

# 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

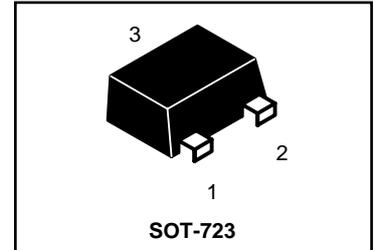
Parallel use is easy

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

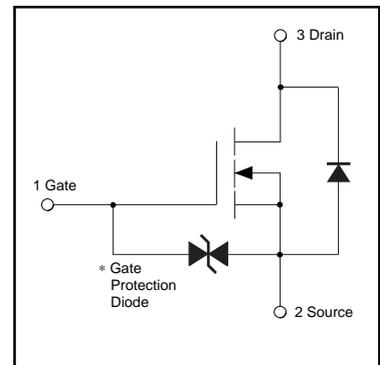
### ORDERING INFORMATION

Device	Marking	Shipping
L2SK3541MT5G	KN	8000/Tape & Reel

L2SK3541MT5G



### 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.

### 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>	150	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

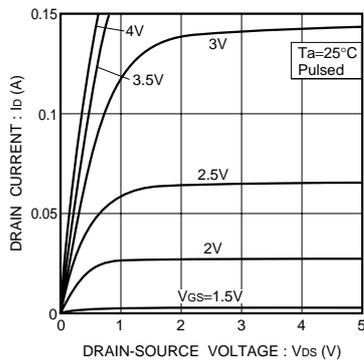


Fig.1 Typical output characteristics

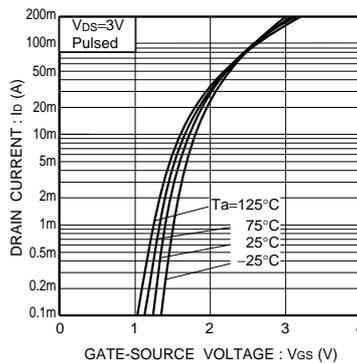


Fig.2 Typical transfer characteristics

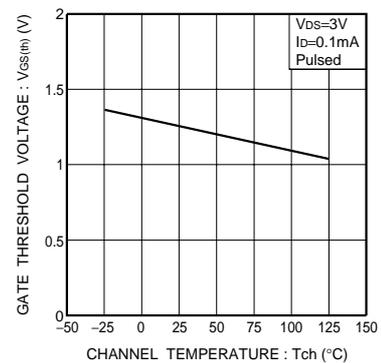


Fig.3 Gate threshold voltage vs. channel temperature

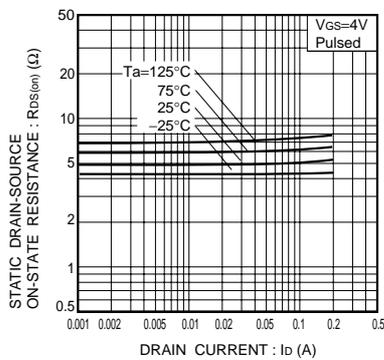


Fig.4 Static drain-source on-state resistance vs. drain current (I)

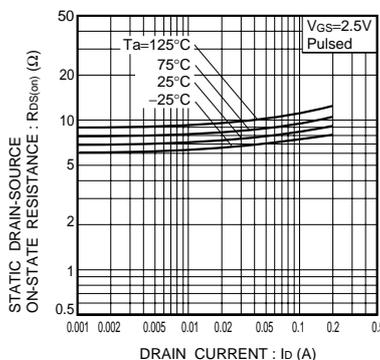


Fig.5 Static drain-source on-state resistance vs. drain current (II)

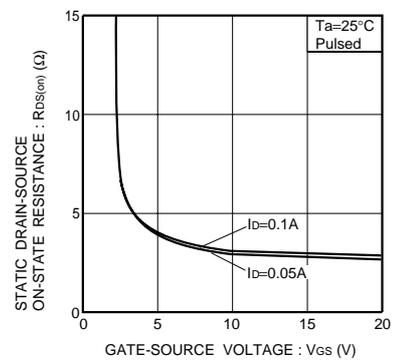


Fig.6 Static drain-source on-state resistance vs. gate-source voltage

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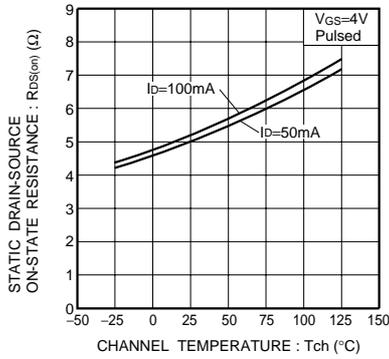


Fig.7 Static drain-source on-state resistance vs. channel temperature

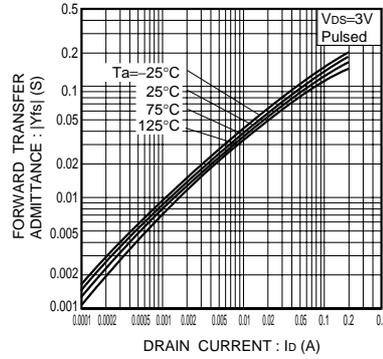


Fig.8 Forward transfer admittance vs. drain current

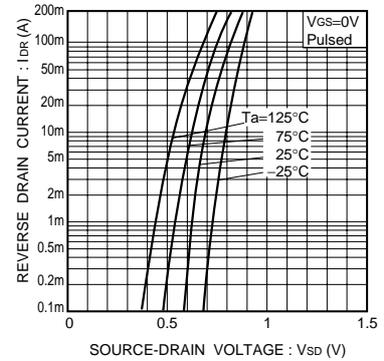


Fig.9 Reverse drain current vs. source-drain voltage (I)

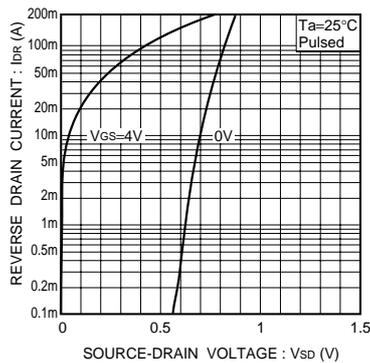


Fig.10 Reverse drain current vs. source-drain voltage (II)

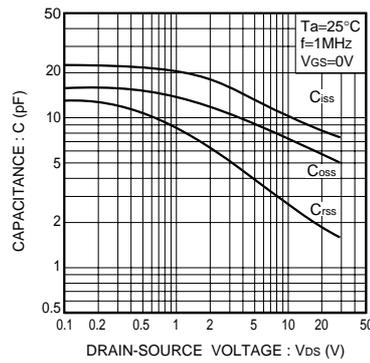


Fig.11 Typical capacitance vs. drain-source voltage

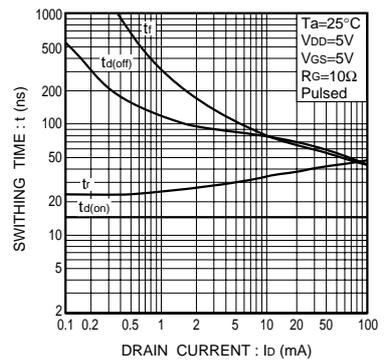


Fig.12 Switching characteristics (See Figures 13 and 14 for the measurement circuit and resultant waveforms)

● Switching characteristics measurement circuit

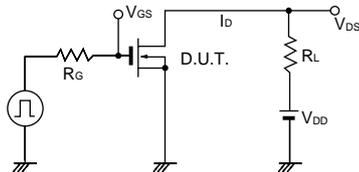


Fig.13 Switching time measurement circuit

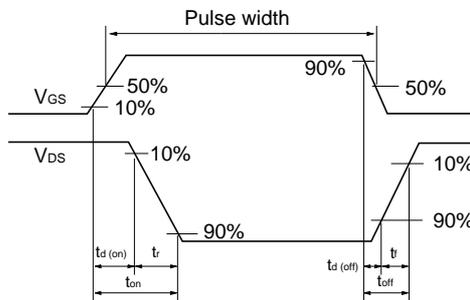
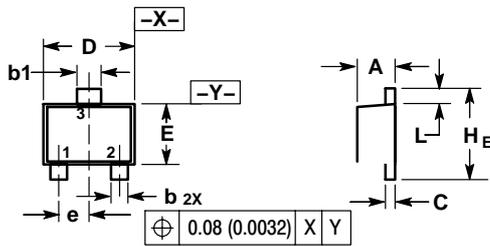


Fig.14 Switching time waveforms

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## SOT-723

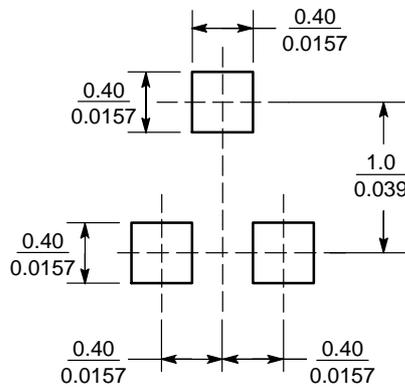


**NOTES:**

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.45	0.50	0.55	0.018	0.020	0.022
b	0.15	0.20	0.27	0.0059	0.0079	0.0106
b1	0.25	0.3	0.35	0.010	0.012	0.014
C	0.07	0.12	0.17	0.0028	0.0047	0.0067
D	1.15	1.20	1.25	0.045	0.047	0.049
E	0.75	0.80	0.85	0.03	0.032	0.034
e	0.40 BSC			0.016 BSC		
H E	1.15	1.20	1.25	0.045	0.047	0.049
L	0.15	0.20	0.25	0.0059	0.0079	0.0098

### SOLDERING FOOTPRINT



(mm / inches)