

# Silicon N-Channel MOSFET

## Applications

Interfacing, switching (30V, 100mA)

## Features

Low on-resistance

Fast switching speed

Low voltage drive (2.5V) makes this ideal for portable equipment

Drive circuits can be simple

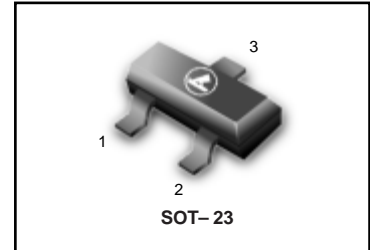
Parallel use is easy

ESD > 500

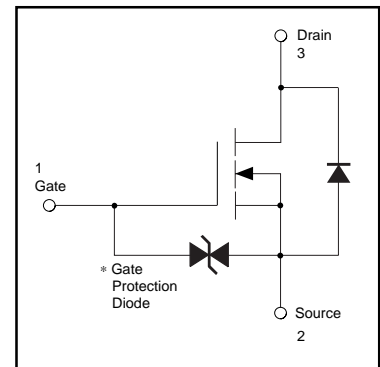
we declare that the material of product compliance with RoHS requirements.

S- Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable.

L2SK3019LT1G  
S-L2SK3019LT1G



## Equivalent circuit



A protection diode is included between the gate and the source terminals to protect the diode against static electricity when the product is in use. Use a protection circuit when the fixed voltages are exceeded.

## ORDERING INFORMATION

Device	Marking	Shipping
L2SK3019LT1G S-L2SK3019LT1G	KN	3000/Tape & Reel
L2SK3019LT3G S-L2SK3019LT3G	KN	10,000/Tape & Reel

## Maximum Ratings and Thermal Characteristics (T<sub>A</sub> = 25°C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V <sub>DS</sub>	30	V
Gate-Source Voltage	V <sub>GS</sub>	± 20	
Continuous Drain Current	I <sub>D</sub>	± 100	mA
Pulsed Drain Current <sup>1)</sup>	I <sub>DM</sub>	± 400	
Total Power Dissipation <sup>2)</sup>	P <sub>D</sub>	225	mW
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-55 to 150	°C

1) P<sub>w</sub> ≤ 10μs, Duty cycles ≤ 1%

2) With each pin mounted on the recommended lands.

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●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Gate-source leakage	$I_{GSS}$	-	-	$\pm 1$	$\mu A$	$V_{GS}=\pm 20V, V_{DS}=0V$
Drain-source breakdown voltage	$V_{(BR)DSS}$	30	-	-	V	$I_D=10\mu A, V_{GS}=0V$
Zero gate voltage drain current	$I_{DSS}$	-	-	1.0	$\mu A$	$V_{DS}=30V, V_{GS}=0V$
Gate threshold voltage	$V_{GS(th)}$	0.8	-	1.5	V	$V_{DS}=3V, I_D=100\mu A$
Static drain-source on-state resistance	$R_{DS(on)}$	-	5	8	$\Omega$	$I_D=10mA, V_{GS}=4V$
	$R_{DS(on)}$	-	7	13	$\Omega$	$I_D=1mA, V_{GS}=2.5V$
Forward transfer admittance	$ Y_{fs} $	20	-	-	ms	$I_D=10mA, V_{DS}=3V$
Input capacitance	$C_{iss}$	-	13	-	pF	$V_{DS}=5V$
Output capacitance	$C_{oss}$	-	9	-	pF	$V_{GS}=0V$
Reverse transfer capacitance	$C_{rss}$	-	4	-	pF	$f=1MHz$
Turn-on delay time	$t_{d(on)}$	-	15	-	ns	$I_D=10mA, V_{DD}=5V$
Rise time	$t_r$	-	35	-	ns	$V_{GS}=5V$
Turn-off delay time	$t_{d(off)}$	-	80	-	ns	$R_L=500\Omega$
Fall time	$t_f$	-	80	-	ns	$R_G=10\Omega$

