



SUSPENDED SUBSTRATE STRIPLINE COAXIAL

Diplexer

ZDSS-K10G13G+

50Ω DC to 40 GHz (DC-10.5, 13.5-20 GHz) 2.92mm Female

KEY FEATURES

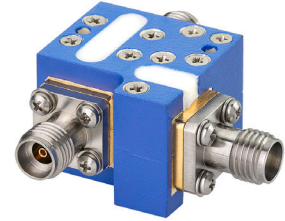
- Low Passband Insertion Loss of 1 dB Typ.
- High Rejection of 90 dB Typ. in High Pass Channel and 70dB Typ. up to 40 GHz in Low Pass Channel
- Good Return Loss of 14 dB Typ.

APPLICATIONS

- Test & Measurement
- Quantum Computing
- Electronic Counter Machine

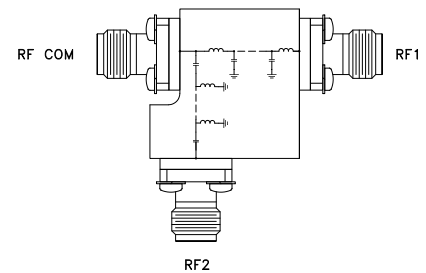
PRODUCT OVERVIEW

Mini-Circuits' Suspended Substrate Stripline filters offer low insertion loss combined with wide stopband, good power handling & temperature stability, small form factor with rugged build ideal for harsh operating environments making them an excellent choice for wideband instruments and systems like ECM, ECCM, ELINT and ultra-broadband receivers. Low pass, high pass, band pass, diplexer and multiplexer designs can be realized with this technology with passband, stopband up to 40GHz and stopband width greater than 6x cutoff frequency.



Generic photo used for illustration purposes only

FUNCTIONAL DIAGRAM



ELECTRICAL SPECIFICATIONS AT +25°C

Parameter		Function (Port)	Frequency (GHz)	Min.	Typ.	Max.	Unit
Pass Band	Insertion Loss	Low Pass (RF COM-RF1)	DC - 10.5	—	1.0	2	dB
		High Pass (RF COM-RF2)	13.5 - 20	—	1.5	3	
	Return Loss	Low Pass (RF1)	DC - 10.5	—	14	—	dB
		High Pass (RF2)	13.5 - 20	—	10	—	
		Common (RF COM)	DC - 10.5 13.5 - 20	— —	14 10	— —	
Stop Band Rejection	Low Pass (RF COM-RF1)		13.5 - 16	—	20	—	dB
			16 - 20	30	50	—	
			20 - 25	50	70	—	
	High Pass (RF COM-RF2)		25 - 40	—	70	—	
			DC - 6	60	90	—	
			6 - 9	50	70	—	
			9 - 10.5	25	50	—	

ABSOLUTE MAXIMUM RATINGS¹

Parameter	Ratings
Operating Temperature	-40 °C to +85 °C
Storage Temperature	-55 °C to +100 °C
Input Power ²	10W @ 25°C

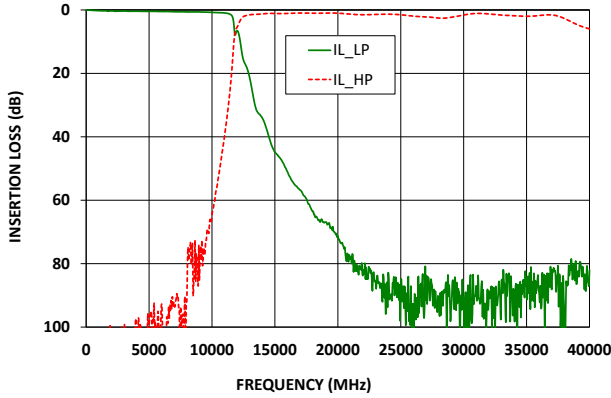
1. Permanent damage may occur if any of these limits are exceeded.
 2. Power rating applies only to signals within the passband.



