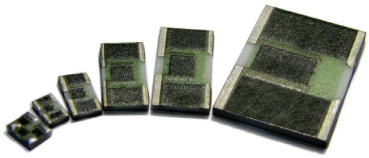
IAX Series

Surface Mount Thick Film Attenuator

ULR RoHS Sn62 NON-MAG BONDABLE

IAX Series surface mount thick film attenuators are compact, high performance devices especially suited to balance power frequency response for RF and microwave applications. For bondable terminations, other substrate thicknesses or other sizes and power levels, contact IMS.



FEATURES

- High stability thick film resistive element
- Good power handling
- Attenuation values available from 0-70 dB
- Operating temperatures -55C to +150C
- Ultra Leach Resistant terminals (ULR) available
- Thick Film on 96% Alumina

SPECIFICATIONS

ITEM	SPECIFICATION
Value Range:	0dB to 70dB
Standard Impedance:	50Ω Nominal
DC Attenuation Stability[1]:	.001 dB/dB/°C
Operating Temperature:	-55°C to 150°C
Storage Temperature:	-65°C to 150°C
Thermal Conductivity:	24W/m-°K
Attachment:	Solder and Epoxy
End of Life:	No E.O.L Planned
Moisture Level:	Level 1

1. Based on TCR and resistor tolerance at DC.

DIMENSIONS

All Dimensions are in inches

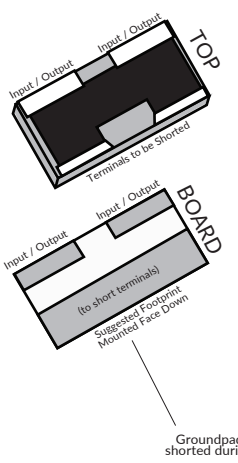
PART	NOMINAL LENGTH	NOMINAL WIDTH	MAX HEIGHT
0706	.075	.060	.020
0805	.080	.050	.020
1206	.126	.063	.020
2010	.197	.097	.028
2512	.248	.126	.028
3725	.375	.250	.028

ACCURACY

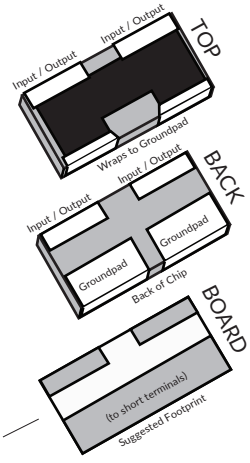
INCREMENT	ACCURACY
0.0 - 3.5dB	+/- 0.2dB
4.0 - 13.0dB	+/- 0.3dB
13.5 - 70.0dB	+/- 0.5dB

TERMINAL STYLES

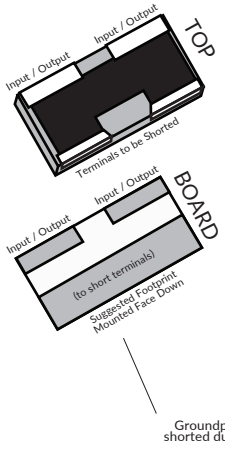
SS Style



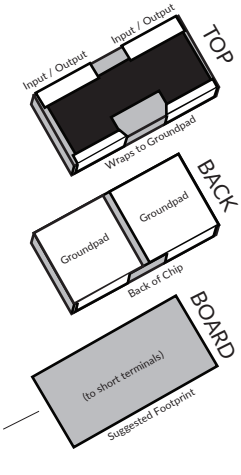
WA Style



PW Style

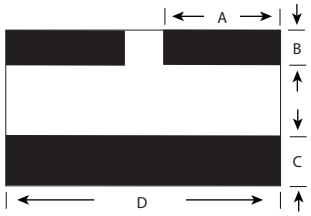


SG Style



TERMINAL DIMENSIONS OF INSTALLED SURFACE

The mechanical dimensions listed below serve as a guide for PCB layout designers and include a modest tolerance for process variation of the manufactured part and typical placement machinery.



Attached Side
SS WA PW

Attached Side
SG

Bond Side
SG

All dimensions are in inches (nominal)

Part	A	B	C	D	E	F	G	H
0706	.021	.028	.018	.075	.080	.065	.018	.025
0805	.033	.013	.024	.080	.085	.054	.029	.011
1206	.050	.018	.028	.126	.129	.068	.048	.012
2010	.079	.028	.045	.197	.202	.102	.075	.011
2512	.100	.033	.068	.248	.253	.130	.094	.017
3725	.144	.063	.133	.375	.380	.253	.141	.021

It is known to RF circuit designers that pad sizing and geometry are one of several system dependent parameters which can affect frequency response. As such, IMS makes no claim that the provided mechanical dimensions will be optimized for frequency response on every possible combination of available PCB material and thickness in all applications.
Contact techsupport@ims-resistors.com if additional guidance is required.

RF PERFORMANCE ESTIMATES - FREQUENCY AT -15dB RETURN LOSS

	0706	0805	1206	2010	2512	3725
1dB	24.0 Ghz	28.0 Ghz	22.0 Ghz	8.00 Ghz	2.24 Ghz	1.09 Ghz
3dB	21.5 Ghz	28.1 Ghz	12.5 Ghz	7.20 Ghz	2.36 Ghz	1.20 Ghz
6dB	20.6 Ghz	28.3 Ghz	9.20Ghz	5.40 Ghz	2.34 Ghz	1.28 Ghz
9dB	20.0 Ghz	28.3 Ghz	7.80 Ghz	4.60 Ghz	2.24 Ghz	1.29 Ghz
12dB	19.4 Ghz	27.9 Ghz	7.30 Ghz	4.37 Ghz	2.20 Ghz	1.30 Ghz
15dB	18.3 Ghz	21.2 Ghz	7.20 Ghz	4.32 Ghz	2.18 Ghz	1.32 Ghz
20dB	15.7 Ghz	16.9 Ghz	7.20 Ghz	4.35 Ghz	2.22 Ghz	1.38 Ghz
25dB	13.8 Ghz	14.9 Ghz	7.40 Ghz	4.48 Ghz	2.30 Ghz	1.46 Ghz
30dB	12.7 Ghz	13.8 Ghz	7.60 Ghz	4.55 Ghz	2.40 Ghz	1.56 Ghz

