

# Coaxial Low Pass Filter

## ZLFW-K5000+

50Ω DC to 5 GHz



Generic photo used for illustration purposes only  
CASE STYLE: UK3042

### The Big Deal

- Good power handling, 2.5W
- Temperature stable
- Broadband connectorized package
- Good rejection, 42 dB typical

### Product Overview

ZLFW-K5000+ is a 50Ω low pass filter built in broadband connectorized package. Covering DC-5 GHz bandwidth, these units offer good matching within the passband and good rejection in stopband. ZLFW-K5000+ offer low insertion loss, and good power handling capability. It handles up to 2.5W RF input power and provides a wide operating temperature range from -55°C to 125°C.

### Key Features

Feature	Advantages
Low passband insertion loss	Suitable for high performance application.
2.5W Power handling	Supports a range of system power requirements.
Connectorized package	The connectorized package is easy to interface with other devices and well suited for test setups.

#### Notes

- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.  
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.  
C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at [www.minicircuits.com/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp)



# Low Pass Filter

## ZLFW-K5000+

50Ω DC to 5 GHz



### Features

- Good rejection 42dB typ.
- Temperature stable

Generic photo used for illustration purposes only

CASE STYLE: UK3042  
Connectors Model  
2.92mm-F ZLFW-K5000+

**+RoHS Compliant**  
The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

### Applications

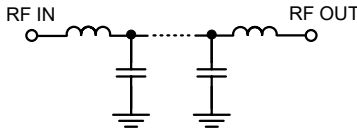
- X-Band radar
- Public safety communications

### Electrical Specifications at 25°C

Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit	
Pass Band	Insertion Loss	DC-F1	DC - 5000	—	1.8	2.6	dB
	Freq. Cut-Off	F2*	5750	—	3.0	—	dB
	Return Loss	DC-F1	DC - 5000	—	12	—	dB
Stop Band	Rejection Loss	F3-F4	7200 - 7600	18	42	—	dB
		F4-F5	7600 - 11000	28	42	—	dB
		F5-F6	11000 - 16000	23	35	—	dB
		F6-F7	16000 - 26500	—	20	—	dB

In Applications where DC voltage is present at either input or output ports, DC blocks are required.  
\* Typically, a ±5% frequency deviation from the stated value may occur on a unit-to-unit basis.

### Functional Schematic



### Maximum Ratings

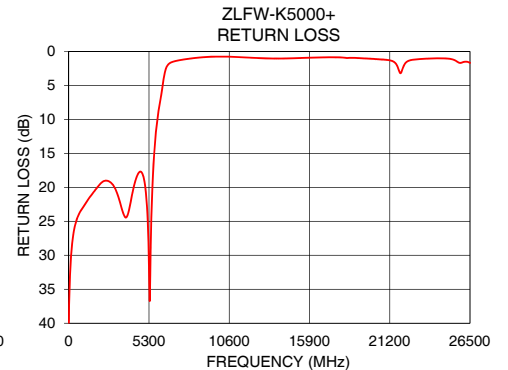
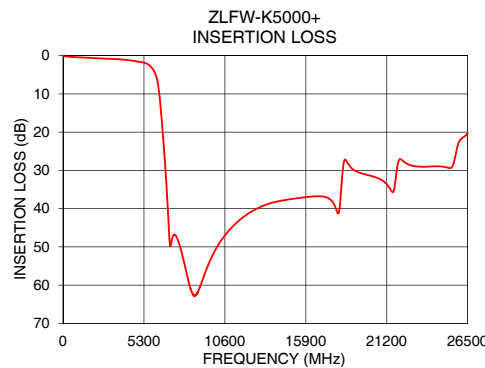
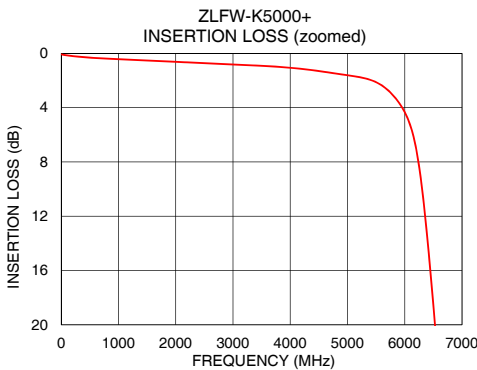
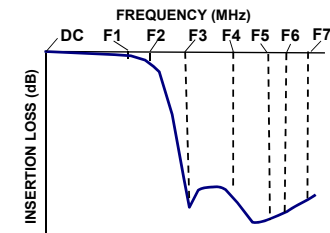
Operating Temperature	-55°C to 125°C
Storage Temperature	-55°C to 125°C
RF Power Input*	2.5W max. @25°C

