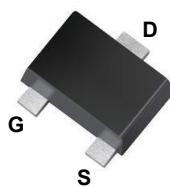
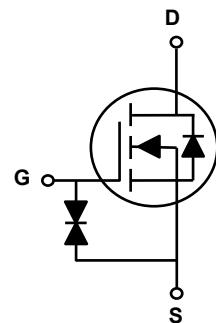


## Main Product Characteristics

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


**SOT-723**

**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	$V_{GS}$	$\pm 12$	V
Continuous Drain Current <sup>1</sup>	$I_D$	0.75	A
Pulsed Drain Current ( $t_p=10 \mu s$ )	$I_{DM}$	1.8	A
Power Dissipation <sup>1</sup>	$P_D$	150	mW
Thermal Resistance from Junction to Ambient <sup>1</sup>	$R_{\theta JA}$	833	°C /W
Junction Temperature	$T_J$	150	°C
Storage Temperature	$T_{STG}$	-55 to +150	°C
Lead Temperature for Soldering Purposes(1/8" from case for 10 s)	$T_L$	260	°C

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

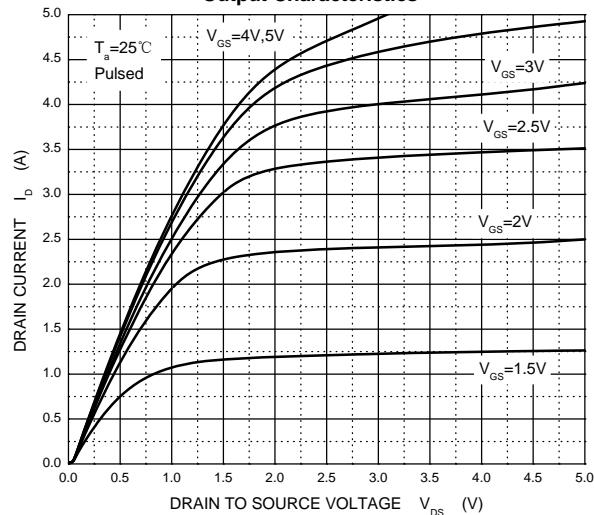
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(\text{BR})\text{DSS}}$	$V_{\text{GS}} = 0\text{V}, I_D = 250\mu\text{A}$	20	---	---	V
Zero Gate Voltage Drain Current	$I_{\text{DSS}}$	$V_{\text{DS}} = 20\text{V}, V_{\text{GS}} = 0\text{V}$	---	---	1	$\mu\text{A}$
Gate-Body Leakage Current	$I_{\text{GSS}}$	$V_{\text{GS}} = \pm 10\text{V}, V_{\text{DS}} = 0\text{V}$	---	$\pm 4$	$\pm 8$	$\mu\text{A}$
Gate Threshold Voltage <sup>2</sup>	$V_{\text{GS}(\text{th})}$	$V_{\text{DS}} = V_{\text{GS}}, I_D = 250\mu\text{A}$	0.35	0.54	1.1	V
Drain-Source On-Resistance <sup>2</sup>	$R_{\text{DS}(\text{on})}$	$V_{\text{GS}} = 4.5\text{V}, I_D = 0.65\text{A}$	---	270	380	$\text{m}\Omega$
		$V_{\text{GS}} = 2.5\text{V}, I_D = 0.55\text{A}$	---	320	450	$\text{m}\Omega$
		$V_{\text{GS}} = 1.8\text{V}, I_D = 0.45\text{A}$	---	390	800	$\text{m}\Omega$
Forward Transconductance <sup>2</sup>	$g_{\text{FS}}$	$V_{\text{DS}} = 10\text{V}, I_D = 0.8\text{A}$	---	1.6	---	S
Diode Forward Voltage	$V_{\text{SD}}$	$I_S = 0.15\text{A}, V_{\text{GS}} = 0\text{V}$	---	---	1.2	V
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{\text{iss}}$	$V_{\text{DS}} = 16\text{V}, V_{\text{GS}} = 0\text{V}, f = 1\text{MHz}$	---	79	120	pF
Output Capacitance	$C_{\text{oss}}$		---	13	20	pF
Reverse Transfer Capacitance	$C_{\text{rss}}$		---	9	15	pF
<b>Switching Characteristics</b>						
Turn-On Delay Time <sup>3</sup>	$t_{\text{d}(\text{on})}$	$V_{\text{GS}} = 4.5\text{V}, V_{\text{DS}} = 10\text{V}, I_D = 500\text{mA}, R_{\text{GEN}} = 10\Omega$	---	6.7	---	ns
Turn-On Rise Time <sup>3</sup>	$t_r$		---	4.8	---	ns
Turn-Off Delay Time <sup>3</sup>	$t_{\text{d}(\text{off})}$		---	17.3	---	ns
Turn-Off Fall Time <sup>3</sup>	$t_f$		---	7.4	---	ns