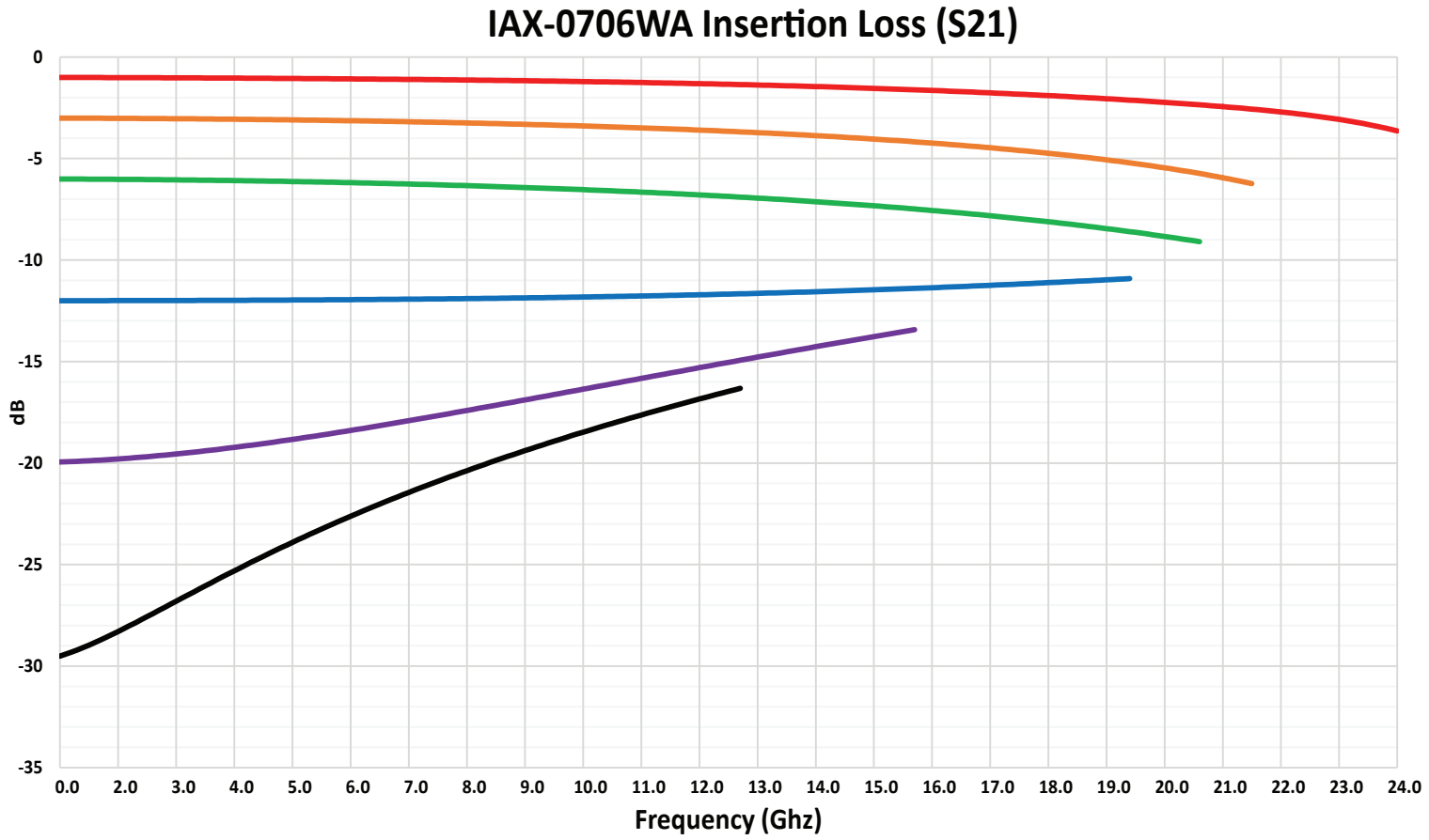
RF performance estimate assume a component soldered on Rogers 4350B (ε_r=3.66, δ=.0037) with a 50Ω input/output trace having a width equal to the nominal land pad width (Dimension 'B' above) and can vary on a system basis. Some designs may exceed estimations while other may require additional system tuning to achieve them.
Contact techsupport@ims-resistors.com if additional guidance is required.