\*Passband rating, derate linearly to 0.7W at 125°C ambient  
Permanent damage may occur if any of these limits are exceeded.

### Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)
10	0.08	39.93
100	0.15	32.20
500	0.32	24.92
1000	0.43	22.77
1500	0.53	21.13
2000	0.62	19.71
5000	1.61	19.11
5500	2.12	21.44
5750	2.89	12.06
5890	3.59	9.38
6470	17.12	2.25
6640	25.96	1.77
7000	49.47	1.44
7100	48.73	1.39
7200	47.21	1.34
7600	49.10	1.18
8000	55.33	1.06
11000	45.12	0.81
16000	36.96	0.92
26500	20.20	1.68

### Typical Frequency Response



### Notes

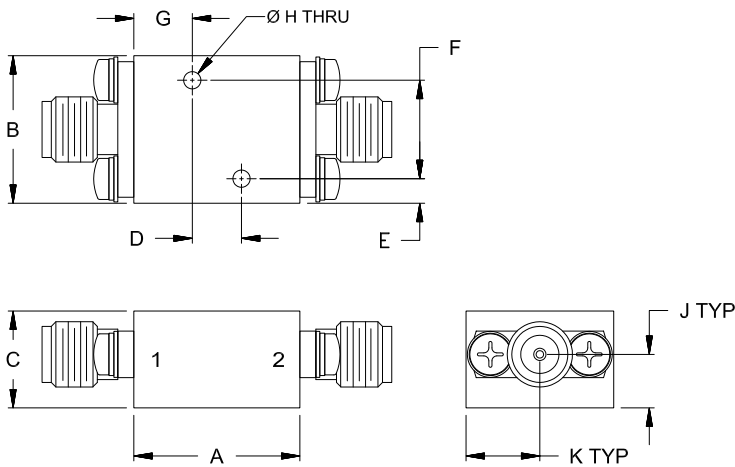
- Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at [www.minicircuits.com/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp)



**Coaxial Connections**

PORT - 1	2.92mm-Female
PORT - 2	2.92mm-Female

**Outline Drawing**



**Outline Dimensions ( inch / mm )**

A	B	C	D	E	F
.68	.60	.39	.200	.10	.400
17.1	15.2	10.0	5.08	2.5	10.16
G	H	J	K	Wt.	
.24	.070	.22	.30	grams	
6.0	1.78	5.5	7.6	<b>24</b>	

Note: Please refer to case style drawing for details

**Notes**

- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at [www.minicircuits.com/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp)