**Notes :**

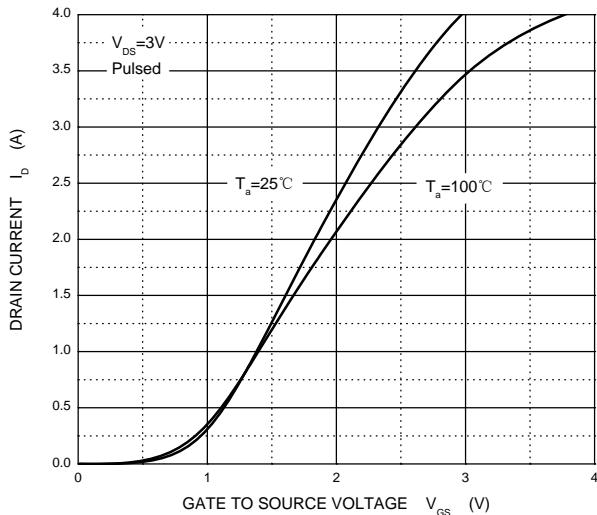
1. Surface mounted on FR4 board using the minimum recommended pad size.
2. Pulse Test : Pulse Width=300 $\mu\text{s}$ , Duty Cycle=2%.
3. Switching characteristics are independent of operating junction temperatures.