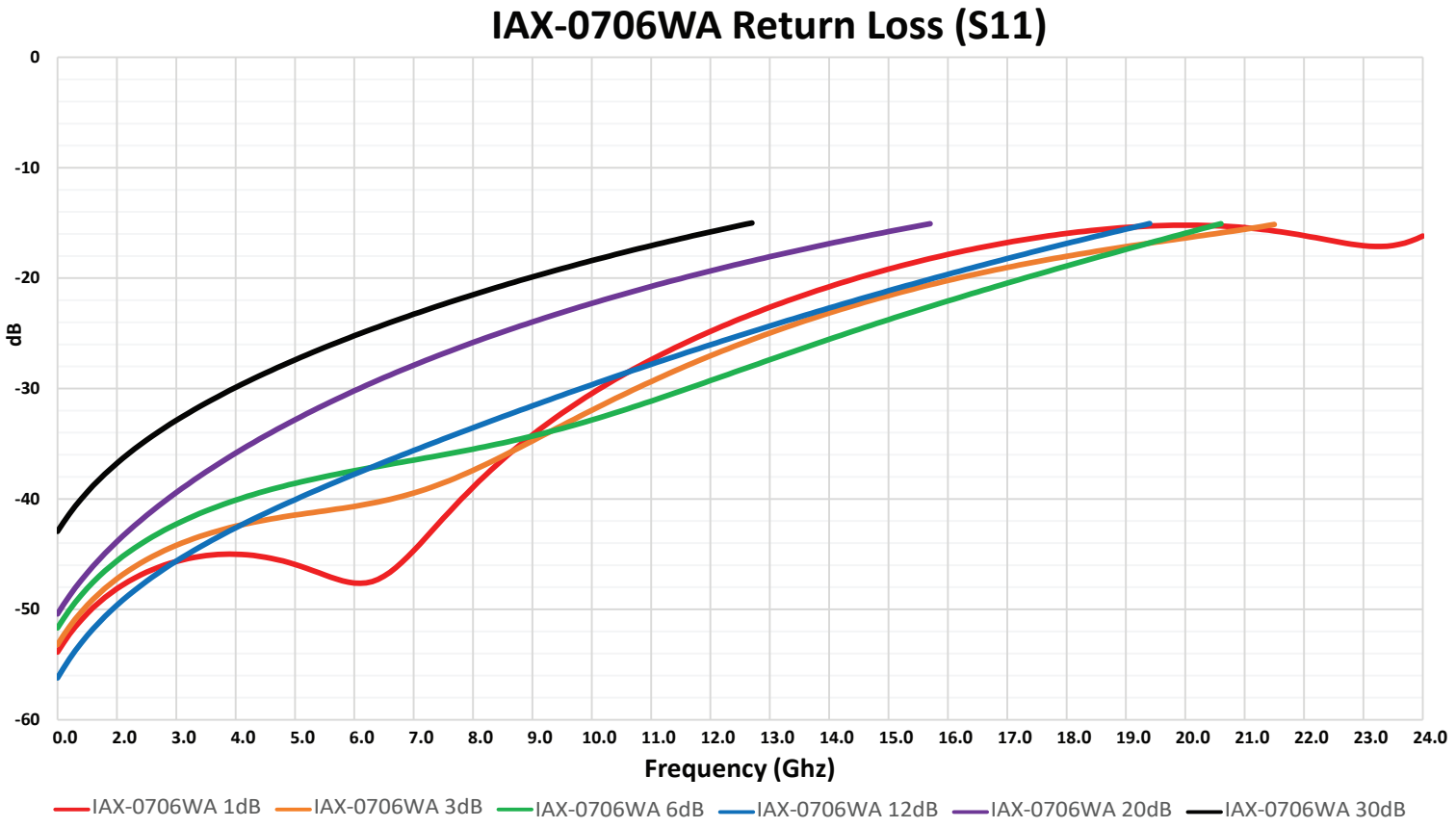
INPUT POWER VS BASEPLATE TEMPERATURE

	IAX-0706WA			IAX-0805WA			IAX-1206WA		
	50°C	75°C	100°C	50°C	75°C	100°C	50°C	75°C	100°C
1dB	5.4W	4.1W	2.7W	4.3W	3.2W	2.2W	15.5W	11.7W	7.8W
2dB	3.0W	2.3W	1.5W	2.4W	1.8W	1.2W	8.7W	6.5W	4.4W
3dB	2.3W	1.7W	1.1W	1.8W	1.4W	910mW	6.5W	4.9W	3.3W
4dB	1.9W	1.4W	970mW	1.5W	1.2W	770mW	5.5W	4.2W	2.8W
5dB	1.8W	1.3W	880mW	1.4W	1.0W	700mW	5.0W	3.8W	2.5W
6dB	1.7W	1.3W	840mW	1.3W	1.0W	670mW	4.8W	3.6W	2.4W
7dB	1.5W	1.1W	760mW	1.3W	960mW	640mW	4.6W	3.5W	2.3W
8dB	1.3W	1.0W	670mW	1.3W	960mW	640mW	4.6W	3.5W	2.3W
9dB	1.2W	920mW	610mW	1.3W	970mW	650mW	4.5W	3.4W	2.2W
10dB	1.1W	840mW	560mW	1.3W	1.0W	670mW	4.1W	3.1W	2.1W
12dB	970mW	730mW	490mW	1.3W	950mW	640mW	3.6W	2.7W	1.8W
15dB	830mW	620mW	420mW	1.1W	820mW	540mW	3.1W	2.3W	1.5W
20dB	710mW	530mW	360mW	930mW	700mW	460mW	2.6W	2.0W	1.3W
25dB	650mW	490mW	330mW	850mW	640mW	430mW	2.4W	1.8W	1.2W
30dB	620mW	460mW	310mW	810mW	610mW	400mW	2.3W	1.7W	1.1W

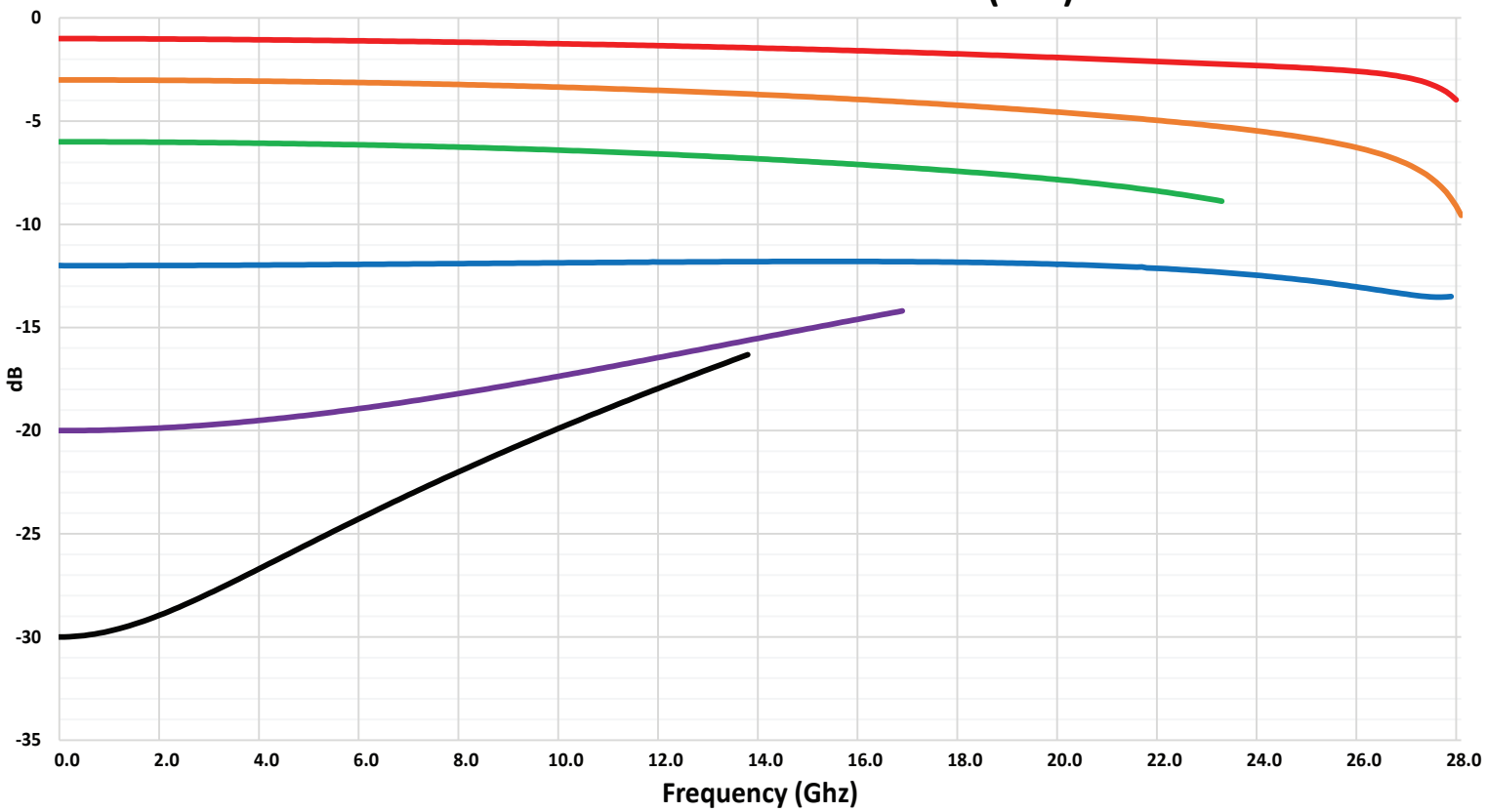
	IAX-2010WA			IAX-2512WA			IAX-3725WA		
	50°C	75°C	100°C	50°C	75°C	100°C	50°C	75°C	100°C
1dB	16.7W	12.6W	8.4W	37.5W	28.1W	18.7W	125.3W	93.9W	62.6W
2dB	9.4W	7.0W	4.7W	21.0W	15.8W	10.5W	70.2W	52.7W	35.1W
3dB	7.1W	5.3W	3.5W	15.8W	11.8W	7.9W	52.8W	39.6W	26.4W
4dB	6.0W	4.5W	3.0W	13.4W	10.0W	6.7W	44.7W	33.5W	22.3W
5dB	5.4W	4.1W	2.7W	12.2W	9.1W	6.1W	40.6W	30.4W	20.3W
6dB	5.2W	3.9W	2.6W	11.6W	8.7W	5.8W	38.7W	29.0W	19.4W
7dB	5.0W	3.7W	2.5W	11.2W	8.4W	5.6W	37.4W	28.0W	18.7W
8dB	5.0W	3.7W	2.5W	11.1W	8.4W	5.6W	37.3W	27.9W	18.6W
9dB	5.0W	3.8W	2.5W	11.3W	8.5W	5.7W	37.8W	28.4W	18.9W
10dB	5.2W	3.9W	2.6W	11.6W	8.7W	5.8W	38.8W	29.1W	19.4W
12dB	5.7W	4.3W	2.8W	10.3W	7.7W	5.2W	40.3W	30.2W	20.2W
15dB	4.9W	3.7W	2.4W	8.8W	6.6W	4.4W	34.5W	25.9W	17.3W
20dB	4.2W	3.1W	2.1W	7.5W	5.7W	3.8W	29.5W	22.1W	14.7W
25dB	3.8W	2.9W	1.9W	6.9W	5.2W	3.4W	27.0W	20.2W	13.5W
30dB	3.6W	2.7W	1.8W	6.6W	4.9W	3.3W	25.7W	19.3W	12.8W