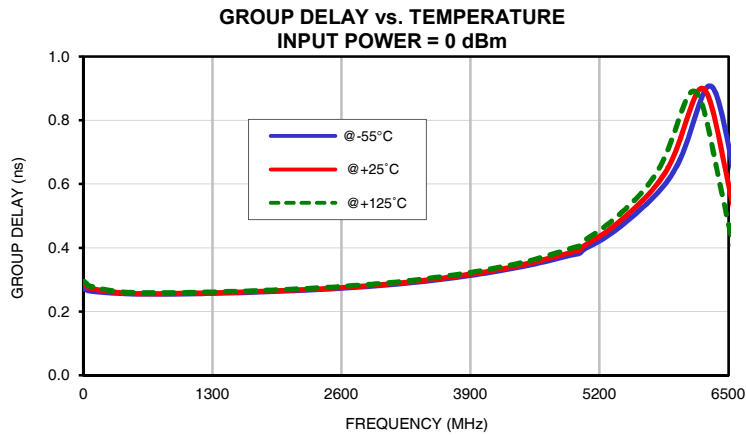
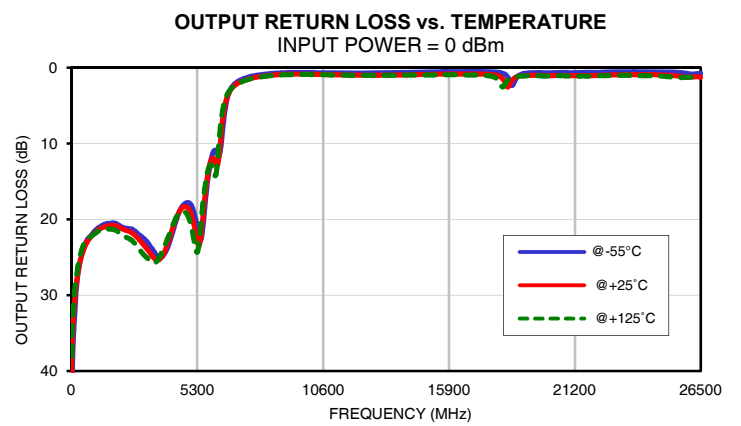
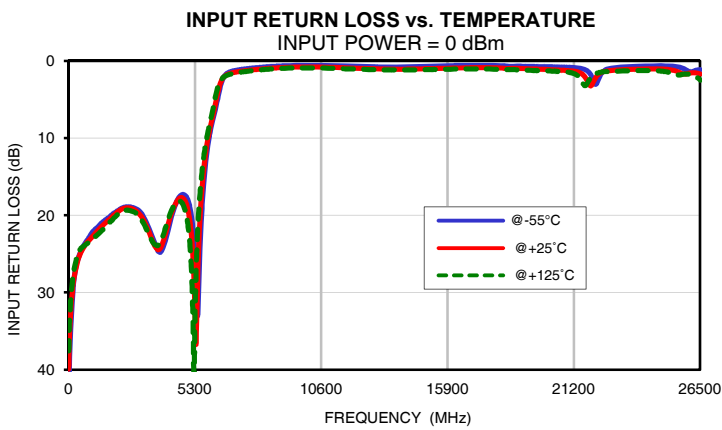
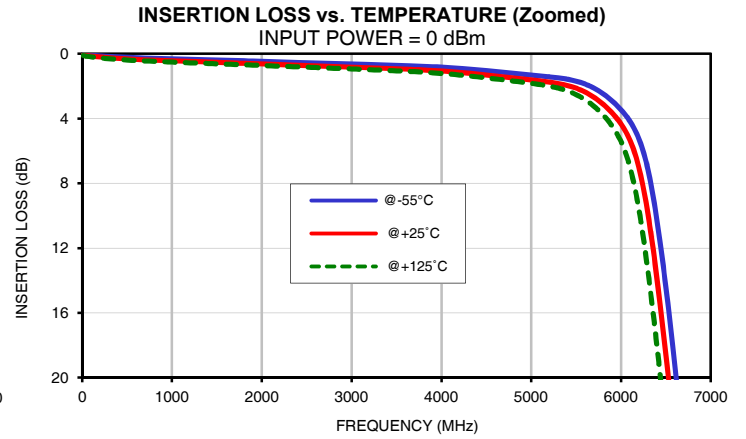
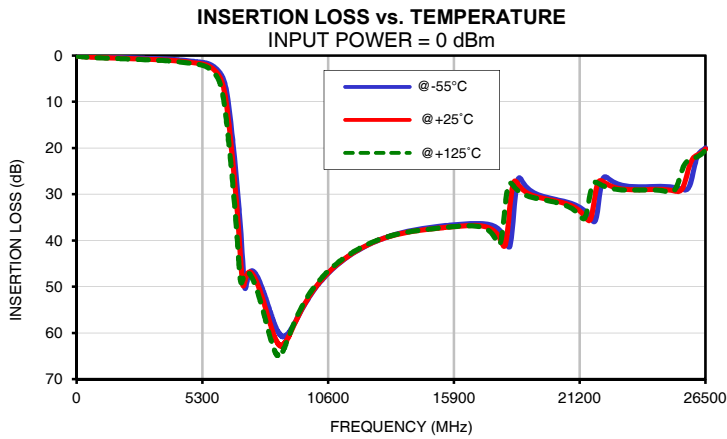
## Typical Performance Data