●Electrical characteristic curves

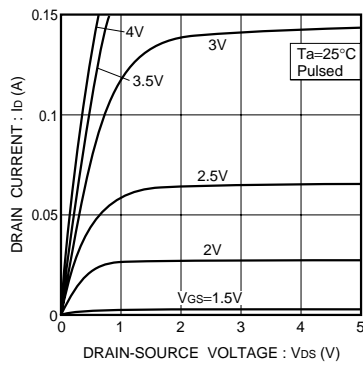


Fig.1 Typical output characteristics

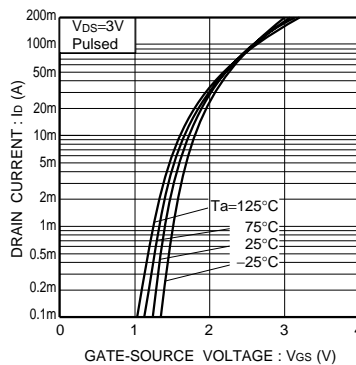


Fig.2 Typical transfer characteristics

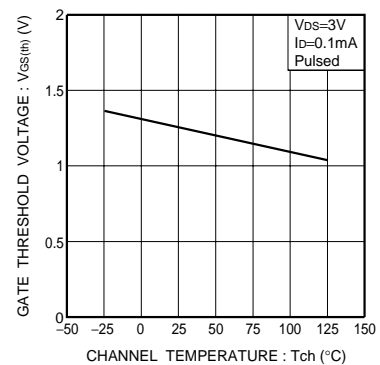


Fig.3 Gate threshold voltage vs. channel temperature

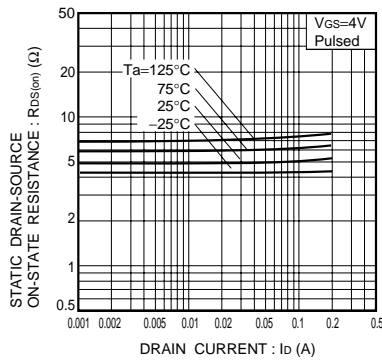


Fig.4 Static drain-source on-state resistance vs. drain current (I)

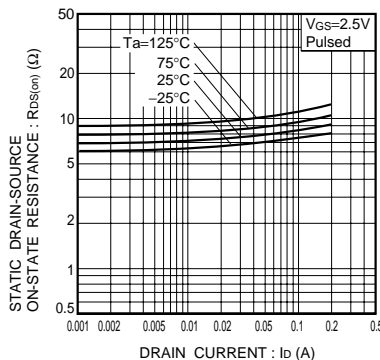


Fig.5 Static drain-source on-state resistance vs. drain current (II)

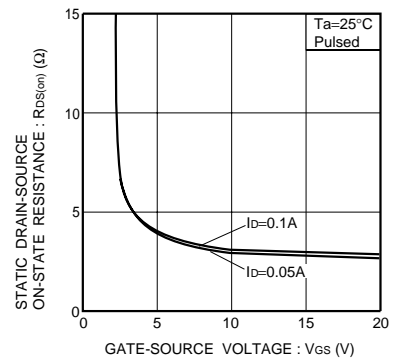


Fig.6 Static drain-source on-state resistance vs. gate-source voltage

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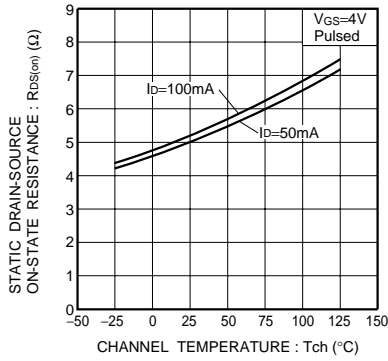


Fig.7 Static drain-source on-state resistance vs. channel temperature

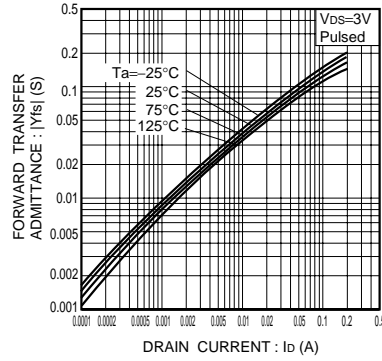


Fig.8 Forward transfer admittance vs. drain current

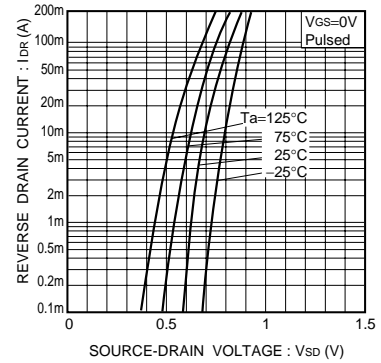


Fig.9 Reverse drain current vs. source-drain voltage (I)