INSERTION AND RETURN LOSS CHARTS

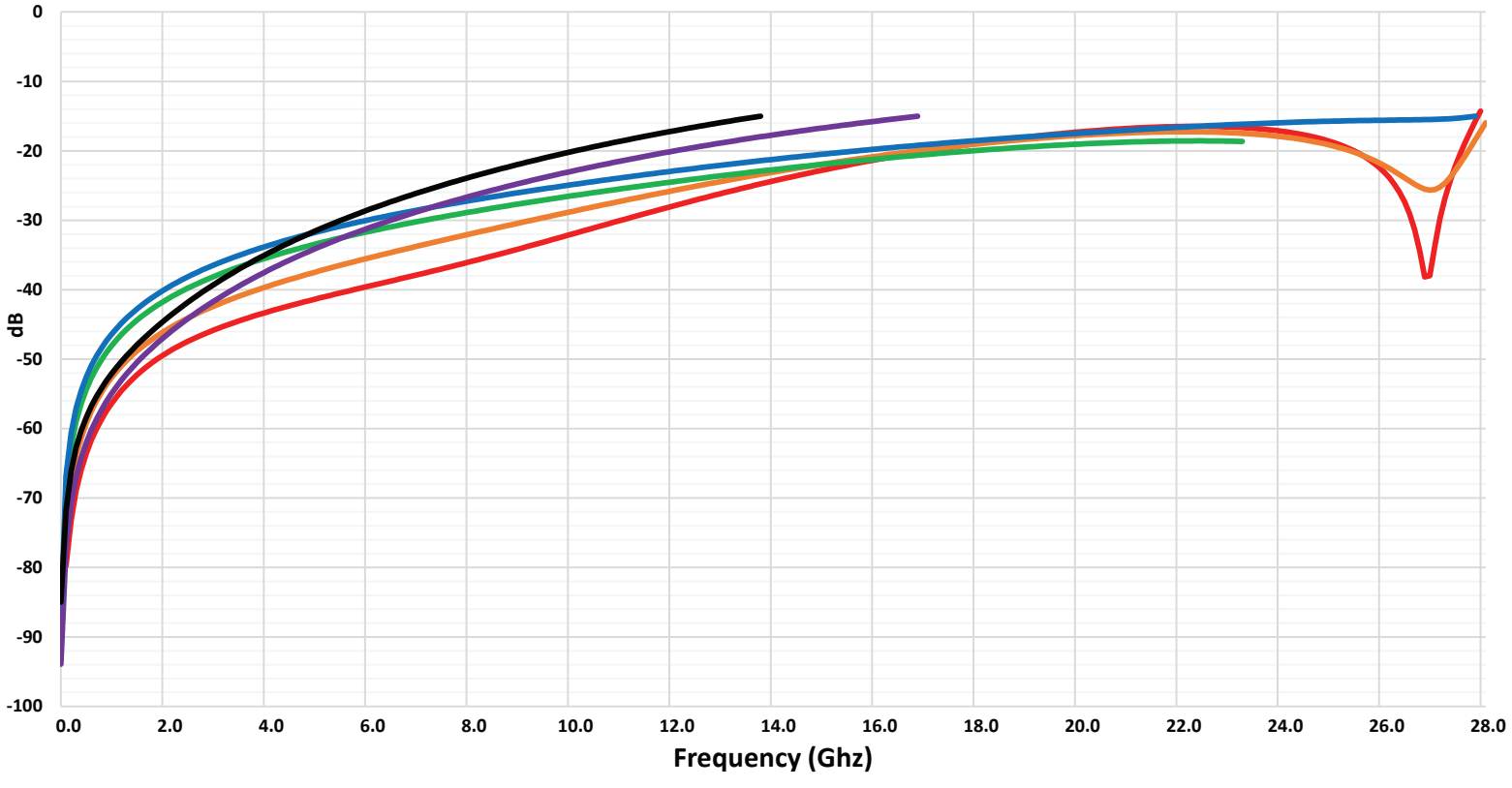




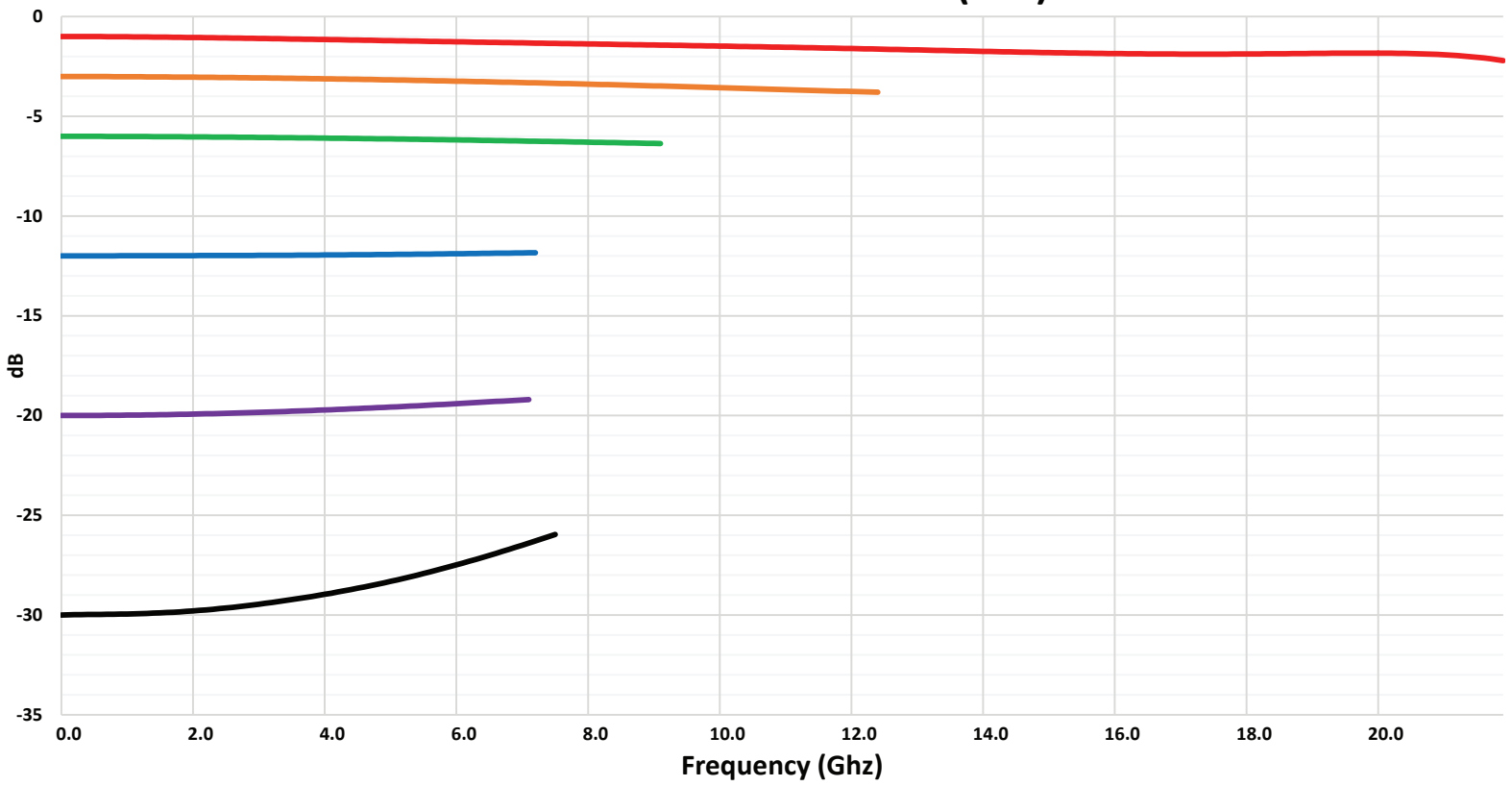
IAX-0805WA Insertion Loss (S21)



