3139K2

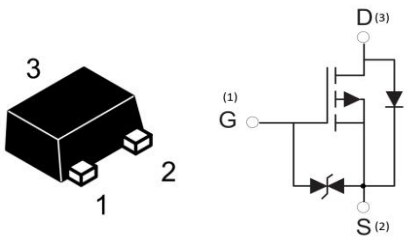
SOT-723 Plastic-Encapsulate MOSFETS

P-Channel MOSFET

MOSFET Product Summary

V_{DS}	I_D	$R_{DS(on)}$
-20V	-0.66A	<560mΩ@-4.5V
		<780mΩ@-2.5V

Schematic & Pin configuration



Features and benefits

- Lead Free Product is Acquired
- Surface Mount Package
- P-Channel Switch with Low RDS(on)
- Operated at Low Logic Level Gate Drive

Application

- Load/Power Switching
- Interfacing Switching
- Battery Management for Ultra Small Portable Electronics

Ordering information

Device	Package	Marking	Shipping	Reel Size
3139K2	SOT723	KD/2H	8000/Tape & Reel	7 inch

Maximum Ratings (T_A = 25 °C, unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current (note1)	I_D	-0.66	A
Pulsed Drain Current (tp=10-s)	I_{DM}	-1.2	A
Power Dissipation (note1)	P_D	0.15	W
Thermal Resistance from Junction to Ambient (note1)	$R_{\theta JA}$	850	°C/W
Junction temperature	T_j	125	°C
Storage temperature	T_{stg}	-50 to +150	°C
Lead Temperature for Soldering Purposes (1/8" from case for 10 s)	T_L	260	°C

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

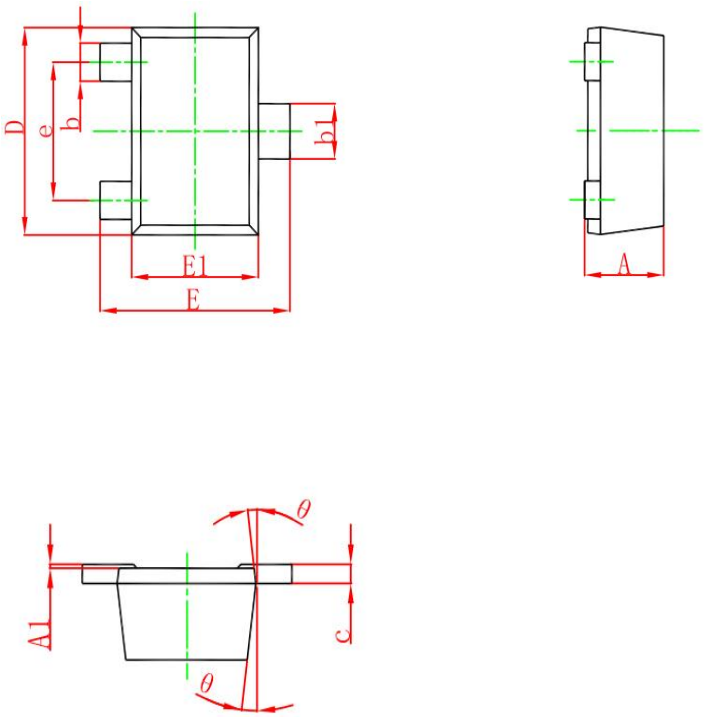
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
STATIC CHARACTERISTICE						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-20	--	--	V
Zero gate voltage drain current	I_{DSS}	V_{DS} =-20V,V_{GS} = 0V	--	--	-1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±12V, V_{DS} = 0V	--	--	±10	μA
Gate threshold voltage (note2)	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-0.4	-0.7	-1.0	V
Drain-source on-resistance (note2)	$R_{DS(on)}$	V_{GS} =-4.5V, I_D =-0.5A	--	--	0.56	Ω
		V_{GS} =-2.5V, I_D =-0.2A	--	--	0.78	Ω
Forward tranconductance (note2)	g_{fs}	V_{DS} =-5.0V, I_D =-0.5A	--	1.2	--	S
Diode forward voltage	V_{SD}	I_S=-0.5A, V_{GS} =0V	--	--	1.0	V
DYNAMIC CHARACTERISTICS (note4)						
Input capacitance	C_{iss}	V_{DS} =-10V,V_{GS} =0V, f =1MHz	--	33.8	--	pF
Output capacitance	C_{oss}		--	9.0	--	pF
Reverse transfer capacitance	C_{rss}		--	3.3	--	pF
SWITCHING CHARACTERISTICS (note4)						
Turn-on delay time (note3)	$t_{d(on)}$	V_{GS}=-4.5V,V_{DS}=-10V, R_L=20Ω	--	7.0	--	nS
Turn-on rise time (note3)	t_r		--	83.6	--	nS
Turn-off delay time (note3)	$t_{d(off)}$		--	840	--	nS
Turn-off fall time (note3)	t_f		--	640	--	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.
4. Guaranteed by design, not subject to producting.

Package Outline Dimensions

SOT723



Symbol	Dimensions In Millimet	
	Min	Max
A	0.42	0.50
A1	0.00	0.05
b	0.16	0.28
b1	0.25	0.35
c	0.07	0.16
D	1.10	1.30
e	0.8TYP	
E	1.10	1.30
E1	0.75	0.85
θ	8°	10°

Suggested Pad Layout (mm)