

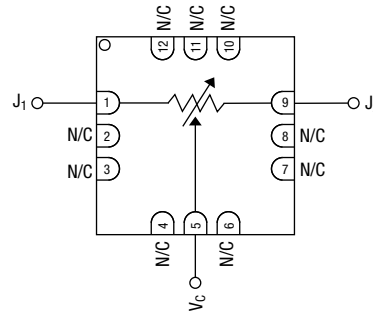
**DATA SHEET**

# 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**

**Z<sub>0</sub> = 50 Ω, unless otherwise noted**

Parameter	Frequency	Min.	Typ.	Max.	Unit
Insertion loss (V <sub>C</sub> = 1.2 V)	2.7–4 GHz		1.5	1.8	dB
Maximum attenuation (V <sub>C</sub> = 0.2 V)	2.7–4 GHz	22	25		dB
VSWR — all ports	2.7–4 GHz		1.5	1.8	

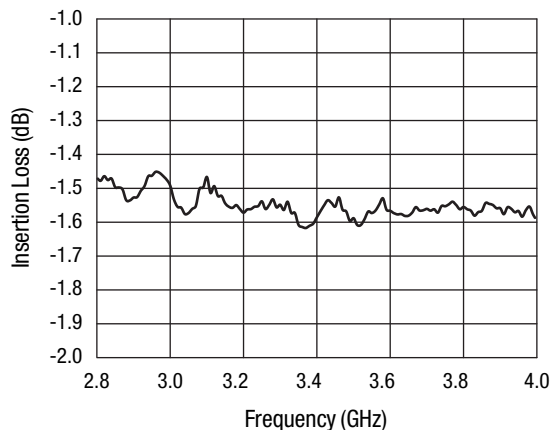
**Operating Characteristics at 25 °C (0, 1.2 V)**

**Z<sub>0</sub> = 50 Ω, unless otherwise noted**

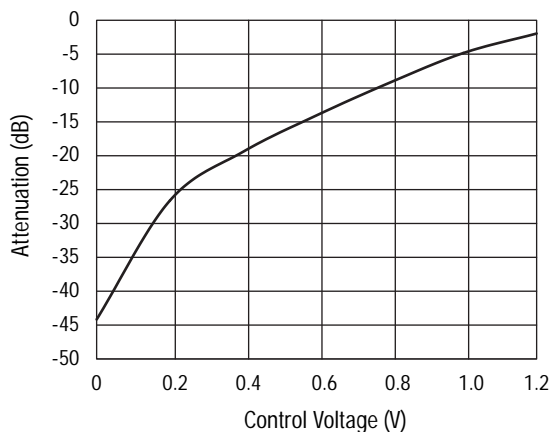
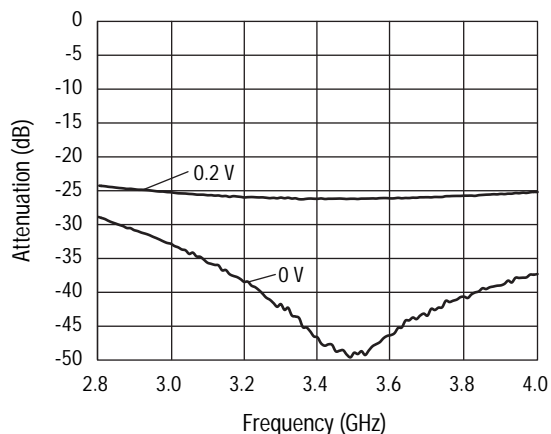
Parameter	Condition	Frequency	Min.	Typ.	Max.	Unit
Switching characteristics						
Rise, fall	10/90% or 90/10% RF			50		ns
On, off	50% CTL to 90/10% RF			150		ns
Video feedthru	T <sub>RISE</sub> = 1 ns, BW = 500 MHz			25		mV
Maximum input power for < 1 dB attenuation variation		2.7–4 GHz		13		dBm
Input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

### Typical Performance Data at 25 °C

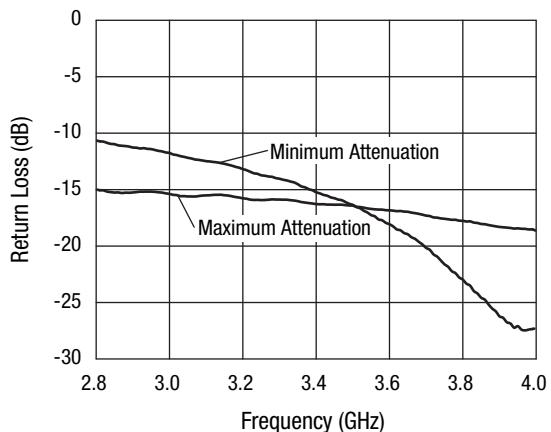
$Z_0 = 50 \Omega$ , unless otherwise noted