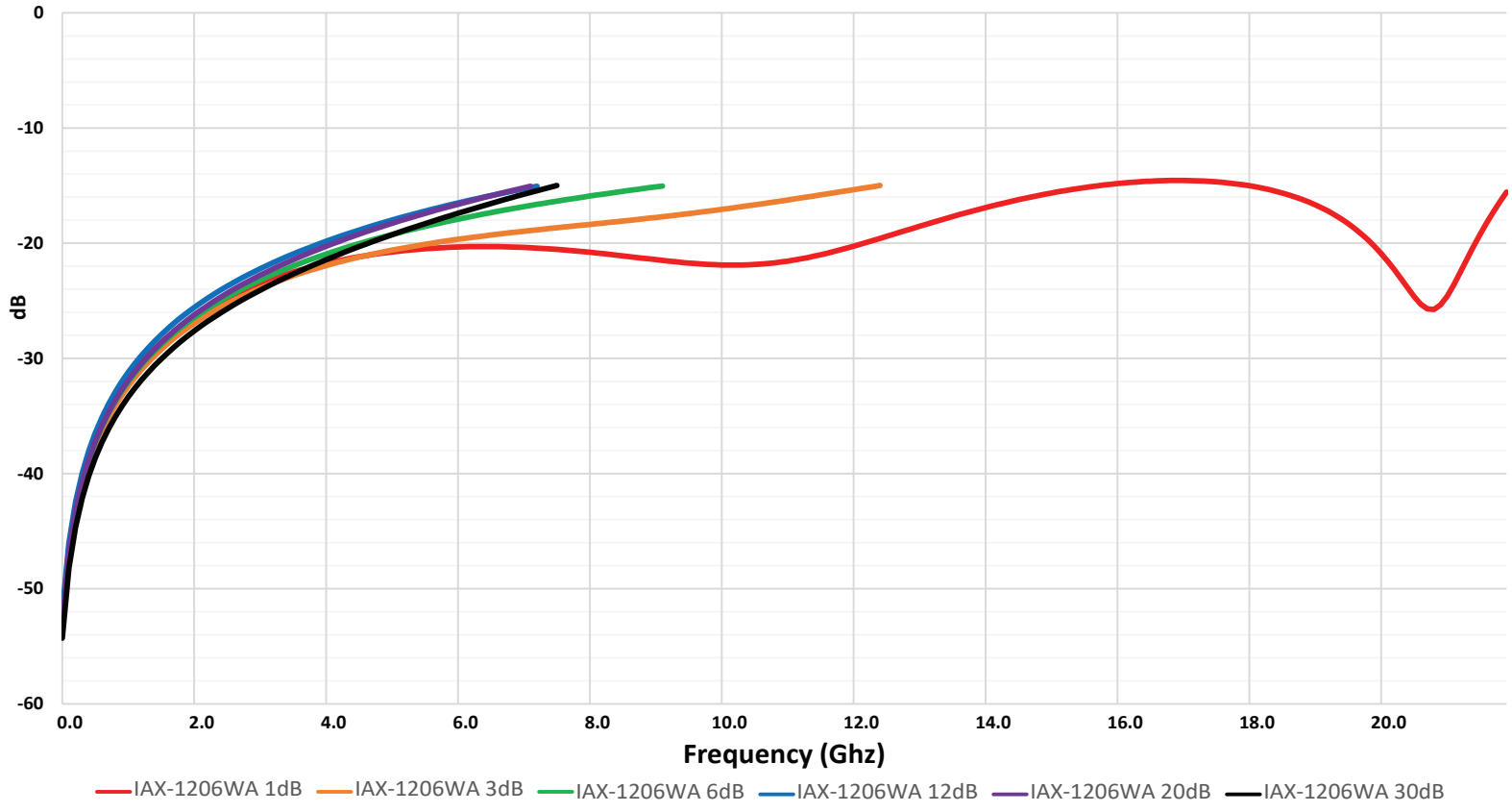
IAX-0805WA Return Loss (S11)



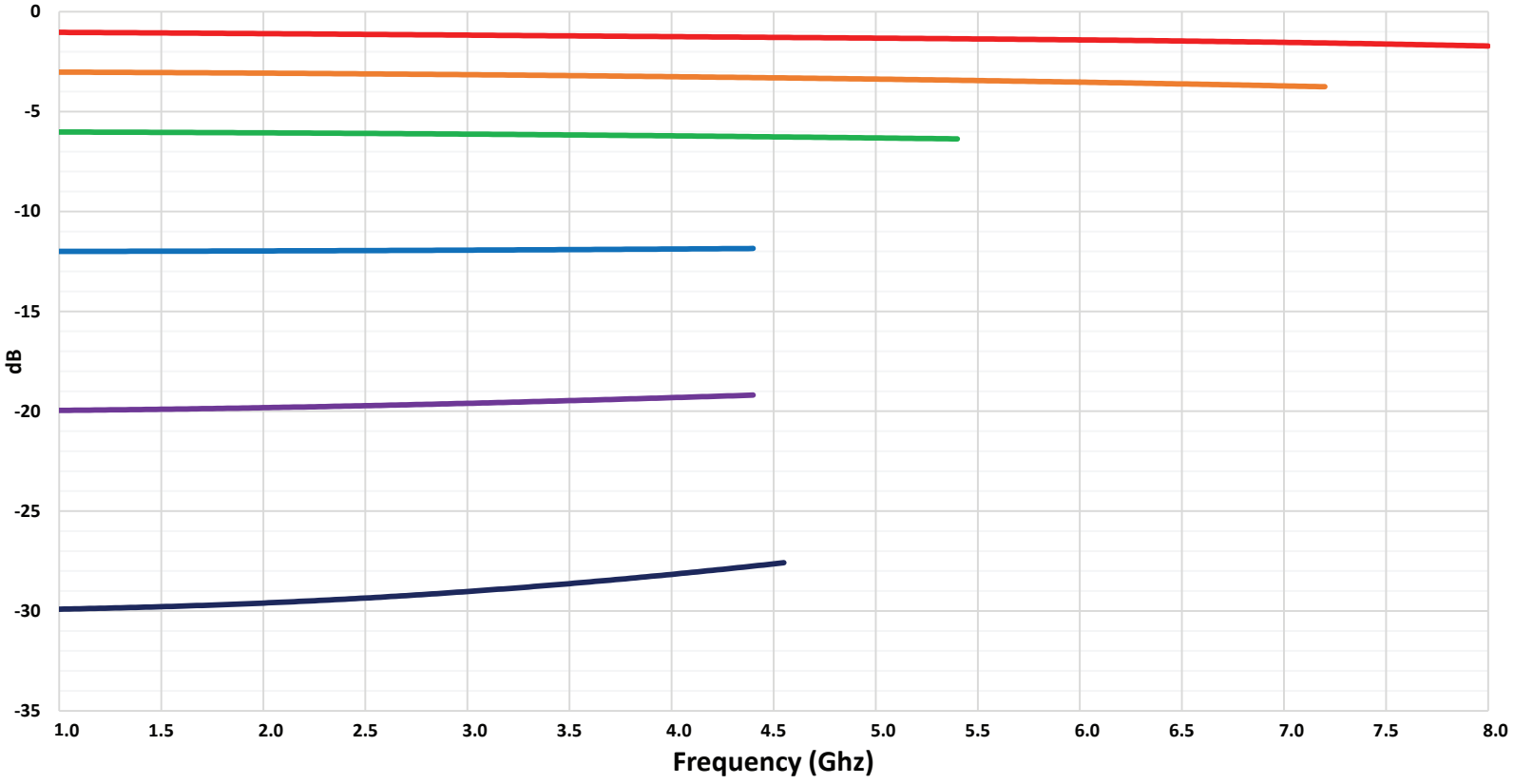
IAX-1206WA Insertion Loss (S21)



