

Small Signal MOSFET

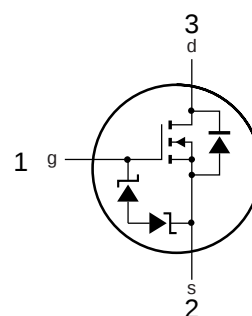
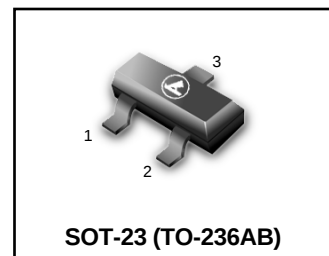
Silicon N-Channel

●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

●Device Marking and Ordering Information

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

SRK7002LT1G


●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Drain-source voltage	V_{DS}	60	V
Gate-source voltage	V_{GS}	± 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	T_{ch}	150	°C
Storage temperature	T_{stg}	-55~+150	°C

*1 $P_w \leq 10\mu s$, Duty cycle $\leq 1\%$

*2 When mounted on a 1×0.75×0.062 inch glass epoxy board.

SRK7002LT1G
●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Gate-source leakage current	I_{GSS}	—	—	± 10	μA	$V_{GS}=\pm 20V, V_{DS}=0V$
Drain-source breakdown voltage	$V_{(BR)DSS}$	60	—	—	V	$I_D=10\mu A, V_{GS}=0V$
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	$V_{DS}=V_{GS}, I_D=250\mu A$
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	$V_{DS}=25V$
Output capacitance	C_{oss}	—	10	25	pF	$V_{GS}=0V$
Reverse transfer capacitance	C_{rss}	—	3.0	5.0	pF	$f=1MHz$
Turn-on delay time	$t_{d(on)}^*$	—	12	20	ns	$I_D=200mA, V_{DD}=30V$
Turn-off delay time	$t_{d(off)}^*$	—	20	30	ns	$V_{GS}=10V, R_L=150\Omega, R_{GS}=10\Omega$

* $P_w \leq 300\mu s$, Duty cycle $\leq 1\%$

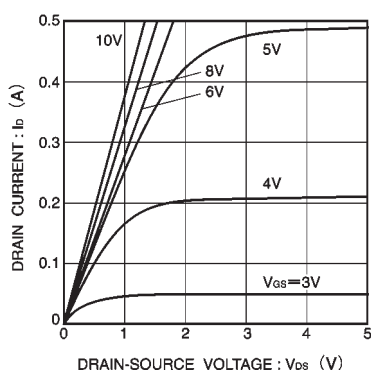
●Electrical characteristic curves


Fig.1 Typical output characteristics

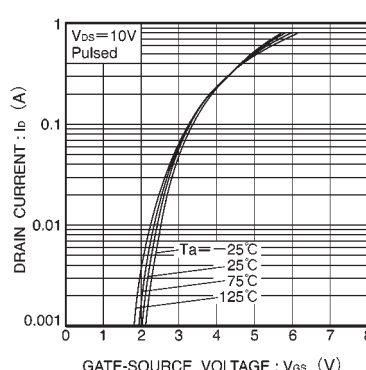


Fig.2 Typical transfer characteristics

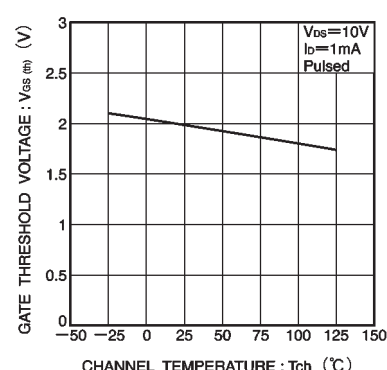


Fig.3 Gate threshold voltage vs. channel temperature

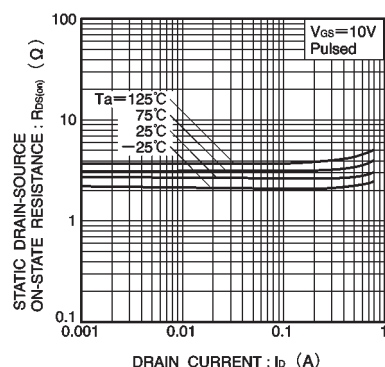


Fig.4 Static drain-source on-state resistance vs. drain current (I)

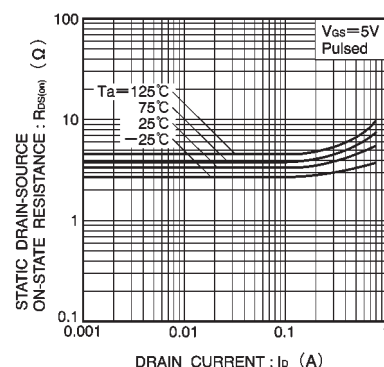


Fig.5 Static drain-source on-state resistance vs. drain current (I)