## Typical Electrical and Thermal Characteristic Curves

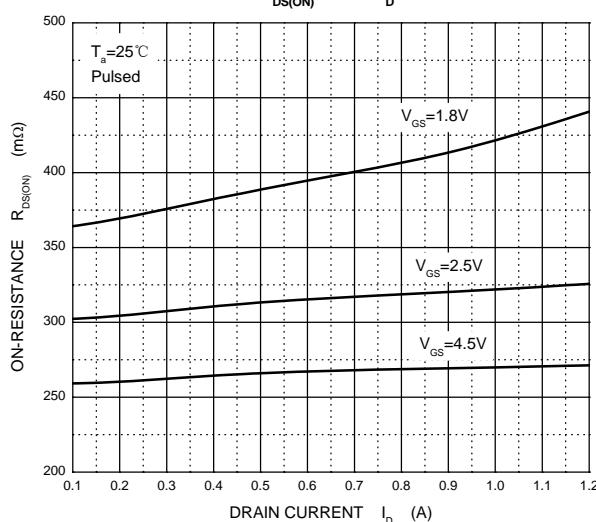
**Output Characteristics**



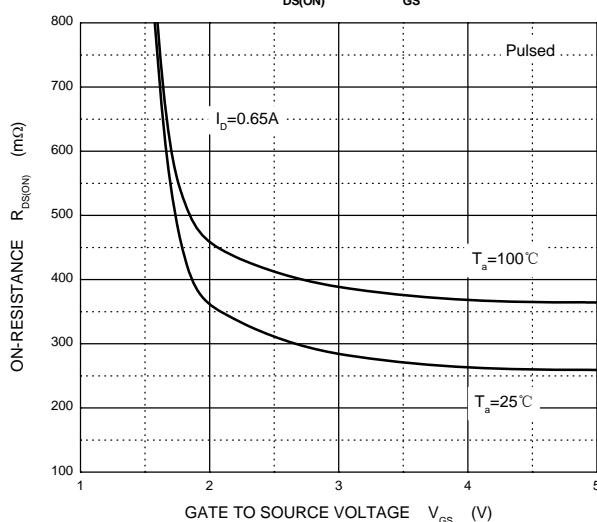
**Transfer Characteristics**



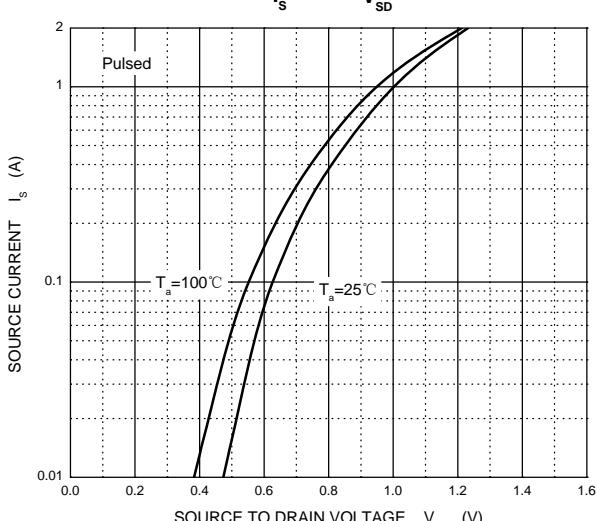
$R_{DS(ON)}$  —  $I_d$



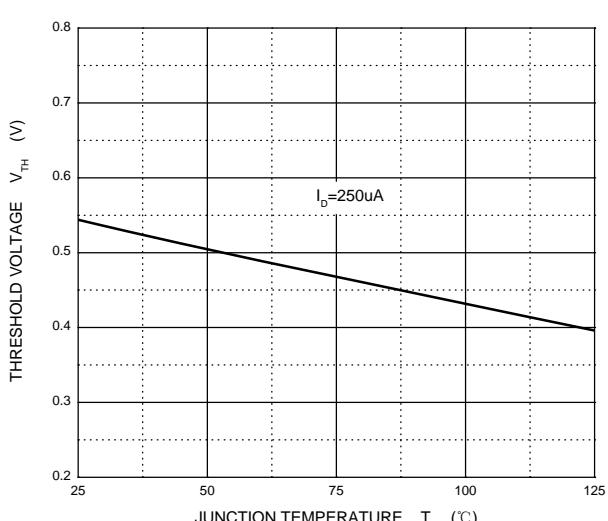
$R_{DS(ON)}$  —  $V_{GS}$



$I_s$  —  $V_{SD}$

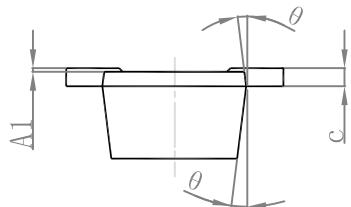
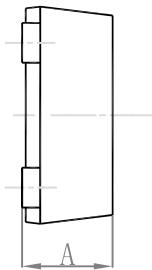
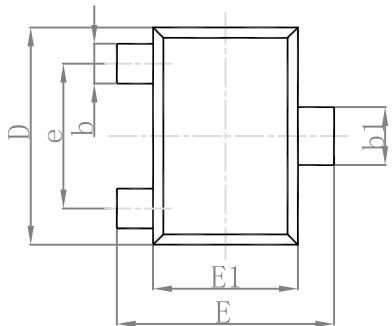


**Threshold Voltage**



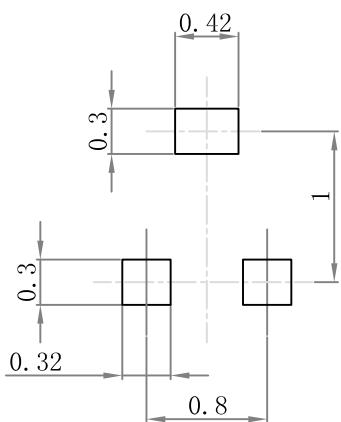
## Package Outline Dimensions

**SOT-723**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.320	0.500	0.012	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.