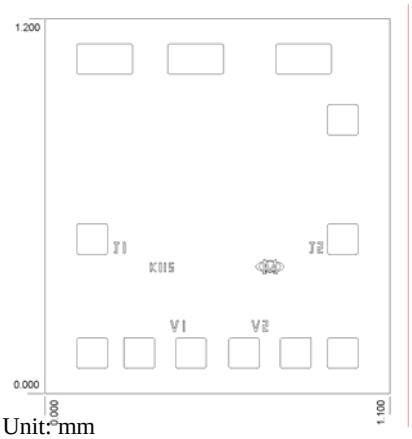
## ➢ Features ver1.04

GaAs MMIC Chip
Multi -Use
High Isolation
Passivation Protection




Unit: mm
Dimension: 0.1mm×0.1mm
Height of chip: 0.25mm

## ➢ Description

**K115** is GaAs MMIC SPST switch chip。The switch makes features with high isolation and low insertion loss with +5V control voltage operation. Operation frequency reaches 6GHz. Different Down-Lead causes different switches with high isolation or low insertion loss, easy to use. The switch is used in many various telecommunication applications including WLAN, GSM, CDMA, RADIO etc.

## ➢ Typical Electrical Specification at 25℃ (0,+5V)

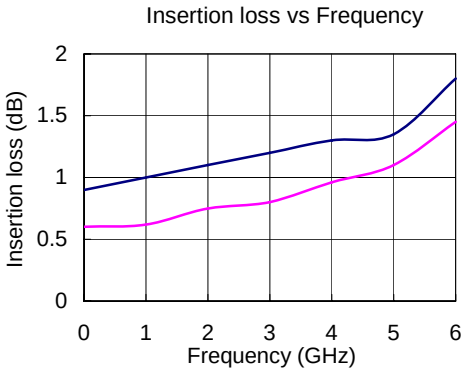
| Characteristic | Frequency | K115-L | | K115-M | | K115-R | | Unit |
|---|---|---|---|---|---|---|---|---|
| | | Min. | Max. | Min. | Max. | Min. | Max | |
| Insertion Loss[2] | DC-1.0GHz | | 0.6 | | 1.0 | | 1.0 | dB |
| | DC-2.0GHz | | 0.8 | | 1.1 | | 1.1 | dB |
| | DC-4.0GHz | | 1.2 | | 1.5 | | 1.5 | dB |
| | DC-6.0GHz | | 1.7 | | 1.9 | | 1.9 | dB |
| Isolation | DC-1.0GHz | 45 | | 60 | | 55 | | dB |
| | DC-2.0GHz | 40 | | 57 | | 50 | | dB |
| | DC-4.0GHz | 35 | | 52 | | 45 | | dB |
| | DC-6.0GHz | 30 | | 45 | | 35 | | dB |
| VSWR[3] | DC-1.0GHz | | 1.2:1 | | 1.2:1 | | 1.2:1 | |
| | DC-2.0GHz | | 1.3:1 | | 1.3:1 | | 1.3:1 | |
| | DC-4.0GHz | | 1.5:1 | | 1.5:1 | | 1.3:1 | |
| | DC-6.0GHz | | 1.8:1 | | 1.8:1 | | 1.8:1 | |

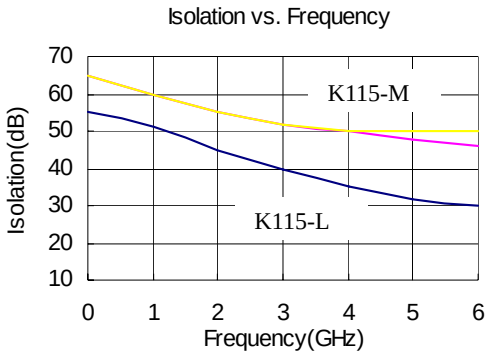
## ➢ Using Characteristic

| Characteristic | | Frequency | Min. | Typical | Max. | Unit |
|---|---|---|---|---|---|---|
| Switch Characteristic | Rise or fall(10/90%or90/10 %RF) | | | 10 | | ns |
| | On or off(50%CTL to 90/10% RF) | | | 10 | | ns |
| $IP_3$ | Two-tone，input power +13dBm | 0.5-6.0GHz | | 45 | | dBm |
| $P_{-1}$ | 0/-5V(0/-8V) | 0.5-6.0GHz | | 24(30) | | dBm |
| Control Valtage | $V_{Low}$=0-0.2V@20μA Max.<br>$V_{HIGH}$=-5V@20μA Max. to -9V@100μA Max. | | | | | |

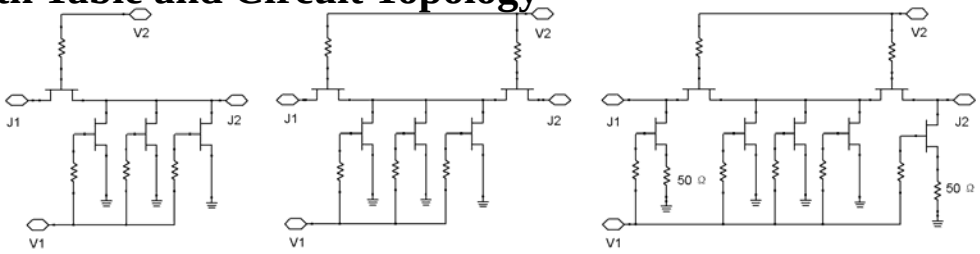
1. All measurements in a 50-Ω system, unless otherwise specified.
2. Insertion Loss changes 0.3dB at 85℃.

## ➢ Typical Performance Curves
（0，-5V）



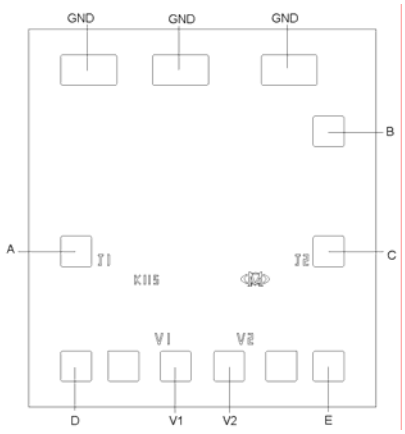

## ➢ Truth Table and Circuit Topology




低插损反射型开关（K115-L） 高隔离反射型开关（K115-R） 高隔离吸收型开关（K115-M）

| | J1-J2 | A | B | C | D | E | V1 | V2 |
|---|---|---|---|---|---|---|---|---|
| K115-L | ON | J1 | J2 | NC | NC | NC | -5 | 0 |
| | OFF | J1 | J2 | NC | NC | NC | 0 | -5 |
| K115-M | ON | J1 | NC | J2 | GND | GND | -5 | 0 |
| | OFF | J1 | NC | J2 | GND | GND | 0 | -5 |
| K115-R | ON | J1 | NC | J2 | NC | NC | -5 | 0 |
| | OFF | J1 | NC | J2 | NC | NC | 0 | -5 |

## ➢ Chip Picture




## ➢ Maximum Value

| Item | Value |
|---|---|
| RF Output Frequency | 2W, >500MHz，0/-8V |
| Control Valtage | -0.2V，-10V |
| Operating Temperature | -40℃ to 85℃ |
| Storage Temperature | -65℃ to 150℃ |
| $\theta_{JC}$ | 25℃/W |

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