

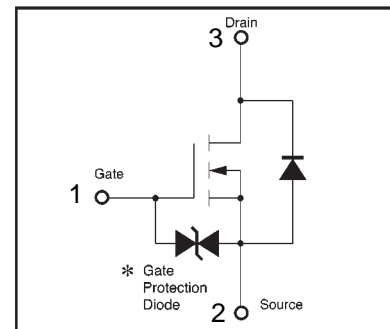
## DUAL N-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

- Low On-Resistance
- Fast Switching Speed
- Low-voltage drive
- Easily designed drive circuits
- Pb-Free Package is available. The suffix G means Pb-free package
- ESD Protected:1000V

### Ordering Information(Pb-free)

Device	Marking	Shipping
SSRK7002LT1G	RS	3000 tape/reel
SSRK7002LT3G	RS	10000 tape/reel

### SSRK7002LT1G



\* A protection diode has been built in between the gate and the source to protect against static electricity when the product is in use. Use the protection circuit when fixed voltages are exceeded.

### Maximum Ratings @ T<sub>A</sub>=25°C unless otherwise specified

Characteristic	Symbol	SSRK7002LT1G	Unit
Drain-Source Voltage	V <sub>DSS</sub>	60	V
Gate-Source Voltage	Continuous V <sub>GSS</sub>	±20	V
Drain Current	Continuous I <sub>D</sub>	115	mA
	Pulsed I <sub>DP</sub> *1	800	mA
Reverse drain current	Continuous I <sub>DR</sub>	115	mA
	Pulsed I <sub>DRP</sub> *1	800	mA
Total Power Dissipation	P <sub>d</sub> *2	225	mW
Channel temperature	T <sub>ch</sub>	150	°C
Storage Temperature Range	T <sub>stg</sub>	-55 to +150	°C

\*1 P<sub>w</sub> ≦ 10 μs, Duty cycle ≦ 1 %

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

## SSRK7002LT1G

**Electrical Characteristics** @  $T_A=25^\circ\text{C}$  unless otherwise specified, per element

Characteristic	Symbol	Min	Typ	MAX	Unit	Test Condition
<b>OFF CHARACTERISTICS(Note 2)</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	60			V	$V_{GS}=0V, I_D=10\mu A$
Zero Gate Voltage Drain Current	$I_{DSS}$			1.0	$\mu A$	$V_{DS}=60V, V_{GS}=0V$
Gate-source Leakage	$I_{GSS}$			$\pm 10$	$\mu A$	$V_{GS}=\pm 20V, V_{DS}=0V$
<b>ON CHARACTERISTICS(Note 2)</b>						
Gate Threshold Voltage	$V_{GS(th)}$	1.0	1.85	2.5	V	$V_{DS}=V_{GS}, I_D=250\mu A$
Static Drain-Source On-Resistance	$R_{DS(ON)}$			7.5	$\Omega$	$V_{GS}=10V, I_D=0.5A$
				7.5		$V_{GS}=5V, I_D=0.05A$
Forward transfer admittance	$g_{fs}^*$	80			mS	$V_{DS}=10V, I_D=0.2A$
<b>DYNAMIC CHARACTERISTICS</b>						
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	$f=1.0\text{MHz}$
<b>SWITCHING CHARACTERISTICS</b>						
Turn-On Delay Time	$T_{D(ON)}^*$		12	20	nS	$I_D=0.2A, V_{DD}=30V,$
Turn-Off Delay Time	$T_{D(OFF)}^*$		20	30	nS	$V_{GS}=10V, R_L=150\Omega, R_G=10\Omega$

