



# State of the Art, Inc.

## 1512 High Frequency Chip Attenuator

### Thin Film, Top Surface Terminations

#### PERFORMANCE CHARACTERISTICS

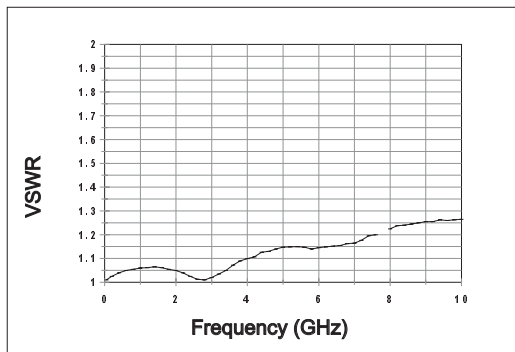
Attenuation Factor      1 to 20 dB  
 Maximum Power        500 milliwatts  
 Frequency Range      DC to 10 GHz

The Frequency response data plotted below shows an example of VSWR obtained in pressure contact fixtures. Data for chips which are solder attached to matched circuit traces may exhibit even better performance.

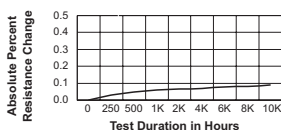
#### ENVIRONMENTAL PERFORMANCE\*

Thermal Shock            ±0.02%  
 Low Temperature Operation   ±0.02%  
 Short Time Overload       ±0.02%  
 Resistance to Bonding Exposure ±0.02%  
 Moisture Resistance       ±0.03%  
 High Temperature Exposure   ±0.03%

\* Typical percent resistance change -test methods and actual specification limits are in accordance with MIL-PRF-55342.



#### TYPICAL LIFE PERFORMANCE



Consult our Engineering Department for frequency specific performance requirements.

#### Attenuation Tolerance

| Increment (dB) | DC - 4 GHz | 4 - 8 GHz | 8 - 13 GHz | 13 - 16 GHz | 16 - 20 GHz |
|----------------|------------|-----------|------------|-------------|-------------|
| 1 to 10 dB     | ± 0.5 dB   | ± 0.5 dB  | ± 0.5 dB   | ± 0.75 dB   | ± 1.0 dB    |
| 11 to 20 dB    | ± 0.5 dB   | ± 0.5 dB  | ± 0.75 dB  | ± 1.0 dB    | ± 1.5 dB    |

#### PART NUMBERING

**S 1512 A C 10B0 B (\*\*\*\*\* ) W**

PACKAGING CODE: - TR = Tape/Reel - W = Waffle Carrier (Default packaging is Bulk)

SCD REFERENCE

TERMINATION FINISH: B: Sn60 over nickel barrier, W: Gold, K: Sn62 bump, M: 80/20 Au/Sn bump, Y: Silver over nickel barrier

#### VALUE CODE:

Three or Four digits are used to express the attenuation value (available from 1 to 20 dB in 1dB increments). The letter "B" is used to represent the decimal. Example: 10B0 = 10 dB, 1B5 = 1.5 dB, etc.

PRODUCT DESIGNATION: C: Attenuator on alumina

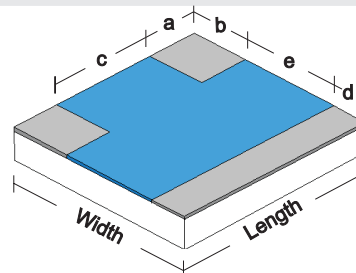
TERMINATION TYPE: A: Topside termination D: Metallized Bottom

#### SIZE CODE

GRADE: S: Standard Production H: High Reliability (For screening options, contact the factory)

#### MECHANICAL

|                    | INCHES             | MILLIMETERS        |
|--------------------|--------------------|--------------------|
| Length             | .150 (.148 - .152) | 3.81 (3.76 - 3.86) |
| Width              | .120 (.118 - .122) | 3.05 (3.00 - 3.10) |
| Thickness          | .015 (.013 - .023) | 0.38 (0.33 - 0.58) |
| I/O Length (a)     | .035 (.032 - .038) | 0.89 (0.82 - 0.96) |
| I/O Width (b)      | .060 (.057 - .063) | 1.52 (1.45 - 1.60) |
| I/O Gap (c)        | .076 (.074 - .078) | 1.93 (1.88 - 1.98) |
| Ground (d)         | .020 (.017 - .023) | 0.51 (0.44 - 0.58) |
| I/O Ground Gap (e) | .037 (.035 - .039) | 0.94 (0.89 - 0.99) |
| Approx. Weight     | .020 grams         |                    |



\*Specifications subject to change without notice.\*

**www.resistor.com**  
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