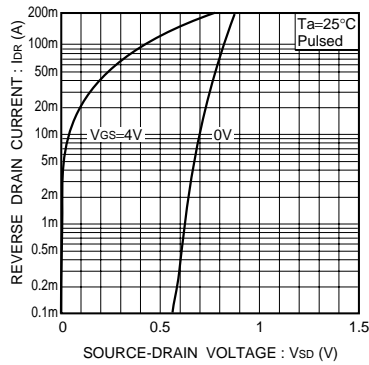


Fig.10 Reverse drain current vs. source-drain voltage (II)

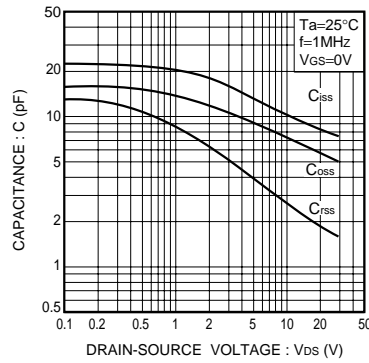


Fig.11 Typical capacitance vs. drain-source voltage

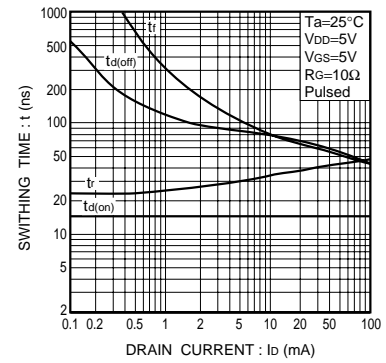


Fig.12 Switching characteristics (See Figures 13 and 14 for the measurement circuit and resultant waveforms)

●Switching characteristics measurement circuit

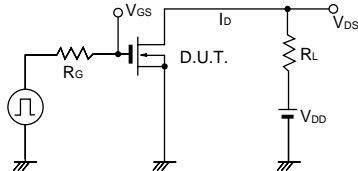


Fig.13 Switching time measurement circuit

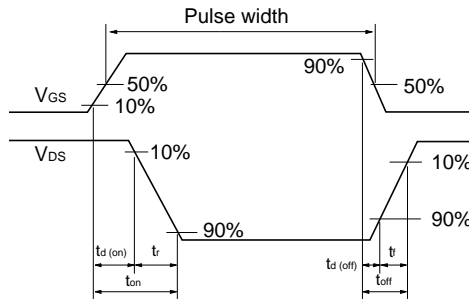


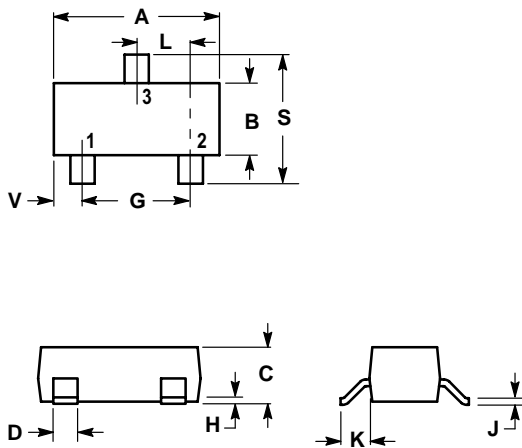
Fig.14 Switching time waveforms

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NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M,1982
2. CONTROLLING DIMENSION: INCH.



DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.1102	0.1197	2.80	3.04
B	0.0472	0.0551	1.20	1.40
C	0.0350	0.0440	0.89	1.11
D	0.0150	0.0200	0.37	0.50
G	0.0701	0.0807	1.78	2.04
H	0.0005	0.0040	0.013	0.100
J	0.0034	0.0070	0.085	0.177
K	0.0140	0.0285	0.35	0.69
L	0.0350	0.0401	0.89	1.02
S	0.0830	0.1039	2.10	2.64
V	0.0177	0.0236	0.45	0.60