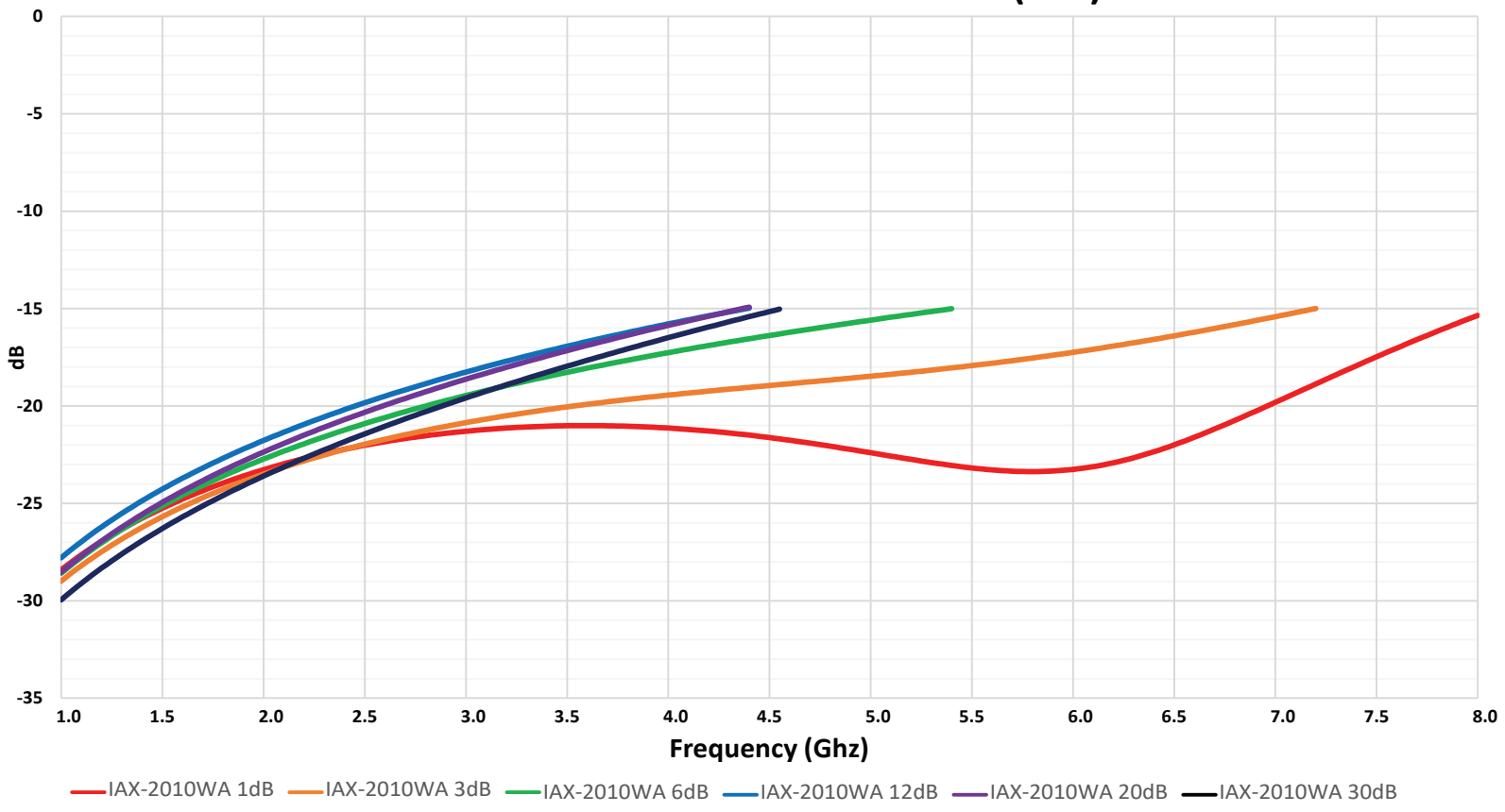
IAX-1206WA Return Loss (S11)



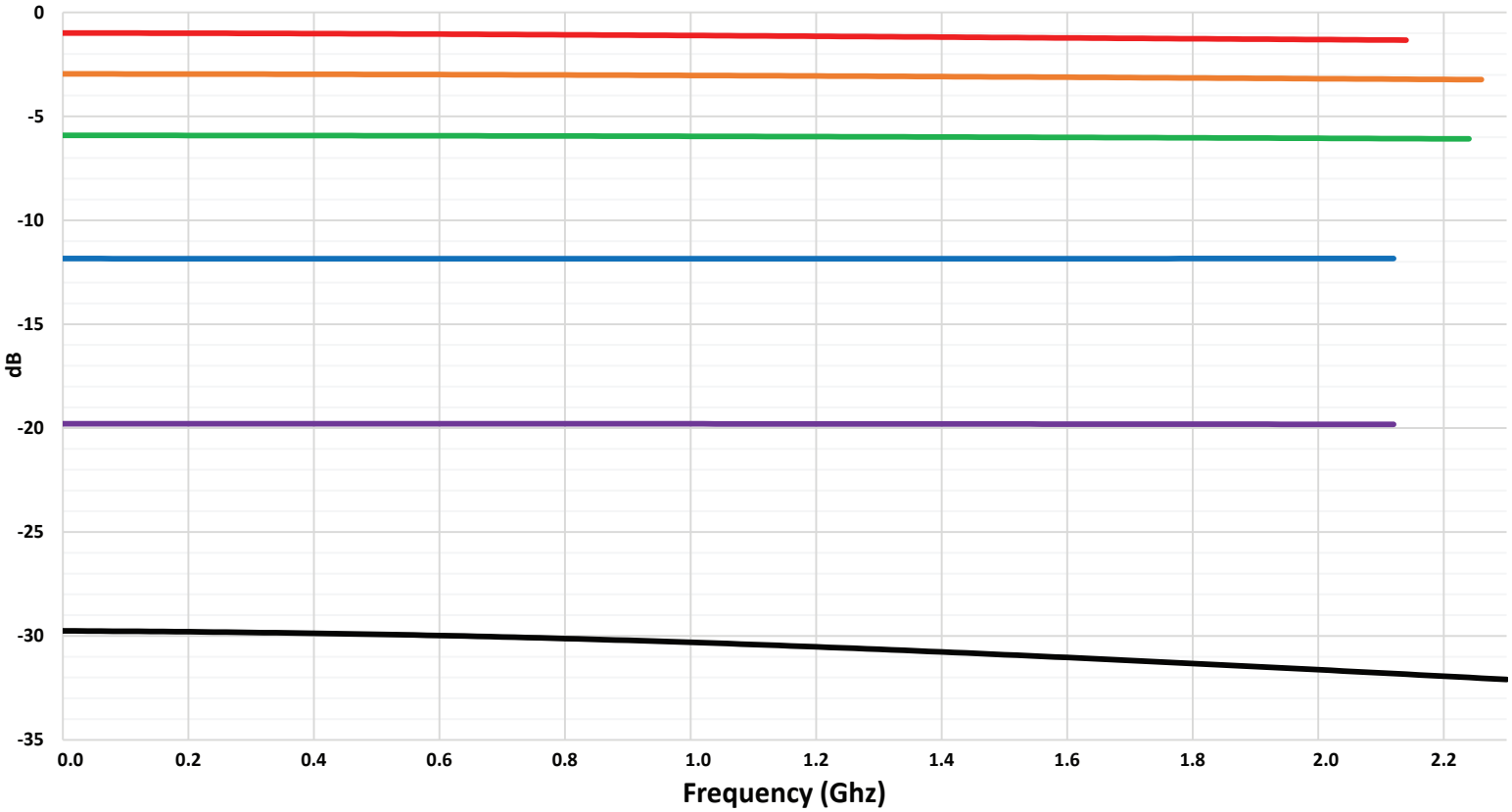
IAX-2010WA Insertion Loss (S21)



