03/07/2000 Ver 1
TENTATIVE

# SP4T SWITCH GaAs MMIC

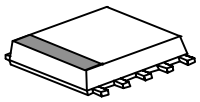
## ■GENERAL DESCRIPTION

NJG1519KC1 is a GaAs high power SP4T switch MMIC for antenna switch of dual mode cellular phone application such as GSM/DCS1800.

This switch is designed for an antenna switch between an antenna and one of two Tx ports or two Rx ports to control RF signals up to 2.5GHz.

The ultra small & ultra thin FLP10 package is applied.

## ■PACKAGE OUTLINE

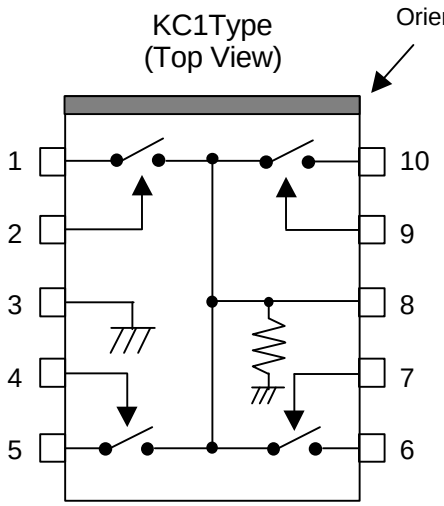


NJG1519KC1

## ■FEATURES

| | |
|---|---|
| ●Low insertion loss | 0.6dB typ. @f=0.9GHz, Pin=34dBm |
| | 0.85dB typ. @f=1.9GHz, Pin=32dBm |
| ●High isolation | 24dB typ. @f=0.9GHz |
| | 18dB typ. @f=1.9GHz |
| ●High handling power | $P_{-0.2dB}$=35dBm typ. @f=1.9GHz |
| ●Low control voltage | $V_{CTL\ (H)}$=3.0V typ. |
| ●Ultra small & ultra thin package | FLP10-C1 (Mount Size: 2.8x3.0x0.75mm) |

## ■PIN CONFIGURATION




Pin Connection

1. P1
2. $V_{CTL1}$
3. GND
4. $V_{CTL2}$
5. P2
6. P3
7. $V_{CTL3}$
8. PC
9. $V_{CTL4}$
10. P4

## ■TRUTH TABLE

| ON Pass | $V_{CTL1}$ | $V_{CTL2}$ | $V_{CTL3}$ | $V_{CTL4}$ |
|---|---|---|---|---|
| PC-P1 | H | L | L | L |
| PC-P2 | L | H | L | L |
| PC-P3 | L | L | H | L |
| PC-P4 | L | L | L | H |

NOTE: Please note that any information on this catalog will be subject to change.

## ■ABSOLUTE MAXIMUM RATINGS

($T_a$=+25°C, $Z_s$=$Z_l$=50Ω)