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

### ●Electrical characteristic curves

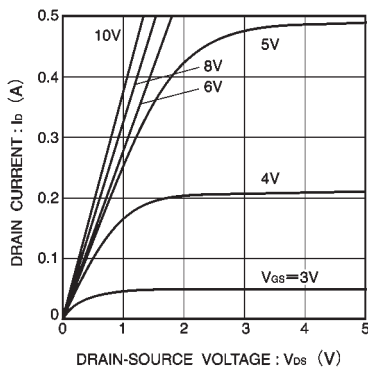


Fig.1 Typical output characteristics

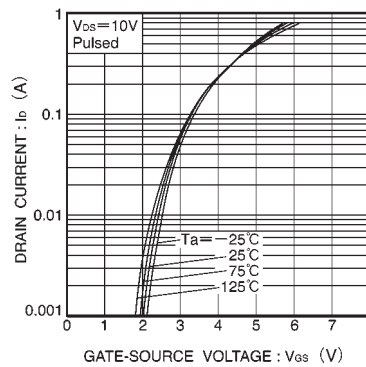


Fig.2 Typical transfer characteristics

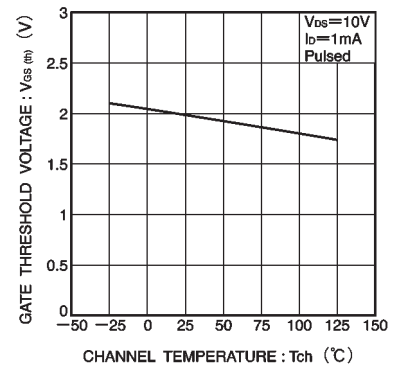


Fig.3 Gate threshold voltage vs. channel temperature

# SSRK7002LT1G

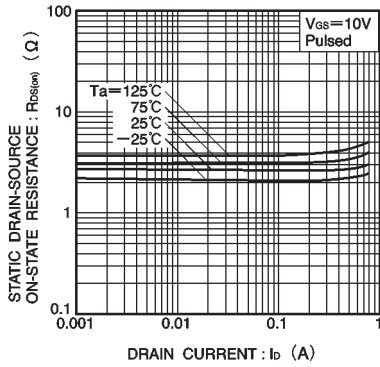


Fig.4 Static drain-source on-state resistance vs. drain current ( I )

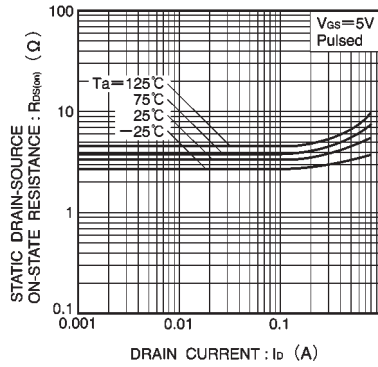


Fig.5 Static drain-source on-state resistance vs. drain current ( II )

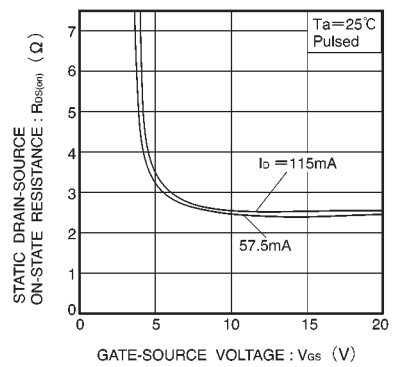


Fig.6 Static drain-source on-state resistance vs. gate-source voltage

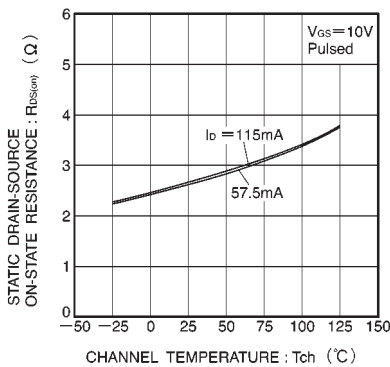


Fig.7 Static drain-source on-state resistance vs. channel temperature

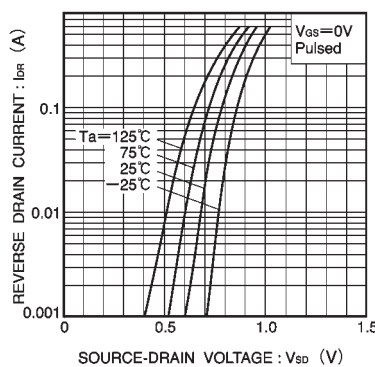


Fig.8 Reverse drain current vs. source-drain voltage ( I )

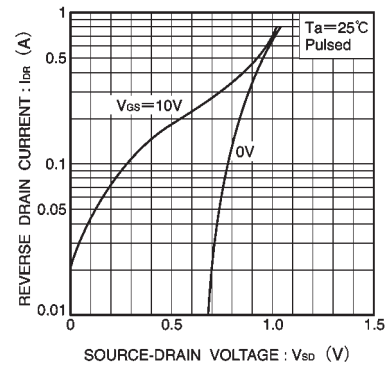


Fig.9 Reverse drain current vs. source-drain voltage ( II )

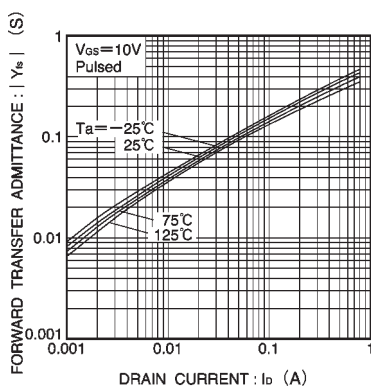


Fig.10 Forward transfer admittance vs. drain current

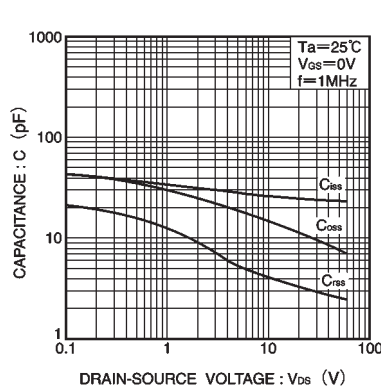


Fig.11 Typical capacitance vs. drain-source voltage

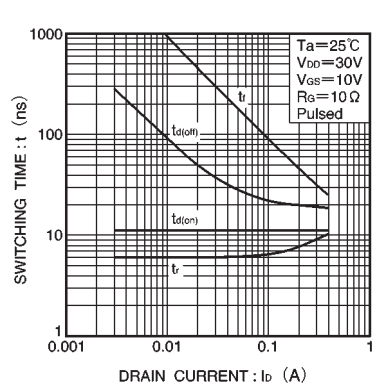
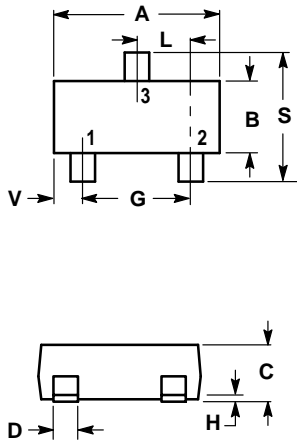


Fig.12 Switching characteristics (See Figures 13 and 14 for the measurement circuit and resultant waveforms)

# SSRK7002LT1G

## SOT-23

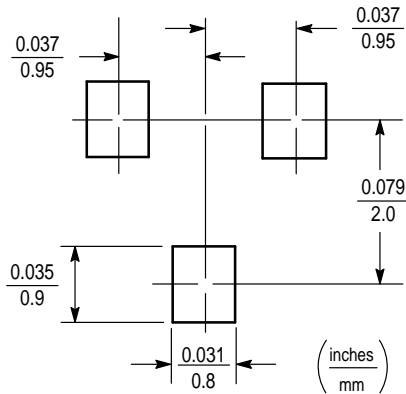


**NOTES:**

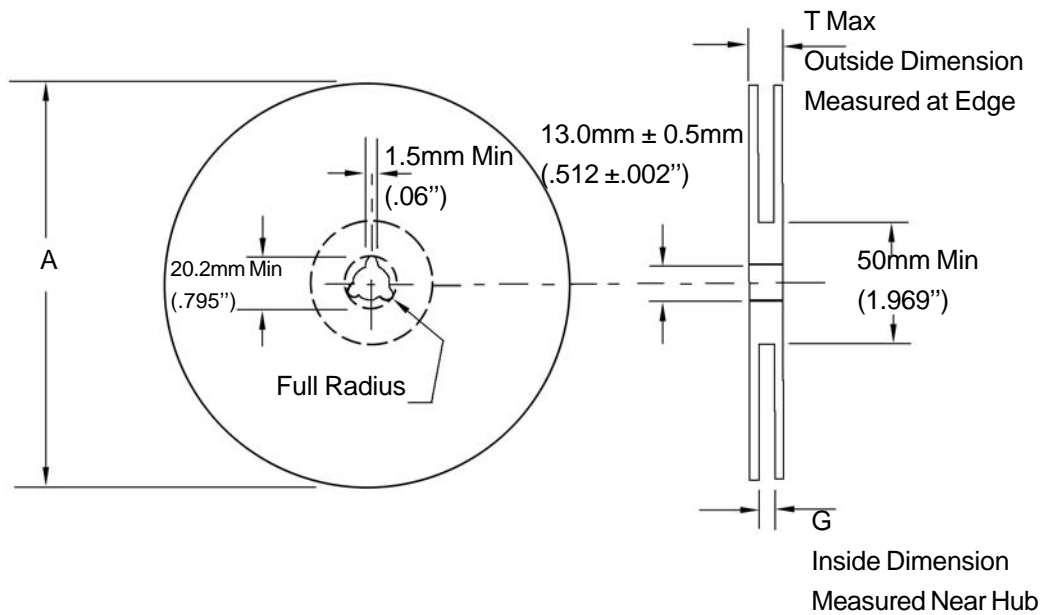
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