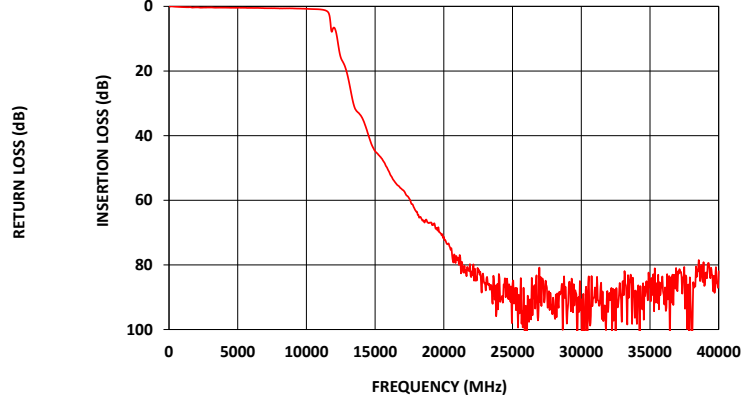


TYPICAL PERFORMANCE GRAPHS AT +25°C

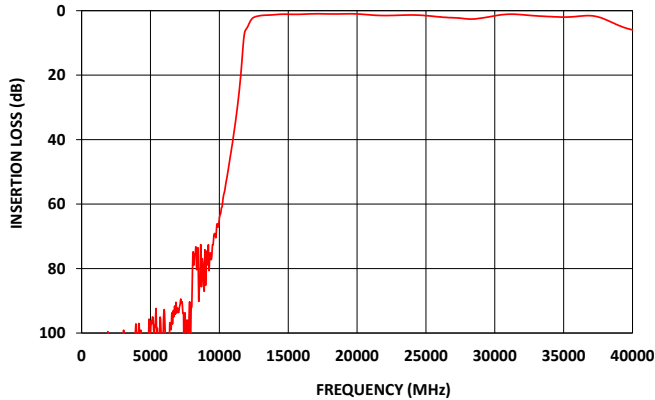
ZDSS-K10G13G+ IL-LP Vs IL-HP Vs RL-COM (Pin=0dBm)



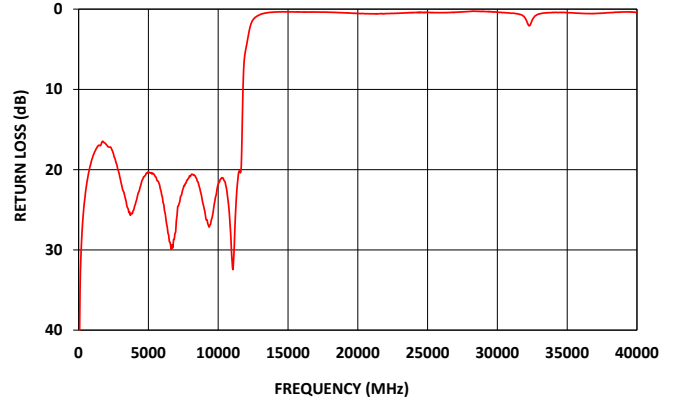
ZDSS-K10G13G+ LOW PASS PORT INSERTION LOSS (Pin=0dBm)



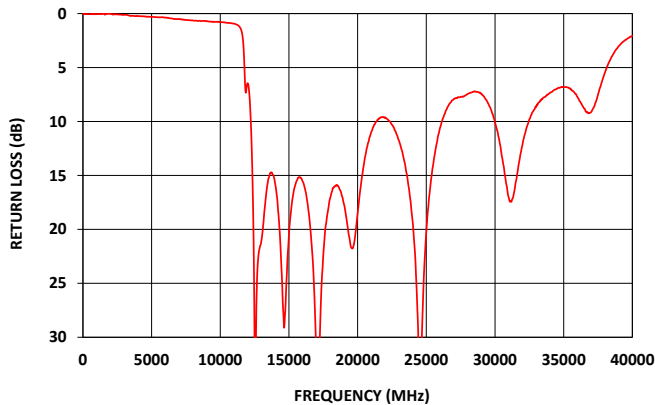
ZDSS-K10G13G+ HIGH PASS PORT INSERTION LOSS (Pin=0dBm)