FREQ.  (MHz)	INSERTION LOSS			INPUT RETURN LOSS			OUTPUT RETURN LOSS		
	(dB)			(dB)			(dB)		
	@-55°C	@+25°C	@+125°C	@-55°C	@+25°C	@+125°C	@-55°C	@+25°C	@+125°C
10	0.05	0.08	0.10	44.28	39.93	37.56	45.09	40.43	38.03
100	0.09	0.15	0.19	34.33	32.20	30.70	34.93	32.39	30.89
200	0.14	0.20	0.25	29.33	28.84	27.68	29.54	28.75	27.70
250	0.15	0.23	0.28	27.91	27.84	26.81	27.96	27.62	26.71
300	0.17	0.25	0.30	26.87	26.99	26.08	26.63	26.58	25.78
350	0.18	0.27	0.33	26.11	26.30	25.47	25.81	25.83	25.06
400	0.20	0.28	0.35	25.66	25.77	25.01	25.17	25.16	24.40
500	0.22	0.32	0.38	24.82	24.92	24.36	24.06	24.12	23.40
550	0.23	0.33	0.40	24.45	24.60	24.20	23.54	23.70	23.07
600	0.24	0.34	0.41	24.11	24.33	24.06	23.11	23.36	22.80
650	0.25	0.36	0.43	23.83	24.07	23.95	22.79	23.07	22.64
700	0.26	0.37	0.44	23.57	23.83	23.84	22.53	22.81	22.51
750	0.27	0.38	0.45	23.33	23.61	23.70	22.36	22.58	22.38
800	0.28	0.39	0.47	23.12	23.43	23.61	22.21	22.39	22.30
850	0.29	0.40	0.48	22.91	23.27	23.48	22.03	22.20	22.18
1000	0.31	0.43	0.51	22.20	22.77	23.09	21.47	21.74	21.85
1200	0.34	0.47	0.56	21.61	22.07	22.55	21.01	21.26	21.46
1500	0.39	0.53	0.62	20.70	21.13	21.65	20.55	20.86	21.28
2000	0.47	0.62	0.72	19.53	19.71	20.06	20.75	21.01	21.70
2500	0.55	0.72	0.83	18.89	19.02	19.34	21.28	21.70	22.68
3000	0.63	0.82	0.94	19.52	19.91	20.27	22.39	23.19	24.48
3500	0.71	0.92	1.05	22.62	23.10	23.27	24.33	25.15	25.71
4000	0.82	1.06	1.21	23.95	23.17	22.35	24.10	23.73	22.99
5000	1.31	1.61	1.82	17.92	19.11	20.99	17.92	18.94	20.32
5100	1.37	1.68	1.90	19.03	20.87	23.99	18.48	19.83	21.66
5200	1.42	1.75	2.00	21.12	24.14	30.72	19.52	21.22	23.39
5300	1.48	1.83	2.12	25.06	31.58	35.62	21.02	22.88	24.32
5400	1.57	1.95	2.29	32.45	30.48	23.37	22.51	23.32	22.45
5500	1.69	2.12	2.52	25.92	21.44	17.90	22.02	20.95	19.16
5700	2.12	2.69	3.25	14.91	13.32	11.87	15.93	15.04	14.26
5750	2.28	2.89	3.49	13.35	12.06	10.86	14.62	14.00	13.55
5800	2.46	3.11	3.77	12.02	10.97	9.98	13.50	13.16	13.06
5890	2.85	3.59	4.37	10.10	9.38	8.63	11.97	12.17	12.83
6000	3.45	4.34	5.42	8.33	7.84	7.13	10.98	11.99	13.74
6470	13.11	17.12	21.61	2.35	2.25	2.19	5.58	4.87	4.28
6600	19.29	23.78	28.74	1.73	1.85	1.91	3.65	3.53	3.32
6650	21.86	26.51	31.71	1.60	1.76	1.84	3.21	3.20	3.07
7000	44.30	49.47	48.52	1.21	1.44	1.55	1.82	2.07	2.10
7200	48.52	47.21	46.88	1.11	1.34	1.45	1.50	1.77	1.81
7500	46.93	48.00	49.29	0.99	1.22	1.32	1.19	1.45	1.50
7600	47.67	49.10	50.75	0.95	1.18	1.29	1.11	1.37	1.42
8000	52.91	55.33	57.92	0.83	1.06	1.15	0.91	1.14	1.19
8300	57.50	60.26	63.33	0.75	0.97	1.07	0.80	1.03	1.07
8400	58.75	61.53	64.39	0.72	0.95	1.04	0.77	0.99	1.04
8500	59.82	62.43	64.93	0.70	0.93	1.02	0.74	0.97	1.01
9000	59.50	60.13	60.06	0.62	0.84	0.94	0.65	0.87	0.92
9500	54.93	54.80	54.22	0.57	0.78	0.89	0.63	0.85	0.90
9600	53.96	53.84	53.30	0.56	0.77	0.88	0.63	0.85	0.90
9800	52.25	52.16	51.59	0.56	0.76	0.88	0.63	0.85	0.89
11000	45.21	45.12	44.84	0.59	0.81	0.94	0.68	0.92	0.95
13000	39.41	39.44	39.36	0.76	1.02	1.13	0.67	0.98	1.00
14000	37.96	38.16	38.14	0.76	1.04	1.15	0.62	0.95	0.98
15000	37.13	37.48	37.47	0.69	0.99	1.11	0.57	0.89	0.95
15400	36.87	37.25	37.24	0.65	0.96	1.09	0.54	0.86	0.93
15700	36.72	37.10	37.10	0.63	0.94	1.07	0.51	0.82	0.91
16000	36.58	36.96	36.96	0.60	0.92	1.05	0.52	0.83	0.93
17000	36.33	36.83	37.04	0.55	0.86	1.01	0.49	0.82	0.96
18000	39.10	41.25	35.41	0.59	0.89	1.08	0.61	1.09	1.76
20000	30.92	31.27	31.54	0.72	1.08	1.25	0.67	1.04	1.09
26500	19.98	20.20	20.40	1.12	1.68	2.46	0.76	1.24	1.36

## Typical Performance Data

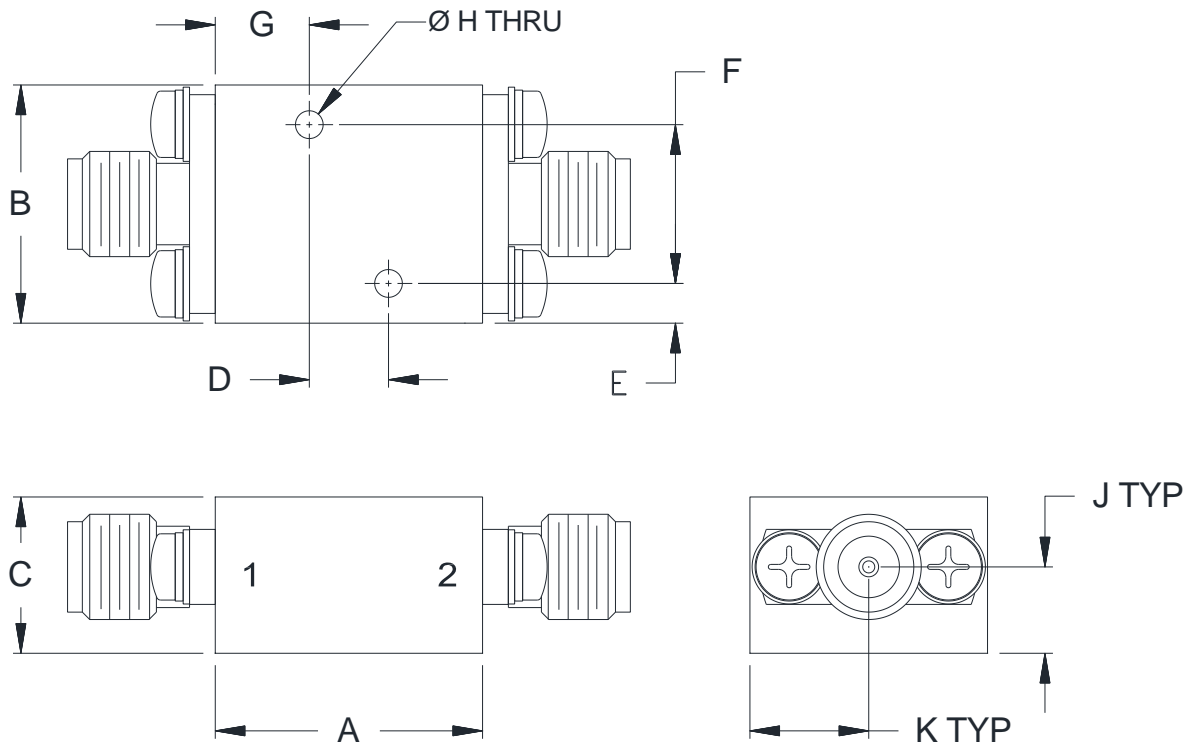
FREQ.  (MHz)	GROUP DELAY		
	(nsec)		
	@-55°C	@+25°C	@+125°C
10	0.27	0.29	0.29
50	0.26	0.27	0.28
100	0.26	0.27	0.28
200	0.26	0.27	0.27
300	0.26	0.26	0.26
400	0.26	0.26	0.26
500	0.25	0.26	0.26
600	0.25	0.26	0.26
700	0.25	0.26	0.26
800	0.25	0.26	0.26
900	0.25	0.26	0.26
1000	0.26	0.26	0.26
1100	0.26	0.26	0.26
1200	0.26	0.26	0.26
1300	0.26	0.26	0.26
1400	0.26	0.26	0.26
1500	0.26	0.26	0.26
1600	0.26	0.26	0.26
1700	0.26	0.26	0.27
1800	0.26	0.26	0.27
1900	0.26	0.26	0.27
2000	0.26	0.27	0.27
2100	0.27	0.27	0.27
2200	0.27	0.27	0.27
2300	0.27	0.27	0.27
2400	0.27	0.27	0.27
2500	0.27	0.27	0.28
2600	0.27	0.28	0.28
2700	0.27	0.28	0.28
2800	0.28	0.28	0.28
2900	0.28	0.28	0.29
3000	0.28	0.28	0.29
3100	0.28	0.29	0.29
3200	0.29	0.29	0.29
4000	0.32	0.32	0.33
4100	0.32	0.33	0.33
4200	0.33	0.33	0.34
4500	0.35	0.35	0.36
4800	0.37	0.38	0.39
4900	0.38	0.38	0.40
5000	0.38	0.39	0.41

## Typical Performance Curves



## Outline Dimensions

UK3042



CASE#	A	B	C	D	E	F
UK3042	.68 (17.1)	.60 (15.2)	.39 (10.0)	.200 (5.08)	.10 (2.5)	.400 (10.16)

CASE#	G	H	J	K	WT.GRAMS
UK3042	.24 (6.0)	.070 (1.78)	.22 (5.5)	.30 (7.6)	24

Dimensions are in inches (mm). Tolerances: 2 Pl.  $\pm .050$ ; 3 Pl.  $\pm .015$

### Notes:

1. Case material: Brass alloy.
2. Case Finish:
  - a. Case & Cover of the units –Gold plating.
3. Refer to the individual model data sheet for the type of connectors available.



P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site



The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: [www.minicircuits.com](http://www.minicircuits.com)

RF/IF MICROWAVE COMPONENTS



All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-55° to 125° C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 125° C Ambient Environment	Individual Model Data Sheet