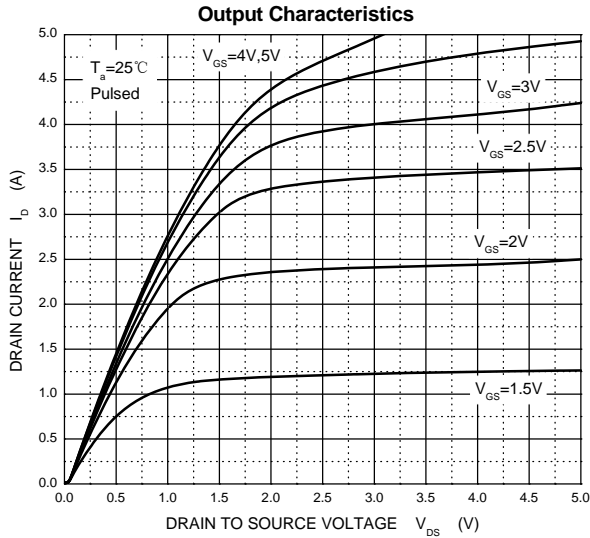
Electrical Characteristics (T_A=25°C unless otherwise specified)

| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit |
|---|----------------------|--|------|------|-----|------|
| Static Characteristics | | | | | | |
| Drain-Source Breakdown Voltage | V _{(BR)DSS} | V _{GS} = 0V, I _D = 250μA | 20 | --- | --- | V |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} = 20V, V _{GS} = 0V | --- | --- | 1 | μA |
| Gate-Body Leakage Current | I _{GSS} | V _{GS} = ±10V, V _{DS} = 0V | --- | ±4 | ±8 | μA |
| Gate Threshold Voltage ² | V _{GS(th)} | V _{DS} = V _{GS} , I _D = 250μA | 0.35 | 0.54 | 1.1 | V |
| Drain-Source On-Resistance ² | R _{DS(on)} | V _{GS} = 4.5V, I _D = 0.65A | --- | 270 | 380 | mΩ |
| | | V _{GS} = 2.5V, I _D = 0.55A | --- | 320 | 450 | mΩ |
| | | V _{GS} = 1.8V, I _D = 0.45A | --- | 390 | 800 | mΩ |
| Forward Transconductance ² | g _{FS} | V _{DS} = 10V, I _D = 0.8A | --- | 1.6 | --- | S |
| Diode Forward Voltage | V _{SD} | I _S = 0.15A, V _{GS} = 0V | --- | --- | 1.2 | V |
| Dynamic Characteristics | | | | | | |
| Input Capacitance | C _{iSS} | V _{DS} = 16V, V _{GS} = 0V, f = 1MHz | --- | 79 | 120 | pF |
| Output Capacitance | C _{oss} | | --- | 13 | 20 | pF |
| Reverse Transfer Capacitance | C _{rSS} | | --- | 9 | 15 | pF |
| Switching Characteristics | | | | | | |
| Turn-On Delay Time ³ | t _{d(on)} | V _{GS} = 4.5V, V _{DS} = 10V, I _D = 500mA, R _{GEN} = 10Ω | --- | 6.7 | --- | ns |
| Turn-On Rise Time ³ | t _r | | --- | 4.8 | --- | ns |
| Turn-Off Delay Time ³ | t _{d(off)} | | --- | 17.3 | --- | ns |
| Turn-Off Fall Time ³ | t _f | | --- | 7.4 | --- | ns |

Notes :

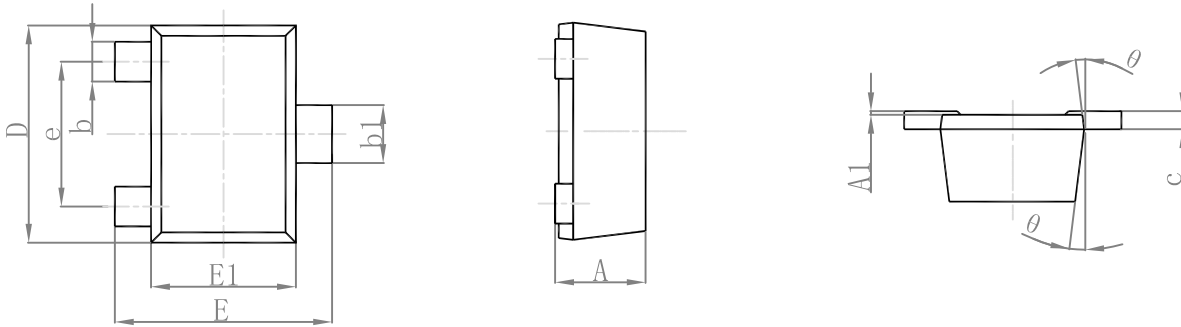
1. Surface mounted on FR4 board using the minimum recommended pad size.
2. Pulse Test : Pulse Width=300μs, Duty Cycle=2%.
3. Switching characteristics are independent of operating junction temperatures.

Typical Electrical and Thermal Characteristic Curves



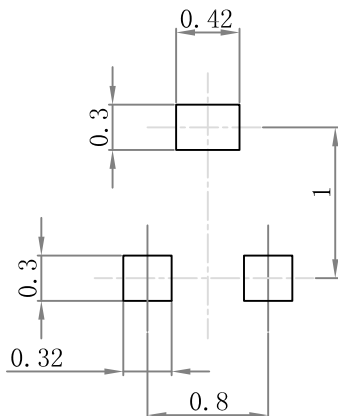
Package Outline Dimensions

SOT-723



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 0.430 | 0.500 | 0.017 | 0.020 |
| A1 | 0.000 | 0.050 | 0.000 | 0.002 |
| b | 0.170 | 0.270 | 0.007 | 0.011 |
| b1 | 0.270 | 0.370 | 0.011 | 0.015 |
| c | 0.080 | 0.150 | 0.003 | 0.006 |
| D | 1.150 | 1.250 | 0.045 | 0.049 |
| E | 1.150 | 1.250 | 0.045 | 0.049 |
| E1 | 0.750 | 0.850 | 0.030 | 0.033 |
| e | 0.800TYP. | | 0.031TYP. | |
| θ | 7° REF. | | 7° REF. | |

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.