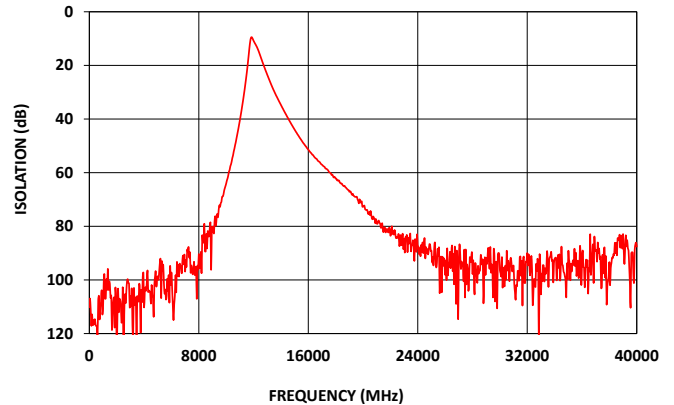
ZDSS-K10G13G+ LOW PASS PORT RETURN LOSS (Pin=0dBm)



ZDSS-K10G13G+ HIGH PASS PORT RETURN LOSS (Pin=0dBm)



ZDSS-K10G13G+ CROSS OVER ISOLATION (Pin=0dBm)



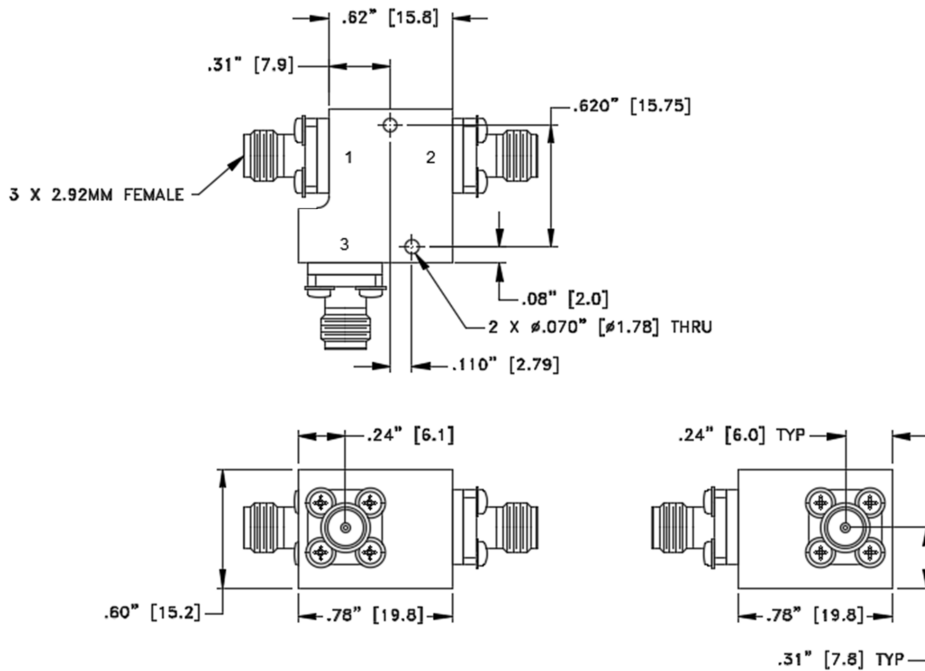


Diplexer

CONNECTOR DESCRIPTION

Function	Marking on Unit	Connector
RF COM (Common)	1	2.92mm Female
RF1 (Low Pass)	2	2.92mm Female
RF2 (High Pass)	3	2.92mm Female

CASE STYLE DRAWING



Weight: 50 grams

Dimensions are in inches[mm]. Tolerance:2PL ±.050; 3PL ±.015

PRODUCT MARKING*: ZDSS-K10G13G+

*Marking may contain other features or characters for internal lot control.



