

# Thin Film Surface Mount Chip Attenuators

The **ims** A-Series thin film surface mount chip attenuator line is ideal for applications requiring precision attenuation in a small form factor packages. The attenuators are provided in the "π" configuration. Thin film technology insures a low noise, precise attenuator at a very affordable price. The wraparound terminations include a nickel barrier layer which affords excellent solderability and mechanical integrity. This chip attenuator line has the following features:

- Precision thin film attenuator element
- 99.5% Al<sub>2</sub>O<sub>3</sub> substrate material
- Nickel barrier layer for excellent solderability and mechanical integrity
- Ultra low noise attenuator element
- Excellent high frequency performance
- Low inductance and parasitic capacitance
- Stable characteristics over temperature and time
- Polyimide passivation of attenuator element
- Available in bulk or on tape and reel



100% Matte Tin Finish

# A-Series



## Features

Thin film technology

Full Wraparound

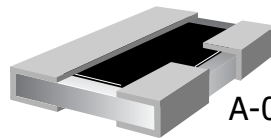
Nickel Barrier for excellent solderability

Attenuation from 0 dB to 10 dB in 1 dB increments, 16 dB (A-1206, A-1612), 20 dB (A-1612)

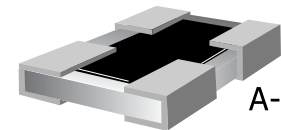
VSWR 1.5:1 max. (A-0402), 1.3:1 all others

## Terminations

Full wraparound



A-0603,0805,1206,1612

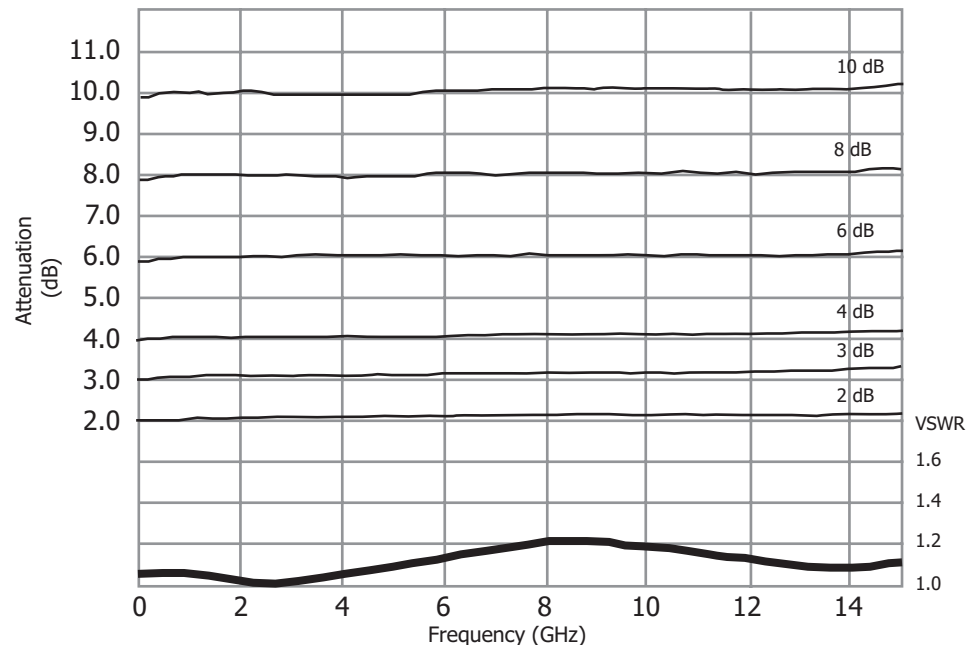


A-0402WA

## Attenuation Ranges

The A-Series is available in values from 0dB to 10 dB in 1 dB increments. Standard impedance is 50Ω.

## Frequency Characteristics (A-0805)\*



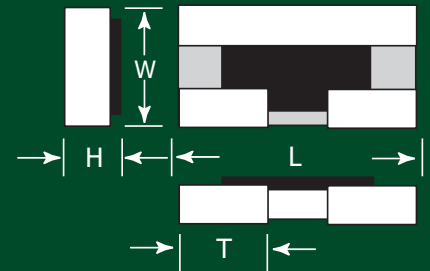
\*Performs within spec to 20 GHz when mounted face down.

