

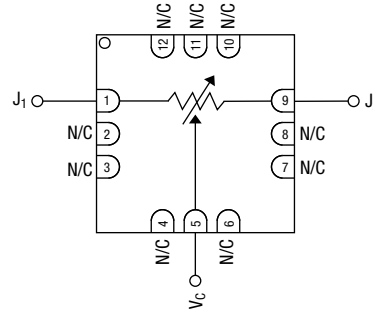
DATA SHEET

SKY12146-321, SKY12146-321LF: GaAs IC 25 dB Voltage Variable Attenuator 2.7–4 GHz

Features

- Power control for 3.5 GHz fixed wireless applications
- Minimum 25 dB attenuation
- Positive 0.2–1.2 V control voltage
- QFN-12 3 x 3 mm package
- Low cost
- No external components needed
- Available lead (Pb)-free and RoHS-compliant MSL-1 @ 260 °C per JEDEC J-STD-020

Pin Out



Ground is connected to paddle on bottom.

Description

The SKY12146-321 is a GaAs IC PHEMT voltage variable attenuator that has been designed for WLAN applications. Operating from 2.7–4 GHz, the SKY12146-321 is ideal for low-cost applications such as 3.5 GHz fixed wireless LAN power control applications.

NEW

Skyworks offers lead (Pb)-free, RoHS (Restriction of Hazardous Substances)-compliant packaging.



Electrical Specifications at 25 °C

Z₀ = 50 Ω, unless otherwise noted

| Parameter | Frequency | Min. | Typ. | Max. | Unit |
|--|-----------|------|------|------|------|
| Insertion loss (V _C = 1.2 V) | 2.7–4 GHz | | 1.5 | 1.8 | dB |
| Maximum attenuation (V _C = 0.2 V) | 2.7–4 GHz | 22 | 25 | | dB |
| VSWR — all ports | 2.7–4 GHz | | 1.5 | 1.8 | |

Operating Characteristics at 25 °C (0, 1.2 V)

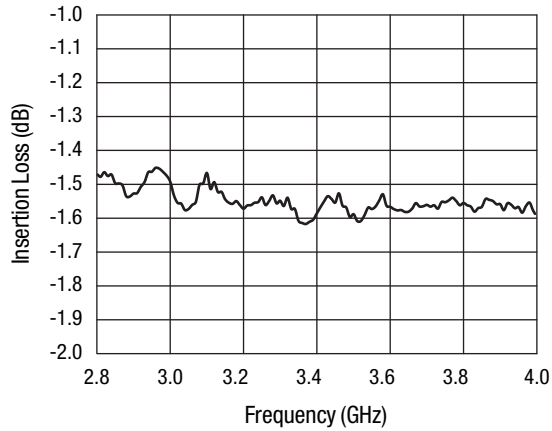
Z₀ = 50 Ω, unless otherwise noted

| Parameter | Condition | Frequency | Min. | Typ. | Max. | Unit |
|--|--|-----------|------|------|------|------|
| Switching characteristics | | | | | | |
| Rise, fall | 10/90% or 90/10% RF | | | 50 | | ns |
| On, off | 50% CTL to 90/10% RF | | | 150 | | ns |
| Video feedthru | T _{RISE} = 1 ns, BW = 500 MHz | | | 25 | | mV |
| Maximum input power for < 1 dB attenuation variation | | 2.7–4 GHz | | 13 | | dBm |
| Input 3rd order intercept point (IIP3) | | 2.7–4 GHz | | 20 | | dBm |
| Control voltage | | | 0.2 | | 1.2 | V |