SUSPENDED SUBSTRATE STRIPLINE COAXIAL

Diplexer

ZDSS-K10G13G+

Mini-Circuits

50Ω DC to 40 GHz (DC-10.5, 13.5-20 GHz) 2.92mm Female

ADDITIONAL INFORMATION IS AVAILABLE ON OUR DASHBOARD

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Performance Data & Graphs	<p>Data</p> <p>Graphs</p> <p>S-Parameter (S3P Files) Data Set (.zip file)</p>
Case Style	ZE3315
RoHS Status	Compliant
Environmental Ratings	ENV001

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-Circuits' 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/terms/viewterm.html



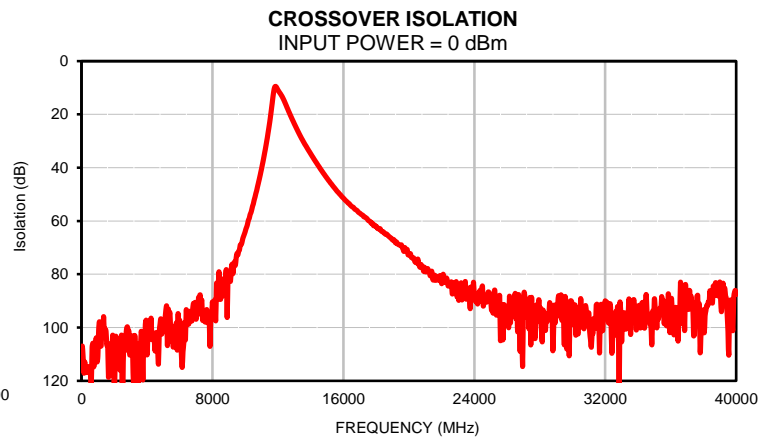
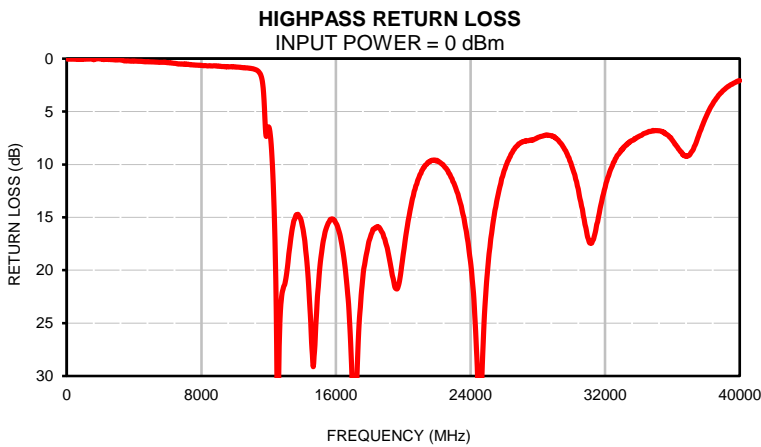
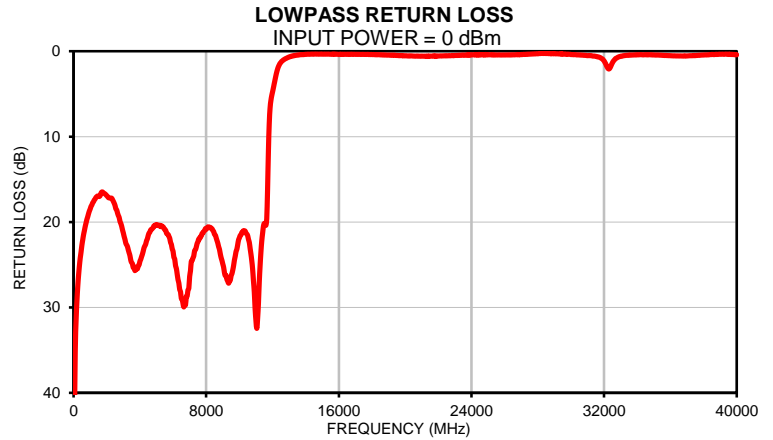
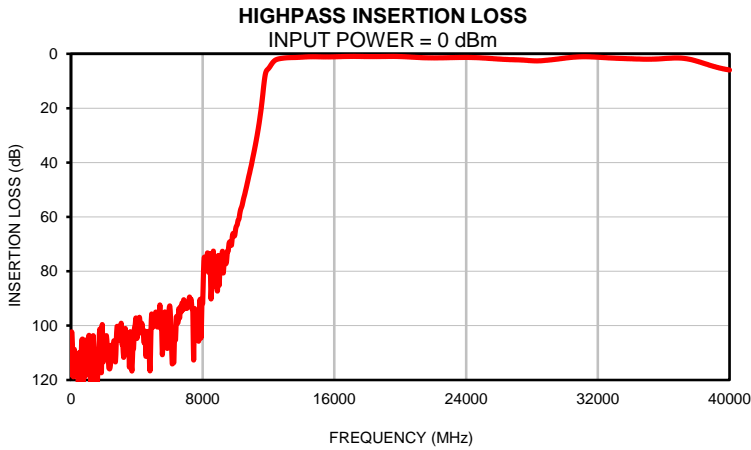
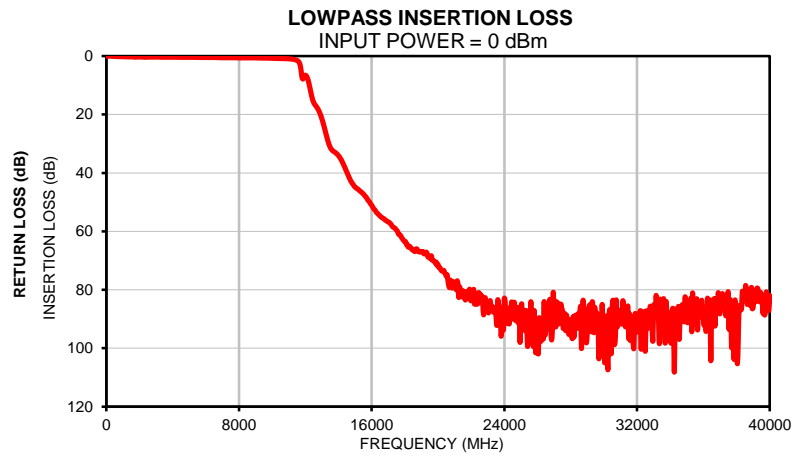
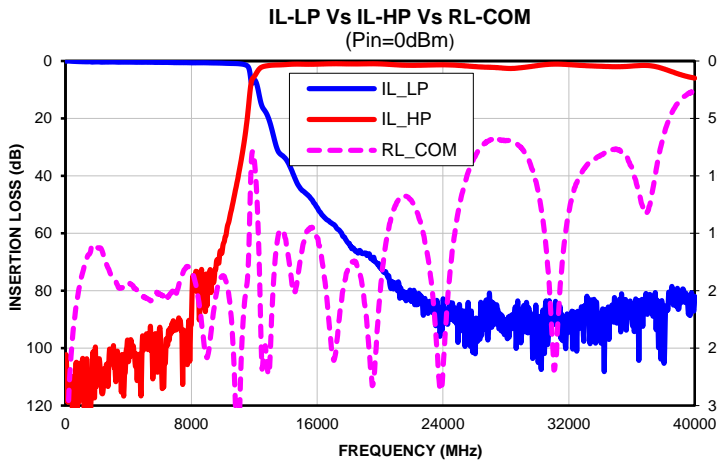
Suspended substrate stripline Diplexer

