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Keysight R/Q/U/V281A,B

mm-Wave-to-Coax Adapters 26.5 to 65 GHz

Technical Overview

- Excellent repeatability
- Measurement versatility
- WR-28, WR-22, WR-l9, WR-15 (R, Q, U, V band) waveguide
- Precision 1.85 mm and 2.4 mm coax connectors

Increased measurement versatility

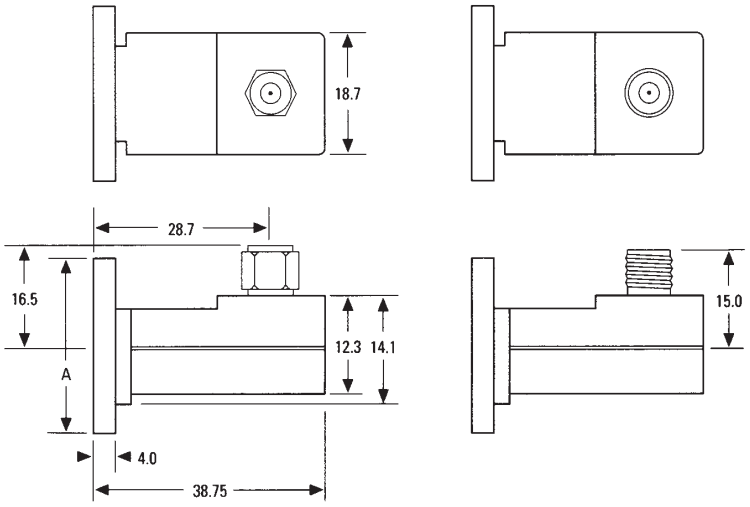
The Keysight Technologies, Inc. 281 family of precision millimeter waveguide-to-coax adapters offer coax measurements to 65 GHz. These adapters provide a simple, low SWR transition between transmission media. You are able to take advantage of stable, low loss and low SWR waveguide when measuring coaxial devices at higher frequencies, or keep the convenience of coax, even when testing waveguide components. R/Q/U/V281 adapters increase the versatility of existing test sets to measure both coax and waveguide components.

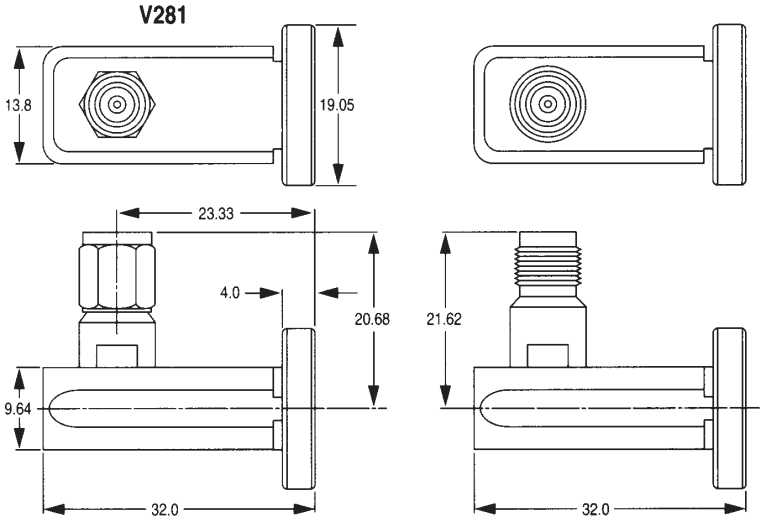
Excellent accuracy

Low SWR transitions reduce mismatch uncertainty and excellent repeatability ensures consistent measurements. Available with both male and female connectors, these adapters help microwave engineers combine the best test components from each transmission media. With the R/Q/U/V281 adapters, engineers can balance the merits of coax and waveguide to achieve the best combination of accuracy, cost and ease-of-use.

Dimensions in millimeters
A = R281: 19.3
Q281: 28.7
U281: 28.7







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Specifications

Specifications describe the instrument's warranted performance over the temperature range 0 to 55°C (except where noted). Supplemental Characteristics are intended to provide information useful in applying the instrument by giving typical but nonwarranted performance parameters. These are denoted as "typical", "nominal" or "approximate".

Coax-to-waveguide adapters				Supplemental characteristics		
Model number	**Coax connector type[1]**	**Waveguide number**	**Frequency (GHZ)**	**Return loss[2]**	**Insertion loss[4]**	**Repeatability[2,3] typically better than:**
R281A	2.4 mm (f)	WR-28	26.5 to 40	≥24 dB	≤0.3 dB	≥-50 dB
R281B	2.4 mm (m)	WR-28	26.5 to 40	≥24 dB	≤0.3 dB	≥-50 dB
Q281A	2.4 mm (f)	WR-22	33 to 50	≥22 dB	≤0.3 dB	≥-50 dB
Q281B	2.4 mm (m)	WR-22	33 to 50	≥22 dB	≤0.3 dB	≥-50 dB
U281A	1.85 mm (f)	WR-19	40 to 60	≥22 dB5	≤0.5 dB	≥-50 dB
U281B	1.85 mm (m)	WR-19	40 to 60	≥22 dB5	≤0.5 dB	≥-50 dB
V281A	1.85 mm (f)	WR-15	50 to 67	≥20 dB	≤0.5 dB	≥-50 dB
			67 to 70	≥20 dB $_{(typical)}$		
V281B	1.85 mm (m)	WR-15	50 to 67	≥20 dB	≤0.5 dB	≥-50 dB
			67 to 70	≥20 dB$_{(typical)}$		

1 f = jack, m = plug
2 At the coaxial port only
3 Repeatability = 20 log I ΔG I where I G m_1 - G $m_2$1. This is the difference between two measurements G m_1 and G m_2 before and after one disconnect/connect cycle at the coax port. Repeatability depends upon proper torque and pin depth.
4 Typical maximum insertion loss for single adapter
5 Typical for single adapter. Mated pair return loss warranted to ≥18 dB.

Environment

R/Q/U/V28lA,B environmental specifications

	Non-operating	Operating
Temperature	–55 to +75° C	0 to +55° C
Humidity	<95% relative at +40° C	<95% relative at +40° C
Altitude	≤15,300 meters (50,000 ft)	<4,600 meters (15,000 ft)

Note: Storage or operation within an environment other than that specified above may cause damage to the product and may void the warranty.

Non-operating environmental specifications apply to storage and shipment. Products should be stored in a clean, dry environment. Operating environmental specifications apply when the product is in use.

Care, connection and torque

Connector torque and pin depth specifications

Connector type	Torque (±0.5 lb-in)	Torque wrench no.		Connector pin depth (male or female)	Pin depth gage kit part no.	End cap part no.
1.85 mm	8 lb-in (90 N-cm)	8710-1765	U281:	0 to 0.03 mm (0 to 0.0012 in)	85056-60018 (m)	1401-0202 (f)
			V281:	0 to 0.0152 mm (0 to 0.0006 in)	85056-60017 (f)	1401-0208 (m)
2.4 mm	8 lb-in (90 N-cm)	8710-1765		0 to 0.038 mm (0 to 0.0015 in)		1401-0202 (f) 1401-0208 (m)

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Protective caps for waveguide flange

R band	5040-0359
Q band	1401-0211
U band	1401-0211
V band	1401-0227

Mating 2.4 mm connectors with 1.85 mm connectors

The 1.85 mm coaxial end of the U/V281A,B adapters can be mated directly with 2.4 mm connectors.

www.keysight.com/find/assist

For more information on Keysight Technologies' products, applications or services, please contact your local Keysight office. The complete list is available at: www.keysight.com/find/contactus

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