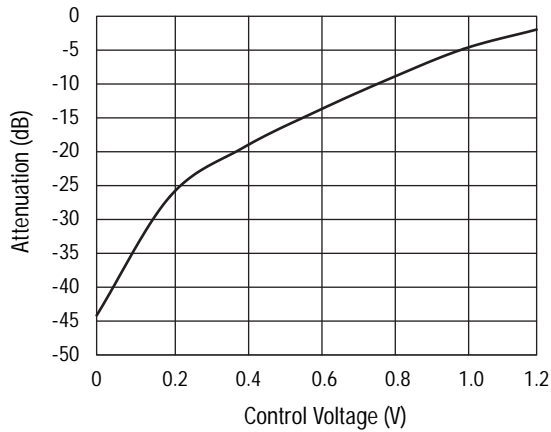
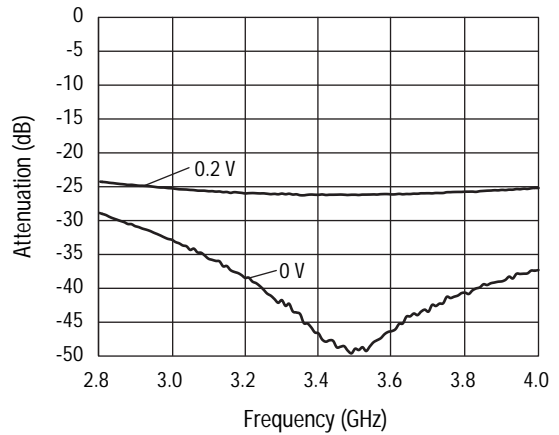
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Typical Performance Data at 25 °C

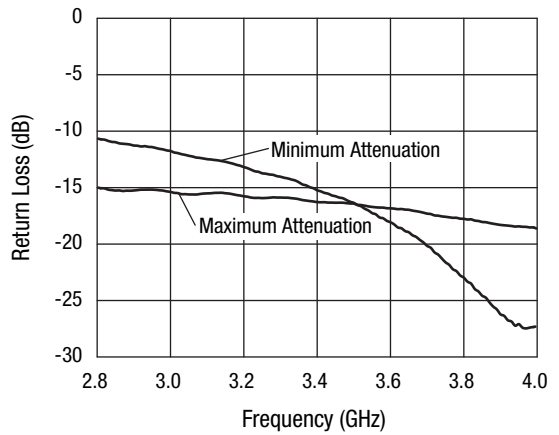
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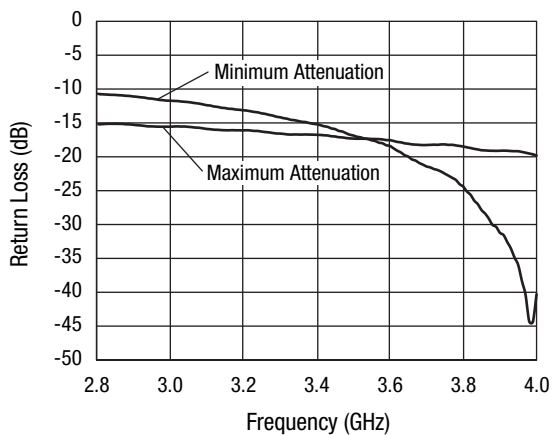
Insertion Loss vs. Frequency



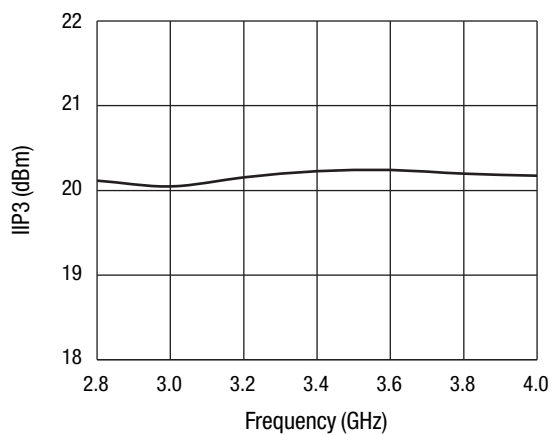
Attenuation vs. Control Voltage



Input Return Loss vs. Frequency



Output Return Loss vs. Frequency



Input IP3 vs. Frequency

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Absolute Maximum Ratings

| Characteristic | Value |
|-----------------------|-------------------|
| RF input power | 1 W max. |
| Control voltage | -0.2 V, +6 V |
| Operating temperature | -40 °C to +85 °C |
| Storage temperature | -65 °C to +150 °C |