ZDSS-K10G13G+

Typical Performance Data

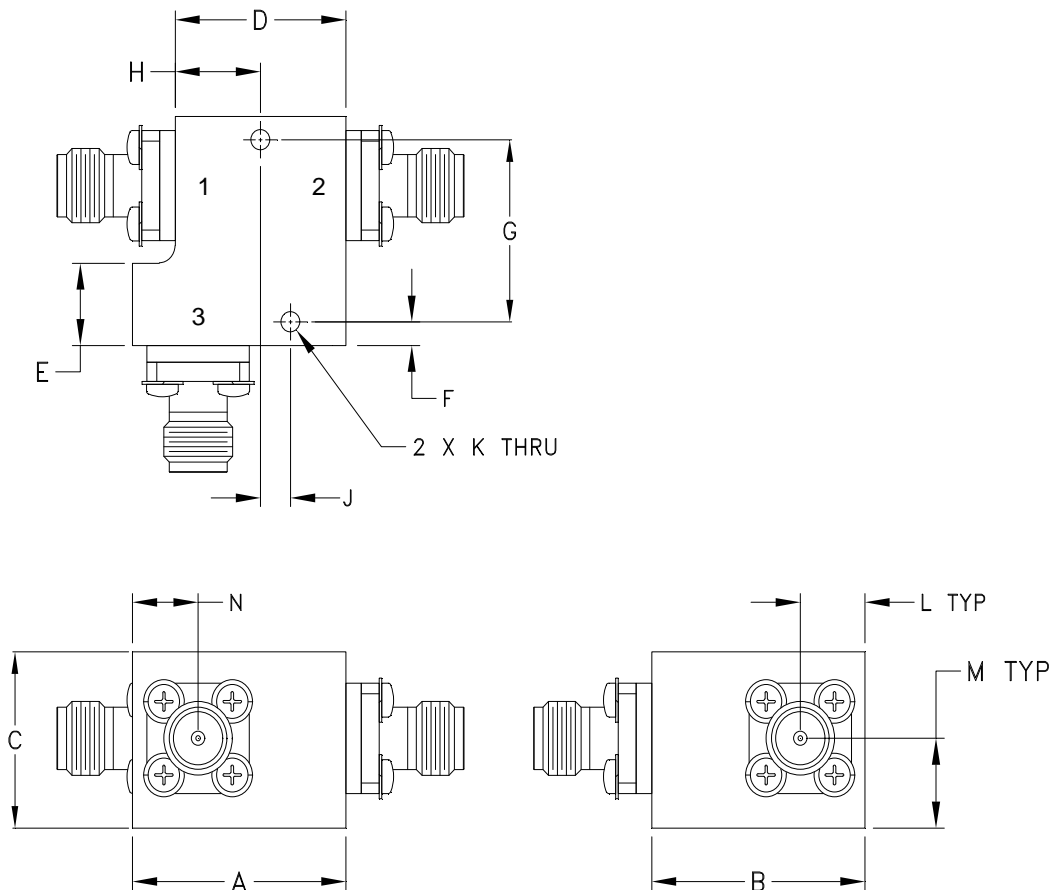
FREQUENCY (MHz)	INSERTION LOSS (dB)		Cross over isolation (dB) (between LPF and HPF)	RETURN LOSS (dB)		
	Lowpass port	Highpass port		Common port	Lowpass port	Highpass port
10	0.02	112.57	109.02	43.41	48.21	0.01
50	0.02	103.36	106.93	41.48	44.34	0.02
100	0.06	110.63	111.31	34.57	35.13	0.05
500	0.12	110.15	117.19	23.28	22.71	0.05
1000	0.23	108.39	110.67	18.88	18.48	0.03
2000	0.31	108.28	125.74	16.26	16.91	0.01
3000	0.32	103.93	105.97	18.89	21.28	0.11
4000	0.40	104.74	110.26	19.47	24.61	0.24
5000	0.43	100.23	98.59	20.50	20.30	0.31
6000	0.47	92.72	97.24	20.29	23.43	0.37
8000	0.61	91.74	90.34	18.30	20.86	0.64
9000	0.62	85.19	82.09	25.84	24.92	0.72
10000	0.75	64.49	64.03	18.68	21.86	0.79
10500	0.85	52.88	53.55	21.82	21.60	0.85
11500	1.49	22.45	22.91	19.70	20.17	1.44
12000	6.56	5.40	10.81	8.59	4.78	6.45
12500	15.82	2.08	16.54	26.84	1.32	31.58
13000	21.49	1.53	23.49	25.99	0.67	20.99
13500	31.21	1.37	29.58	15.39	0.47	15.31
14000	34.09	1.24	34.74	15.52	0.36	15.82
15000	44.78	1.11	43.96	16.75	0.35	20.47
16000	51.06	1.08	51.41	15.39	0.37	15.56
17000	56.80	0.97	57.04	25.72	0.37	32.58
18000	63.58	1.01	62.23	18.01	0.39	17.10
19000	66.90	1.00	67.14	21.03	0.45	17.64
20000	71.31	1.03	72.71	20.26	0.54	18.49
21000	78.58	1.33	78.93	12.55	0.57	10.94
22000	83.76	1.51	83.49	12.17	0.56	9.61
23000	85.56	1.42	84.62	16.79	0.50	11.74
24000	83.00	1.34	88.28	26.83	0.45	19.22
25000	85.95	1.55	89.13	12.87	0.42	20.22
25500	95.01	1.71	91.06	10.12	0.43	14.01
26000	95.13	1.95	98.12	8.40	0.44	10.58
26500	86.83	2.07	87.15	7.37	0.43	8.81
27000	91.58	2.23	92.55	6.85	0.38	7.91