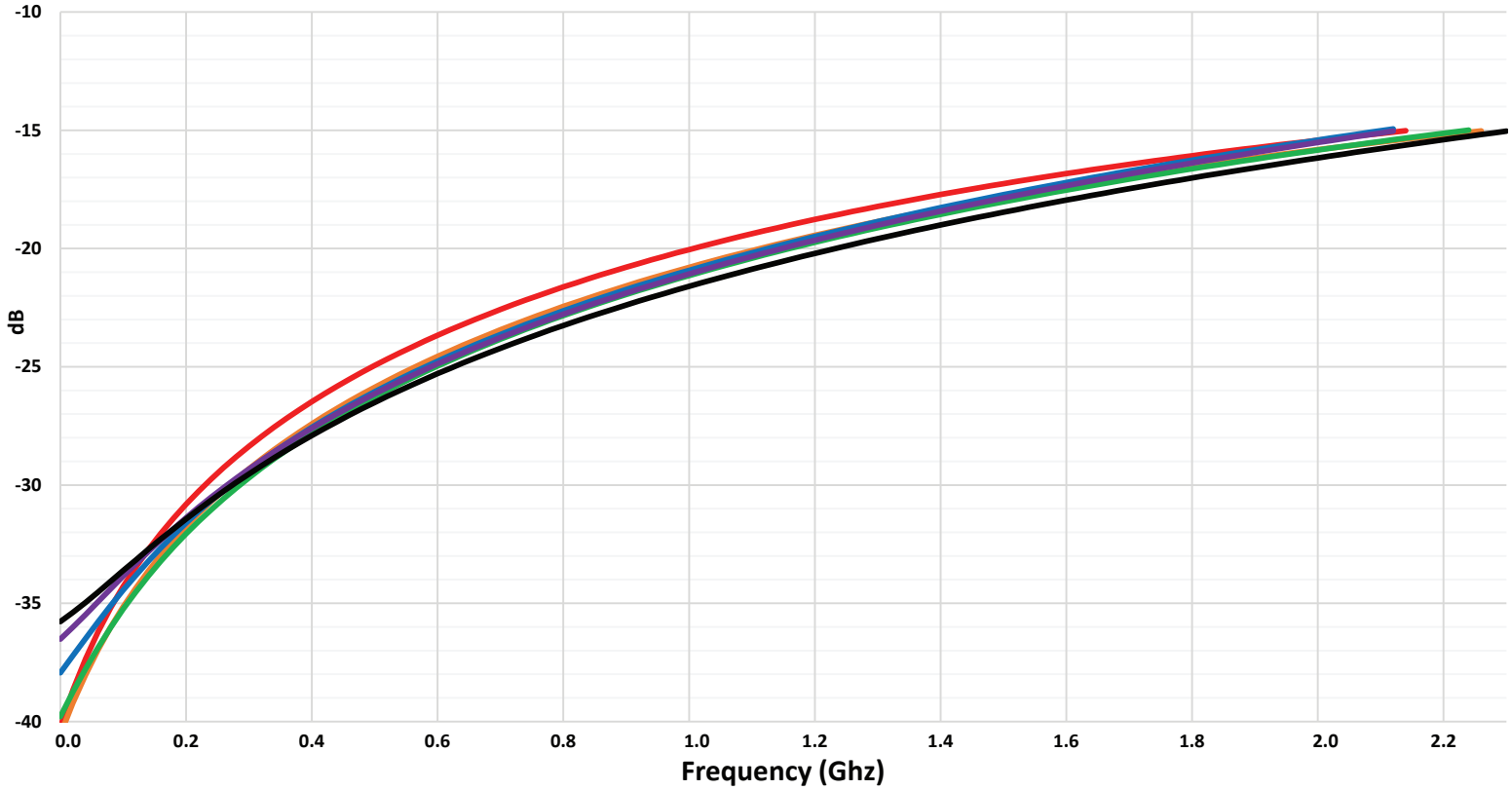
IAX-2010WA Return Loss (S11)