Performance is guaranteed only under the conditions listed in the specifications table and is not guaranteed under the full range(s) described by the Absolute Maximum specifications. Exceeding any of the absolute maximum/minimum specifications may result in permanent damage to the device and will void the warranty.

CAUTION: Although this device is designed to be as robust as possible, ESD (Electrostatic Discharge) can damage this device. This device must be protected at all times from ESD. Static charges may easily produce potentials of several kilovolts on the human body or equipment, which can discharge without detection. Industry-standard ESD precautions must be employed at all times.

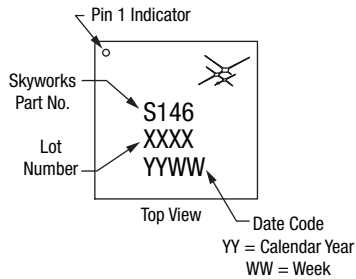
Recommended Solder Reflow Profiles

Refer to the ["Recommended Solder Reflow Profile"](#) Application Note.

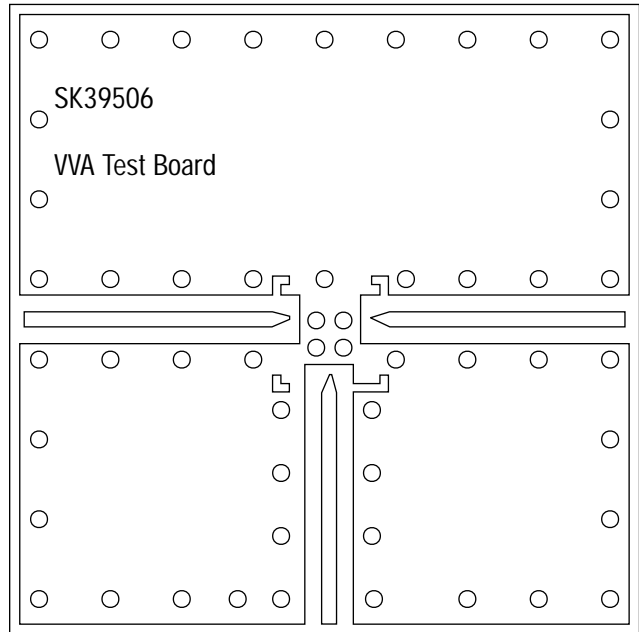
Tape and Reel Information

Refer to the ["Discrete Devices and IC Switch/Attenuators Tape and Reel Package Orientation"](#) Application Note.

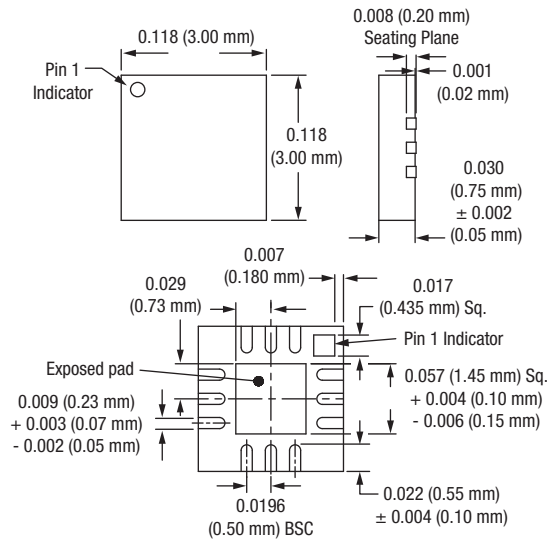
Package Marking



Evaluation Board Layout



QFN-12



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