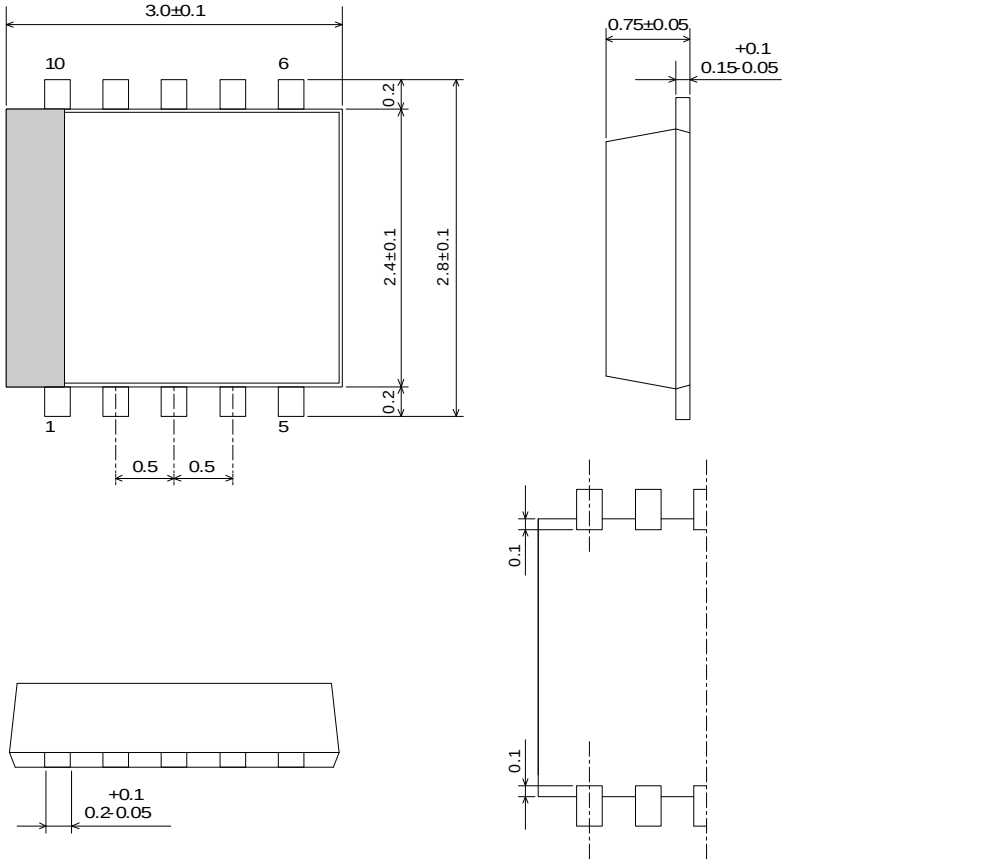
| PARAMETER | SYMBOL | CONDITIONS | RATINGS | UNITS |
|---|---|---|---|---|
| RF Input Power | $P_{in}$ | $V_{CTL(L)}$=0V, $V_{CTL(H)}$=3V | 38 | dBm |
| Operating Voltage | $V_{CTL}$ | $V_{CTL(H)}$-$V_{CTL(L)}$ | 12 | V |
| Power Dissipation | $P_D$ | | 550 | mW |
| Operating Temp. | $T_{opr}$ | | -40~+85 | °C |
| Storage Tempe. | $T_{stg}$ | | -55~+125 | °C |

## ■ELECTRICAL CHARACTERISTICS

General Conditions: $T_a$=+25°C, $Z_s$=$Z_l$=50Ω, $V_{CTL\ (L)}$=0V, $V_{CTL\ (H)}$=3V

| PARAMETER | SYMBOL | CONDITIONS | MIN | TYP | MAX | UNITS |
|---|---|---|---|---|---|---|
| Control Voltage (Low) | $V_{CTL(L)}$ | f=0.01~2.5GHz | -0.2 | 0 | 0.2 | V |
| Control Voltage (High) | $V_{CTL(H)}$ | f=0.01~2.5GHz | 2.5 | 3.0 | 6.5 | V |
| Control Current | $I_{CTL}$ | f=0.9GHz, $P_{in}$=34dBm | - | 10 | 30 | uA |
| Insertion loss 1 | LOSS1 | f=0.9GHz, $P_{in}$=34dBm | - | 0.6 | 0.8 | dB |
| Insertion loss 2 | LOSS2 | f=1.9GHz, $P_{in}$=32dBm | - | 0.85 | 1.0 | dB |
| Isolation 1 | ISL1 | f=0.9GHz, $P_{in}$=34dBm | 22 | 24 | - | dB |
| Isolation 2 | ISL2 | f=1.9GHz, $P_{in}$=32dBm | 16 | 18 | - | dB |
| Pin at 0.2dB compression point | $P_{-0.2dB}$ | f=1.9GHz | 34 | 35 | - | dBm |
| VSWR | $VSWR_i$ | on-state ports, f=1.9GHz | - | 1.2 | 1.4 | |
| Switching time | $T_{SW}$ | f=0.1~2.5GHz | - | 60 | 100 | ns |

## ■PACKAGE OUTLINE (FLP10-C1)




| | |
|---|---|
| Lead material | : Copper |
| Lead surface finish | : Solder plating |
| Molding material | : Epoxy resin |
| UNIT | : mm |
| Weight | : 14mg |

**Cautions on using this product**

This product contains Gallium-Arsenide (GaAs) which is a harmful material.

- Do NOT eat or put into mouth.
- Do NOT dispose in fire or break up this product.
- Do NOT chemically make gas or powder with this product.
- To waste this product, please obey the relating law of your country.

This product may be damaged with electric static discharge (ESD) or spike voltage. Please handle with care to avoid these damages.