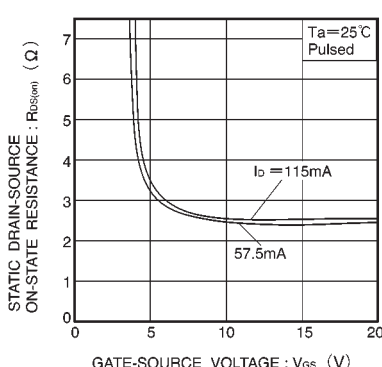


Fig.6 Static drain-source on-state resistance vs. gate-source voltage

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●Electrical characteristic curves (continues)

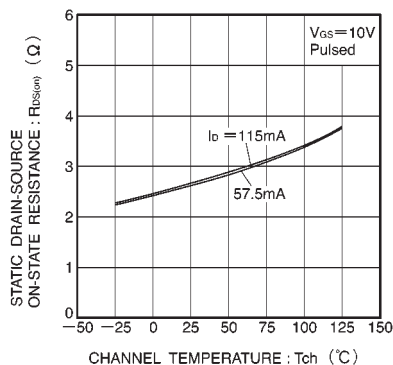


Fig.7 Static drain-source on-state resistance vs. channel temperature

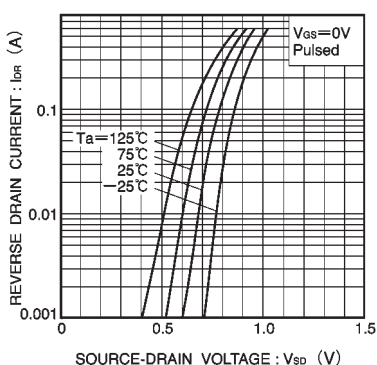


Fig.8 Reverse drain current vs. source-drain voltage (I)

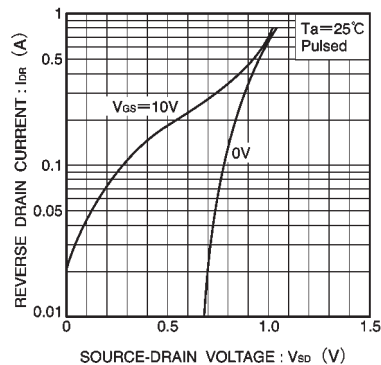


Fig.9 Reverse drain current vs. source-drain voltage (II)

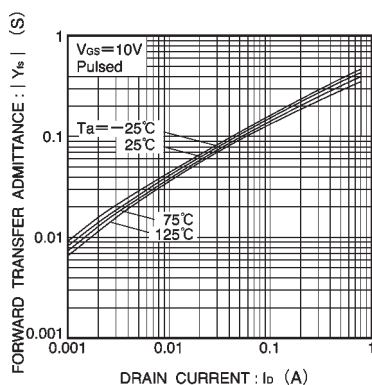


Fig.10 Forward transfer admittance vs. drain current

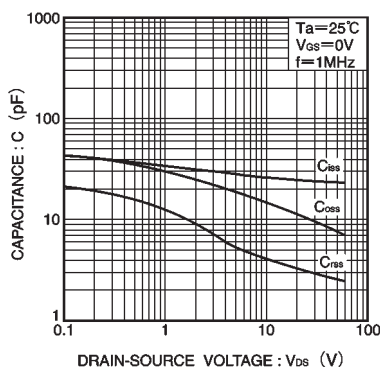


Fig.11 Typical capacitance vs. drain-source voltage

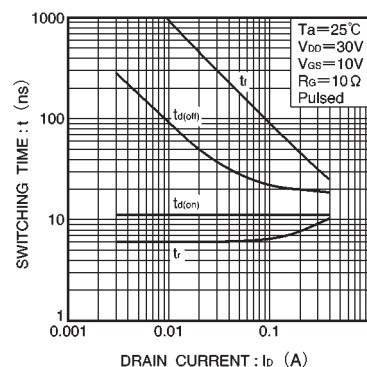


Fig.12 Switching characteristics
(See Figures 13 and 14 for the measurement circuit and resultant waveforms)

●Switching characteristics measurement circuit

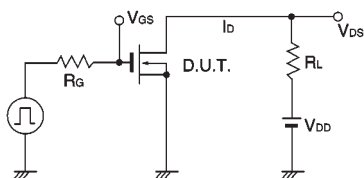


Fig.13 Switching time measurement circuit

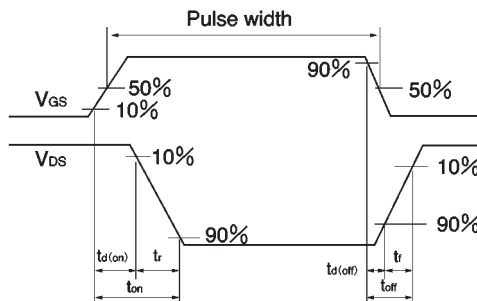
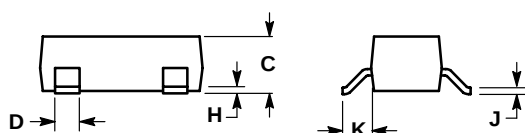
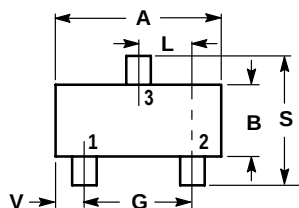


Fig.14 Switching time waveforms

SRK7002LT1G

SOT-23



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