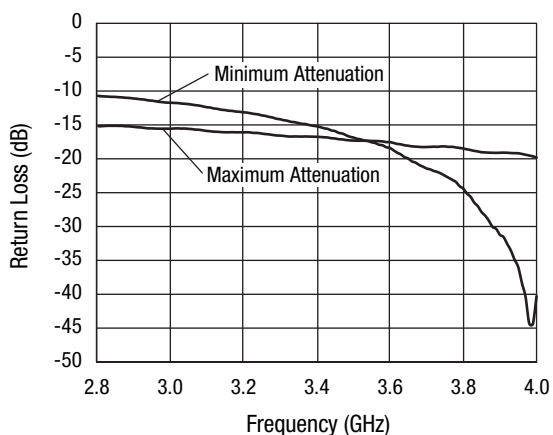
**Insertion Loss vs. Frequency**



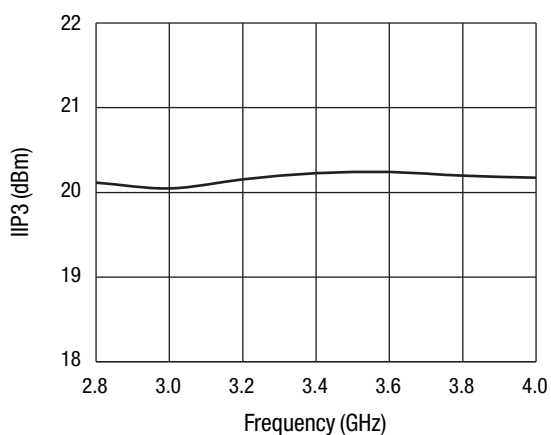
**Attenuation vs. Control Voltage**



**Input Return Loss vs. Frequency**



**Output Return Loss vs. Frequency**



**Input IP3 vs. Frequency**

### 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.

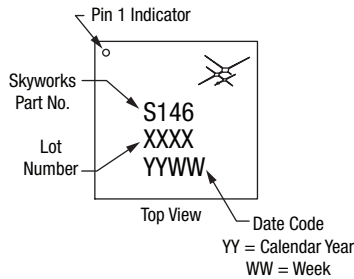
### Recommended Solder Reflow Profiles

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

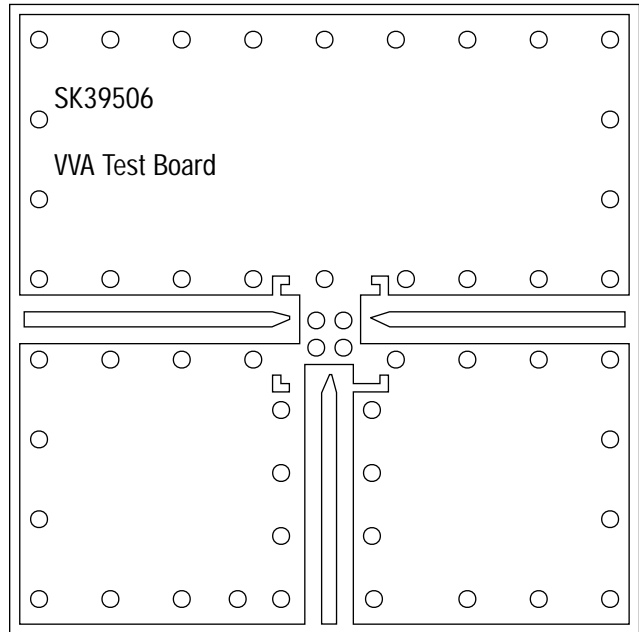
### Tape and Reel Information

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

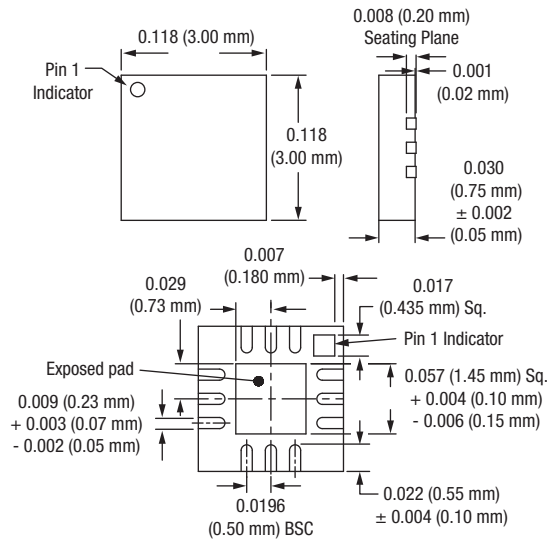
### Package Marking



### Evaluation Board Layout



### QFN-12



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