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

- PIN 1. BASE
- 2. EMITTER
- 3. COLLECTOR



## EMBOSSED TAPE AND REEL DATA FOR DISCRETES



Size	A Max	G	T Max
8 mm	178.0mm (7.0")	8.4mm+1.5mm, -0.0 (.33"+.039", -0.00)	10.9mm (.43")

### Reel Dimensions

Metric Dimensions Govern — English are in parentheses for reference only

### Storage Conditions

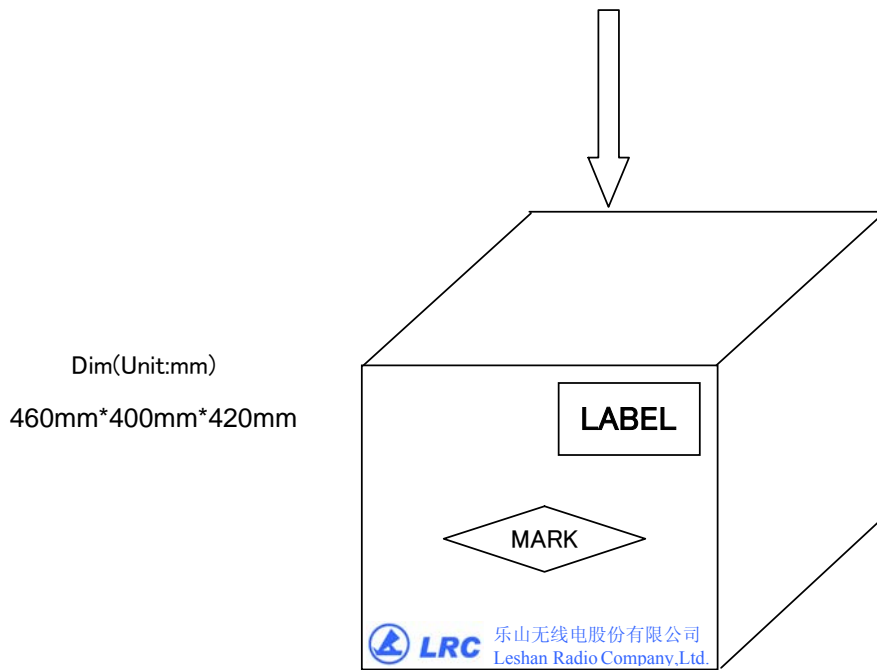
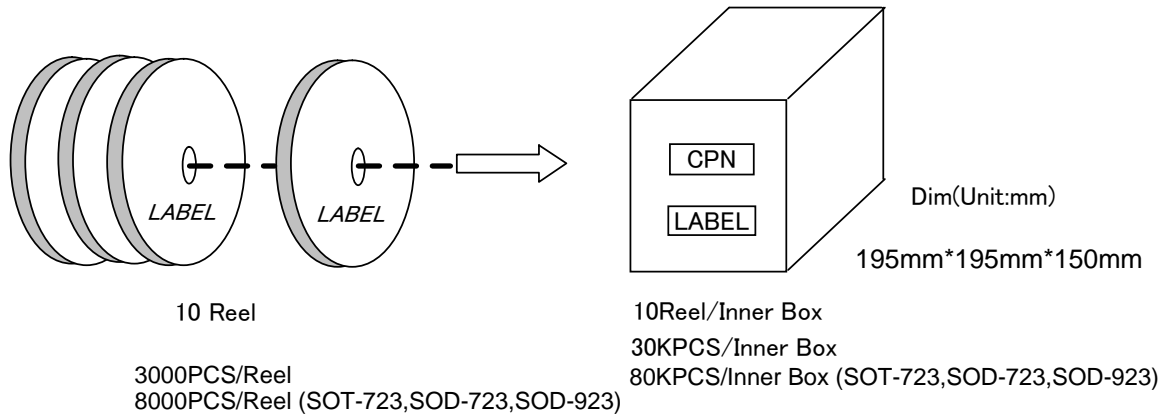
Temperature: 5 to 40 Deg.C (20 to 30 Deg. C is preferred)

Humidity: 30 to 80 RH (40 to 60 is preferred )

Recommended Period: One year after manufacturing

(This recommended period is for the soldering condition only. The characteristics and reliabilities of the products are not restricted to this limitation)

## Shipment Specification



12 Inner Box/Carton

360KPCS/Carton  
960KPCS/Carton (SOT-723,SOD-723,SOD-923)