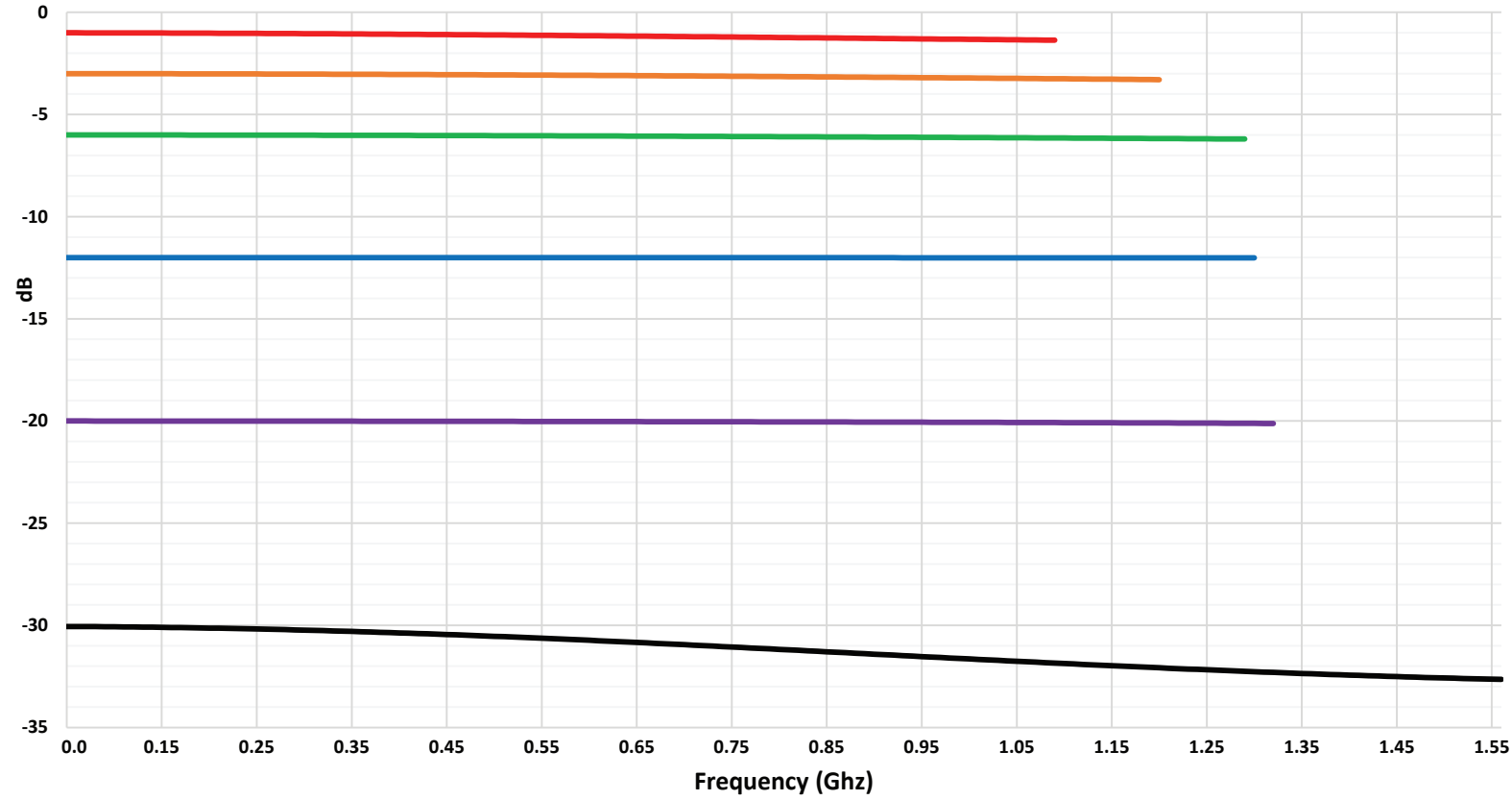
IAX-2512WA Insertion Loss (S21)



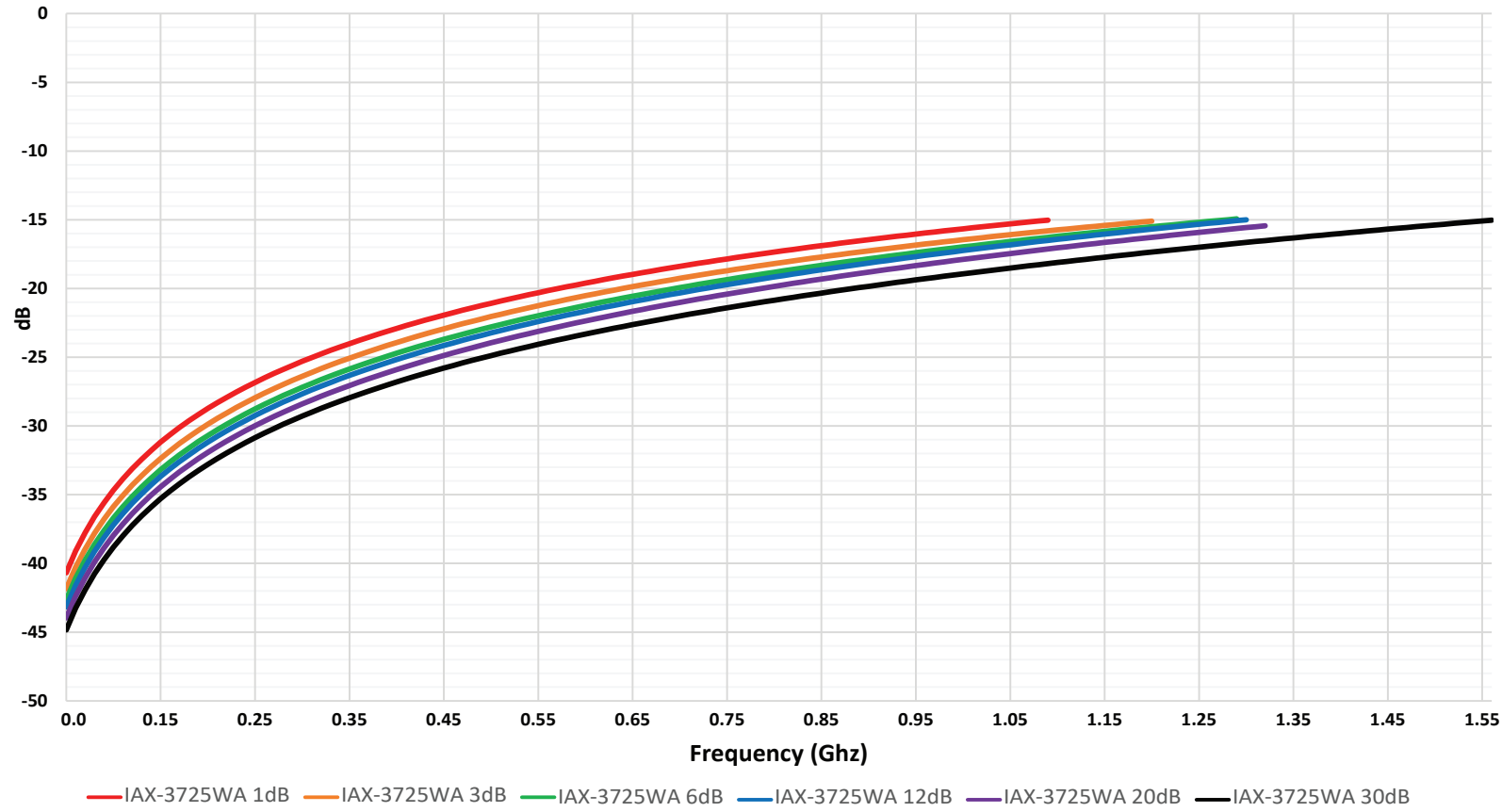
IAX-2512WA Return Loss (S11)



IAX-3725WA Insertion Loss (S21)



IAX-3725WA Return Loss (S11)



Surface Mount Thick Film Attenuator

ORDERING INFORMATION

Example: 2.5dB, 1206 wraparound style resistor on alumina substrate with PtAg terminal

Example: IA 3 - 1206 WA 02 D5

Prefix for alumina attenuators

Terminal Material

- ☑ - **1** Au *(0706 SS only)*
- ☑ - **3** PtAg
- ☑ - **8** ULR PtAg
- **C** PtAg w/ Sn62 Solder
- ☑ - **P** PtAg w/ Sn96 Solder
- **H** ULR PtAg w/ Sn62 Solder
- ☑ - **R** ULR PtAg w/ Sn96 Solder

Size

0706 0805 1206
2010 2512 3725

Style

SG WA SS PW

dB Whole Value (00-70)

dB Increment

(D0 denotes whole value)
- OR -
(D5 denotes whole value + .5dB available up to 16.5dB)

For packaging options please visit our website www.ims-resistors.com/packaging

RoHS Compliant = ☑

ULR = Ultra Leach Resistant

ULR RoHS Sn62 NON-MAG BONDABLE