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## Dimensions

| Part Number      | Length       | Width        | Height     | Terminal     |
|------------------|--------------|--------------|------------|--------------|
| A-0402WA         | 0.039 ± .004 | 0.020 ± .004 | 0.014 max. | 0.009 ± .002 |
| A-0603 & IMS2533 | 0.063 ± .004 | 0.032 ± .004 | 0.020 max. | 0.016 ± .006 |
| A-0805 & IMS1141 | 0.079 ± .008 | 0.049 ± .008 | 0.020 max. | 0.020 ± .008 |
| A-1206           | 0.126 ± .008 | 0.063 ± .008 | 0.020 max. | 0.039 ± .010 |
| A-1612           | 0.165 ± .008 | 0.118 ± .008 | 0.020 max. | 0.037 ± .008 |



A-0603, A-0805, A-1206

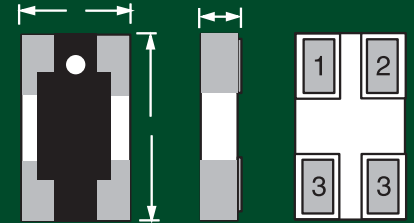
## Characteristics

|                              |   |
|------------------------------|---|
| Operating Temperature        | -55°C to +125°C   |
| Impedance                    | 50 Ω  |
| Frequency range              | DC to beyond 10 GHz (A-0402WA, A-0603, A-0805)<br>DC to 3 GHz (A-1206) DC to 2 GHz (A-1612) |
| VSWR                         | 1.3:1 maximum (except A-0402WA - 1.5:1)   |
| Attenuation                  | 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 16*, 20** dB  |
| Attenuation tolerance        |   |
| A-0805, 1141, A-1206, A-1612 | ± 0.3 dB, ± 0.5 dB (1206 - 16 dB, 1612 - 16 dB, 20dB)                                       |
| A-0402WA, A-0603, 2533       | ± 0.3 dB (0 - 3dB) ± 0.5 dB (4 - 7 dB) ± 1.0 dB (8 - 10 dB)                                 |

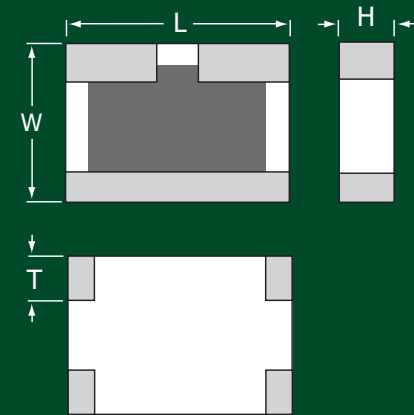
\* A-1206, A-1612 only    \*\*A-1612 only

## Specifications

|                         |          |
|-------------------------|----------|
| Maximum Working Voltage |          |
| A-0402WA                | 1.26WVDC |
| A-0603 & IMS2533        | 1.77WVDC |
| A-0805 & IMS1141        | 2.24WVDC |
| A-1206                  | 2.50WVDC |
| A-1612                  | 3.53WVDC |
| Rated Power (70°C)      |          |
| A-0402WA                | 32mW     |
| A-0603 & IMS2533        | 63mW     |
| A-0805 & IMS1141        | 100mW    |
| A-1206                  | 125mW    |
| A-1612                  | 250mW    |



A-0402WA



A-1612

**For higher dB values, higher power ratings or lead content attenuators see our IAX Series**

**Ask Us About Engineering Kits!**

## Ordering Information

**Face Up Example: 3 dB, 100 mW, SMT 0805 attenuator.**

|                                |              |            |  |
|--------------------------------|--------------|------------|--|
| <b>A</b>                       | <b>-0805</b> | <b>- C</b> | <b>-03DB</b>   |
| Prefix for Face Up Attenuator  |              |            | Attenuation level<br>00 - 10 dB, 16*, 20**dB<br>*A-1206 & 1612 only ** A-1612 only |
| Form factor                    |              |            | C indicates 50Ω impedance  |
| 0402WA, 0603, 0805, 1206, 1612 |              |            |  |

**Face Down Example: 3 dB, 100 mW, SMT 0805 attenuator.**

|  |                                 |
|--|---------------------------------|
| <b>IMS1141</b>                                       | <b>- 03DB</b>                   |
| IMS2533 = Face Down 0603<br>IMS1141 = Face Down 0805 | Attenuation level<br>00 - 10 dB |

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