27500	87.06	2.31	88.64	6.89	0.35	7.72
28000	93.18	2.54	97.80	6.93	0.30	7.45
28500	88.53	2.58	96.67	7.02	0.26	7.24
29000	94.35	2.30	91.90	7.56	0.30	7.39
29500	92.56	1.99	106.52	8.79	0.30	8.33
30000	90.90	1.60	96.38	11.06	0.39	10.08
30500	86.50	1.26	89.10	15.51	0.44	13.23
31000	86.99	1.10	94.61	25.41	0.52	17.04
31500	96.77	1.11	91.28	18.80	0.61	15.67
32000	90.41	1.25	89.96	13.18	1.14	12.17
32500	101.06	1.42	99.61	10.63	1.36	9.79
33000	85.24	1.59	105.38	9.31	0.61	8.65
33500	85.87	1.72	94.40	8.69	0.45	7.81
34000	92.06	1.84	92.09	8.22	0.43	7.37
34500	85.66	1.91	87.57	7.83	0.41	6.96
35000	84.38	1.99	89.42	7.66	0.44	6.80
35500	85.63	1.96	94.87	8.01	0.48	7.03
36000	89.26	1.77	93.28	9.27	0.53	7.71
36500	83.94	1.59	95.48	11.72	0.55	8.82
37000	88.14	1.56	89.26	13.07	0.55	9.13
37500	81.00	1.94	90.63	9.92	0.52	7.50
38000	96.47	2.68	93.35	6.60	0.45	5.49
38500	82.01	3.64	86.18	4.67	0.37	3.99
39000	86.15	4.58	82.89	3.53	0.36	3.03
40000	81.97	5.96	87.59	2.59	0.42	2.08

Typical Performance Curves



Outline Dimensions

ZE3315



CASE#	A	B	C	D	E	F	G
ZE3315	.78 (19.8)	.78 (19.8)	.60 (15.2)	.62 (15.8)	.28 (7.1)	.08 (2.0)	.620 (15.75)

CASE#	H	J	K	L	M	N	WT. GRAMS
ZE3315	.31 (7.9)	.110 (2.79)	.070 (1.78)	.24 (6.0)	0.31 (7.8)	.24 (6.1)	50

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

Notes:

1. Case material: Brass alloy.
2. Case Finish: Powder coated over silver plating.
3. Refer to the individual model data sheet for the type of connectors available.

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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	-40° to 85° C Ambient Temperature	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet