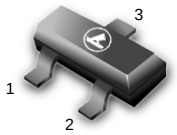
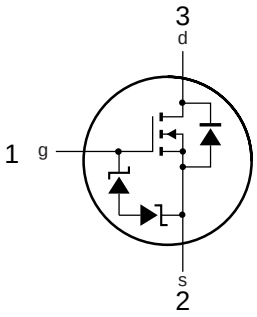
Small Signal MOSFET
Silicon N-Channel

SRK7002LT1G
S-SRK7002LT1G



SOT-23 (TO-236AB)



●Features
1) Low on-resistance.
2) Fast switching speed.
3) Low-voltage drive.
4) Easily designed drive circuits.
5) Easy to parallel.
6) Pb-Free package is available.
7) ESD Protected:2000V
8) S- Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable.

●Device Marking and Ordering Information

Device	Marking	Shipping
SRK7002LT1G S-SRK7002LT1G	RK	3000 Tape & Reel
SRK7002LT3G S-SRK7002LT3G	RK	10000 Tape & Reel

●Absolute maximum ratings (Ta=25°C)

Parameter		Symbol	Limits	Unit
Drain-source voltage		V_{DSS}	60	V
Gate-source voltage		V_{GSS}	±20	V
Drain current	Continuous	I_D	115	mA
	Pulsed	I_{DP}*1	0.8	A
Drain reverse current	Continuous	I_{DR}	115	mA
	Pulsed	I_{DRP}*1	0.8	A
Total power dissipation		P_D*2	225	mW
Channel temperature		Tch	150	°C
Storage temperature		Tstg	–55~+150	°C

∗1 Pw≤10μs, Duty cycle≤1%
∗2 When mounted on a 1×0.75×0.062 inch glass epoxy board.

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●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Gate-source leakage current	I_{GSS}	–	–	±10	μA	V_{GS}=±20V, V_{DS}=0V
Drain-source breakdown voltage	$V_{(BR)\ DSS}$	60	–	–	V	I_D=10μA, V_{GS}=0V
Zero gate voltage drain current	I_{DSS}	–	–	1	μA	V_{DS}=60V, V_{GS}=0V
Gate threshold voltage	$V_{GS\ (th)}$	1	1.85	2.5	V	V_{DS}=V_{GS} , I_D=250uA
Drain-source on-state resistance	$R_{DS\ (on)}$*	–	–	7.5	Ω	I_D=0.5A, V_{GS}=10V
		–	–	7.5		I_D=0.05A, V_{GS}=5V
Forward transfer admittance	$\|Y_{fs}\|$*	80	–	–	mS	V_{DS}=10V, I_D=0.2A
Input capacitance	C_{iss}	–	25	50	pF	V_{DS}=25V V_{GS}=0V f=1MHz
Output capacitance	C_{oss}	–	10	25	pF	
Reverse transfer capacitance	C_{rss}	–	3.0	5.0	pF	
Turn-on delay time	$t_{d\ (on)}$*	–	12	20	ns	I_D=200mA, V_{DD}≒30V V_{GS}=10V, R_L=150Ω ,R_{GS}=10Ω
Turn-off delay time	$t_{d\ (off)}$*	–	20	30	ns	

* Pw≤300μs, Duty cycle≤1%

●Electrical characteristic curves

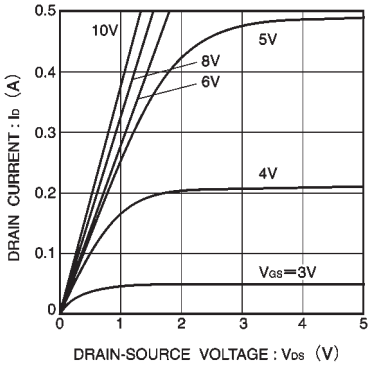

Fig.1 Typical output characteristics

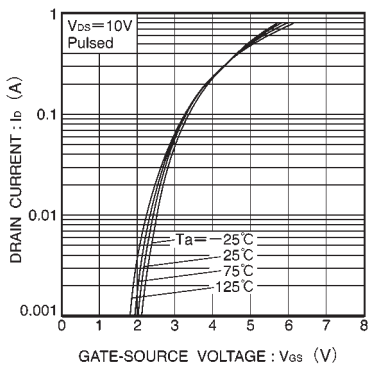

Fig.2 Typical transfer characteristics

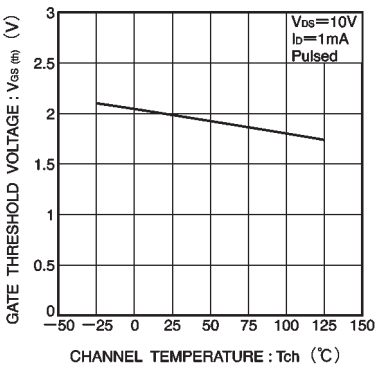

Fig.3 Gate threshold voltage vs. channel temperature

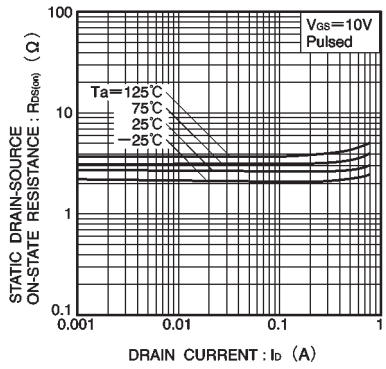

Fig.4 Static drain-source on-state resistance vs. drain current (Ⅰ)

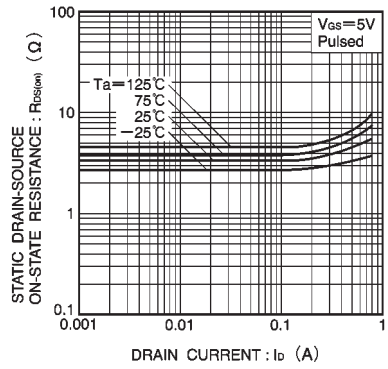

Fig.5 Static drain-source on-state resistance vs. drain current (Ⅱ)

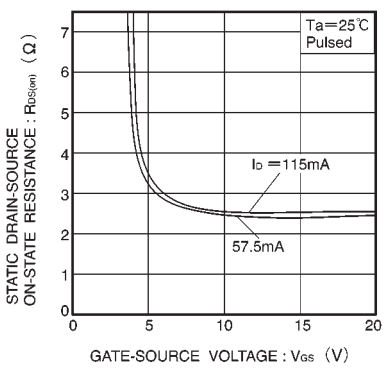

Fig.6 Static drain-source on-state resistance vs. gate-source voltage

●Electrical characteristic curves (continues)

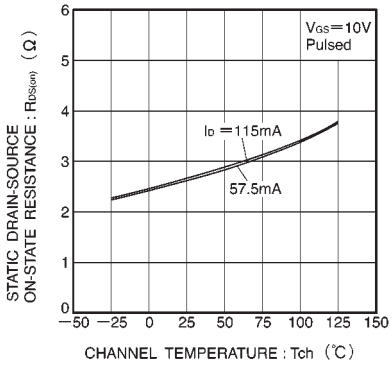

Fig.7 Static drain-source on-state resistance vs. channel temperature

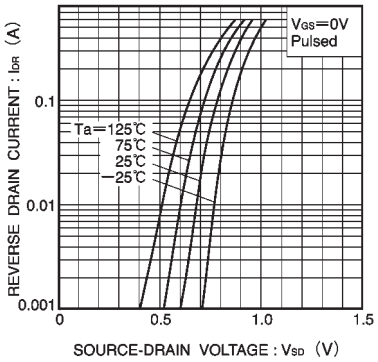

Fig.8 Reverse drain current vs. source-drain voltage (Ⅰ)

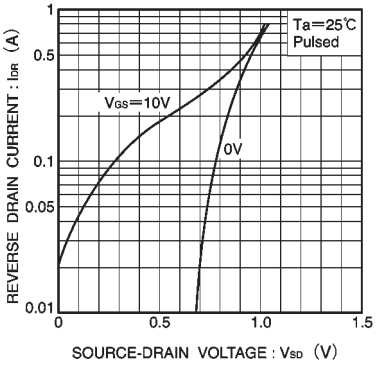

Fig.9 Reverse drain current vs. source-drain voltage (Ⅱ)

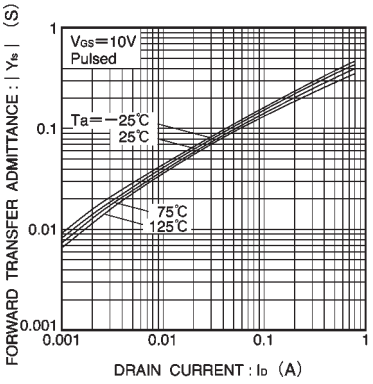

Fig.10 Forward transfer admittance vs. drain current

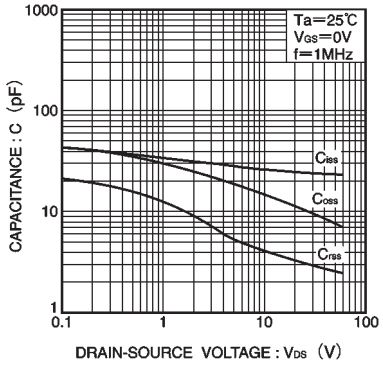

Fig.11 Typical capacitance vs. drain-source voltage

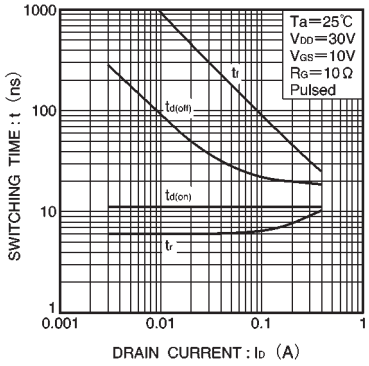

Fig.12 Switching characteristics (See Figures 13 and 14 for the measurement circuit and resultant waveforms)

●Switching characteristics measurement circuit

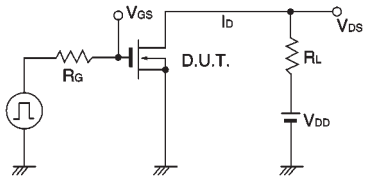

Fig.13 Switching time measurement circuit

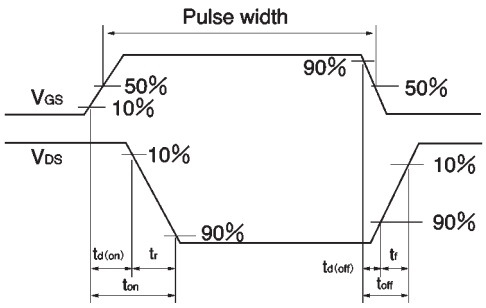

Fig.14 Switching time waveforms

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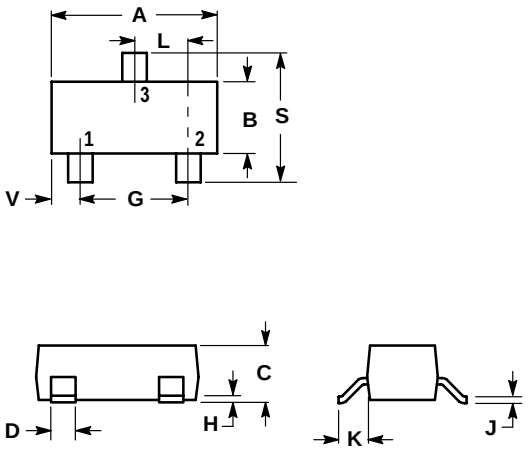

NOTES:

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