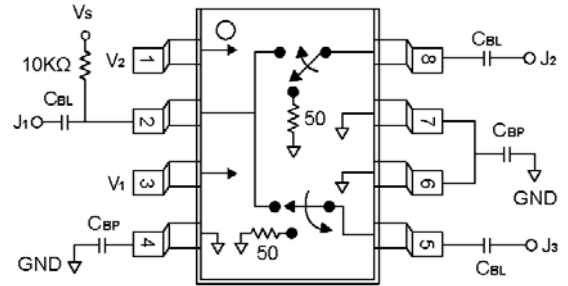


➤ **Features<sub>ver2.04</sub>**

- Low Power Loss
- High Isolation(40dB@0.9GHz)
- Non-Reflective Switch
- SOIC—8 Package

➤ **Description**

**K111** is a GaAs MMIC SPDT switch in a low-cost SOIC-8 plastic package. The switch makes features with high isolation and low insertion loss with +5V or -5V control voltage operation. The switch is used in many various telecommunication applications include mobile telephone and GSM/CDMA base station.



DC blocking Capacitors ( $C_{BL}$ ) and bypass Capacitors ( $C_{BP}$ ) must be supplied for positive operation.  
 $C_{BL}=100\text{pF}$ ,  $C_{BP}=1000\text{pF}$  for operation  $>500\text{MHz}$ .

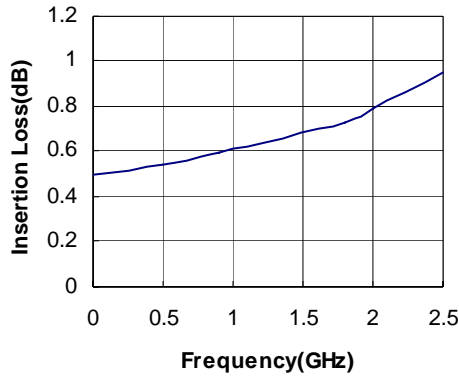
➤ **Typical Electrical Specification st 25°C ( 0, -5V )**

| Characteristic  |   | Frequency  | Min. | Typ.  | Max.  | Unit |
|-----------------|---|------------|------|-------|-------|------|
| Insertion Loss  |   | DC-0.5GHz  |      | 0.5   | 0.7   | dB   |
|                 |   | DC-1.0GHz  |      | 0.6   | 0.8   | dB   |
|                 |   | DC-2.0GHz  |      | 0.7   | 0.9   | dB   |
|                 |   | DC-2.5GHz  |      | 1.0   | 1.3   | dB   |
| Isolation       |   | DC-0.5GHz  | 44   | 46    |       | dB   |
|                 |   | DC-1.0GHz  | 37   | 39    |       | dB   |
|                 |   | DC-2.0GHz  | 27   | 30    |       | dB   |
|                 |   | DC-2.5GHz  | 24   | 26    |       | dB   |
| VSWR            |   | DC-0.5GHz  |      | 1.2:1 | 1.3:1 |      |
|                 |   | DC-1.0GHz  |      | 1.2:1 | 1.3:1 |      |
|                 |   | DC-2.5GHz  |      | 1.3:1 | 1.4:1 |      |
| IP <sub>3</sub> | Two-tone, input power +5dBm   | 0.5-2.5GHz |      | 45    |       | dBm  |
| 1dB Press Point |   | 0.5-2.5GHz |      | 28    |       | dBm  |
| Control Voltage | $V_{Low}=0-0.2V @ 20 \mu A \text{ Max.}$<br>$V_{High}=-5V @ 50 \mu A \text{ Max. to } -8V @ 100 \mu A \text{ Max.}$ |            |      |       |       |      |

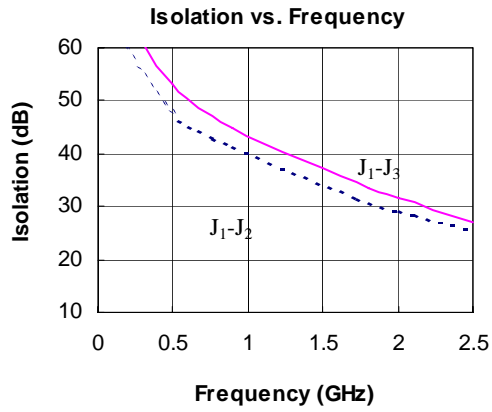
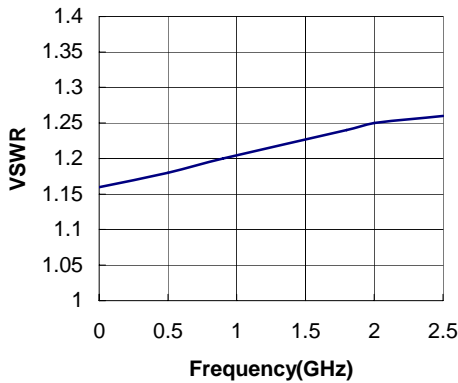
1. All measurements in a 50-Ω system, unless otherwise specified.
2. Insertion Loss changes 0.3dB at 85°C.
3. Input or Output.

➤ **Typical Performance Curves**  
(0, -5V)

Insertion Loss vs. Frequency



VSWR vs. Frequency



➤ **Truth Table**

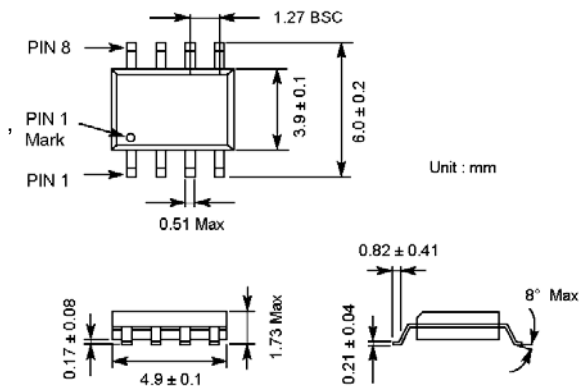
Negative Voltage Operation :

| V <sub>1</sub> | V <sub>2</sub> | J <sub>1</sub> -J <sub>2</sub> | J <sub>1</sub> -J <sub>3</sub> |
|----------------|----------------|--------------------------------|--------------------------------|
| 0              | -5             | ON                             | OFF                            |
| -5             | 0              | OFF                            | ON                             |

Positive Voltage Operation : ( V<sub>HIGH</sub>=+5 to +8V , V<sub>S</sub>=V<sub>HIGH</sub>±0.2V)

| V <sub>1</sub>    | V <sub>2</sub>    | J <sub>1</sub> -J <sub>2</sub> | J <sub>1</sub> -J <sub>3</sub> |
|-------------------|-------------------|--------------------------------|--------------------------------|
| V <sub>HIGH</sub> | 0                 | ON                             | OFF                            |
| 0                 | V <sub>HIGH</sub> | OFF                            | ON                             |

➤ **SOIC-8 Outline Dimension**



➤ **Absolute Maximum Ratings**

| Item                  | Value                |
|-----------------------|----------------------|
| RF Input Power        | 2W, >500MHz<br>0/+8V |
| Control Voltage       | -0.2V, -8V           |
| Operation Temperature | -40°C to 85°C        |
| Storage Temperature   | -65°C to 150°C       |
| θ <sub>JC</sub>       | 25°C/W               |

1. Operation of this device above any one of these parameters may cause permanent damage