WINSOURCE ELECTRONICS

THE DATASHEET OF

AEQ2050

Gain Equalizer Family Datasheet

www.knowlescapacitors.com

Series Description

DLI's Gain Equalizers are designed as a small, low cost solution to your gain slope challenges. These equalizer designs employ a monolithic construction with precision thin-film conductor and resistor films with proprietary high dielectric constant ceramics for superior RF performance and repeatability. Components are well suited for use with pick and place equipment. Available in tape and reel packaging for high volume applications



Applications

- Broadband Microwave Modules; EW, ECM, ECCM
- Equalizer is utilized as a compensation circuit to correct for a loss slope created by other elements within a circuit such as in amplifier stages

Benefits

- Low Excess Insertion Loss
- Interchangeable Footprints; gain slopes from 1 to 4 dB
- Conductive Epoxy and solder SMT mount
- No Ground Connection Required
- Characteristic Impedance: 50Ω
- Operating & Storage Temp: -55˚C to +125˚C
- Moisture Sensitivity Level: MSL1
- Superior, repeatable microwave performance part to part and lot to lot

Custom Solutions

We realize that our standard offerings won't meet all customer requirements. DLI offers custom solutions with quick turn time. Custom designs will be tailored to meet your system requirements by utilizing a design with one of our high K materials. Temperature performance requirement? We can design on one of DLI's temperature stable materials. Please contact Applications Engineering for more information

Design Kits

Two design kits are available for quick fix or circuit tuning needs. Each kit has 5 pieces of variant equalizer. Standard Series includes: AEQ2050, AEQ2199, AEQ2234, AEQ3042 and AEQ3055.

EW Series includes: AEQ05467, AEQ05468, AEQ05469, AEQ05470, AEQ05471 and AEQ05472.

Information in this document is for informational and guideline purposes only. All information regarding the Product described in this datasheet is subject to change from time to time at Knowles Precision Devices' sole discretion. It is the customer's sole responsibility to evaluate the suitability of the Product in the customer's particular application. Knowles Precision Devices assumes no responsibility or liability for the use of the information contained within.

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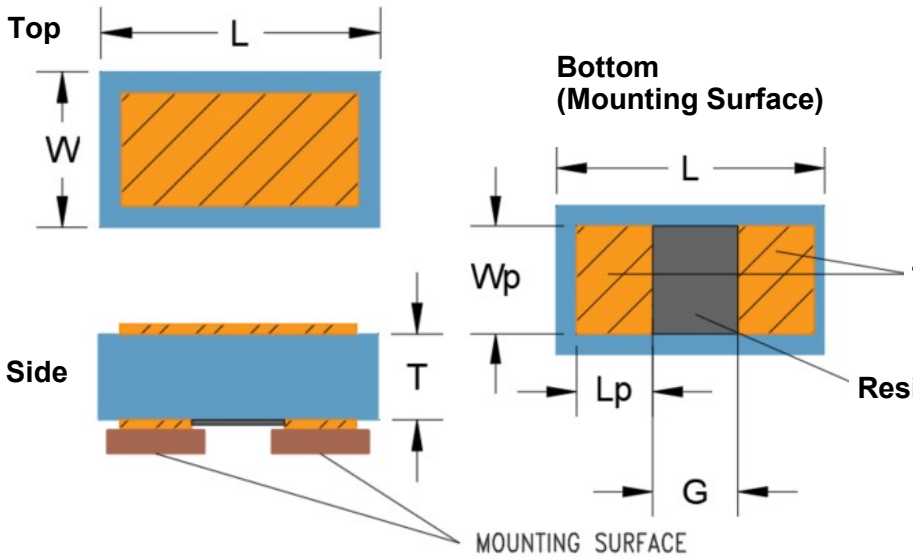
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Part Number	Attachment Medium	Nominal Slope (dB)	Operating Frequency Range (GHz)	Termination Finish Reference	Dimensions (mil)					
					L	W	T	Lp	Wp	G
AEQ3042	Epoxy or Solder	0.6	DC - 7	3	40 ± 2	20 ± 2	6 ± 1	17.5 ± 1	17.5 ± 1	3 ± 1
AEQ3055	Epoxy or Solder	1.5	DC - 7	3	40 ± 2	20 ± 2	6 ± 1	15.4 ± 1	18.4 ± 1	7.2 ± 1
AEQ2199	Epoxy	3.5	DC - 16	1	28 ± 2	16 ± 2	7 ± 1	7 ± 1	14 ± 1	12 ± 1
AEQ05246	Epoxy or Solder	3.5	DC - 16	2	28 ± 2	16 ± 2	7 ± 1	7 ± 1	14 ± 1	12 ± 1
AEQ05467	Epoxy or Solder	1	DC - 18	4	28 ± 1	16 ± 1	7 ± 1	7min	14 ± 1	10
AEQ05468	Epoxy or Solder	1.5	DC - 18	4	28 ± 1	16 ± 1	7 ± 1	7min	14 ± 1	10
AEQ05469	Epoxy or Solder	2	DC - 18	4	28 ± 1	16 ± 1	7 ± 1	7min	14 ± 1	10
AEQ05470	Epoxy or Solder	2.5	DC - 18	4	28 ± 1	16 ± 1	7 ± 1	7min	14 ± 1	10
AEQ05471	Epoxy or Solder	3	DC - 18	4	28 ± 1	16 ± 1	7 ± 1	7min	14 ± 1	10
AEQ05472	Epoxy or Solder	3.5	DC - 18	4	28 ± 1	16 ± 1	7 ± 1	7min	14 ± 1	10
AEQ11388	Epoxy or Solder	4	DC - 22	2	28 ± 1	16 ± 1	7 ± 1	7min	14 ± 1	10
AEQ2234	Epoxy	3.25	DC - 32	1	32 ± 2	16 ± 2	5 ± 1	8 ± 1	12 ± 1	12 ± 1
AEQ06042	Epoxy or Solder	3.25	DC - 32	2	32 ± 2	16 ± 2	5 ± 1	8 ± 1	12 ± 1	12 ± 1
AEQ2050	Epoxy	2.25	DC - 34	1	30 ± 2	18 ± 2	5 ± 1	9 ± 1	14 ± 1	8 ± 1
AEQ05510	Epoxy or Solder	2.25	DC - 34	2	30 ± 2	18 ± 2	5 ± 1	9 ± 1	14 ± 1	8 ± 1
AEQ11391	Epoxy or Solder	2.5	DC - 45	2	28 ± 1	16 ± 1	7 ± 1	7min	14 ± 1	10
AEQ11390	Epoxy or Solder	3	DC - 45	2	28 ± 1	16 ± 1	7 ± 1	7min	14 ± 1	10
AEQ11389	Epoxy or Solder	4	DC - 45	2	28 ± 1	16 ± 1	7 ± 1	7min	14 ± 1	10

Physical Dimension Definitions

Note: T (thickness) only includes ceramic substrate



Termination Finish References

1	100 microinches min. Au
2	25 microinches min Au OVER 50 microinches min. NiV
3	20 microinches max. Au OVER 30 microinches min. NiV
4	15 microinches min. Au OVER 50 microinches min. NiV

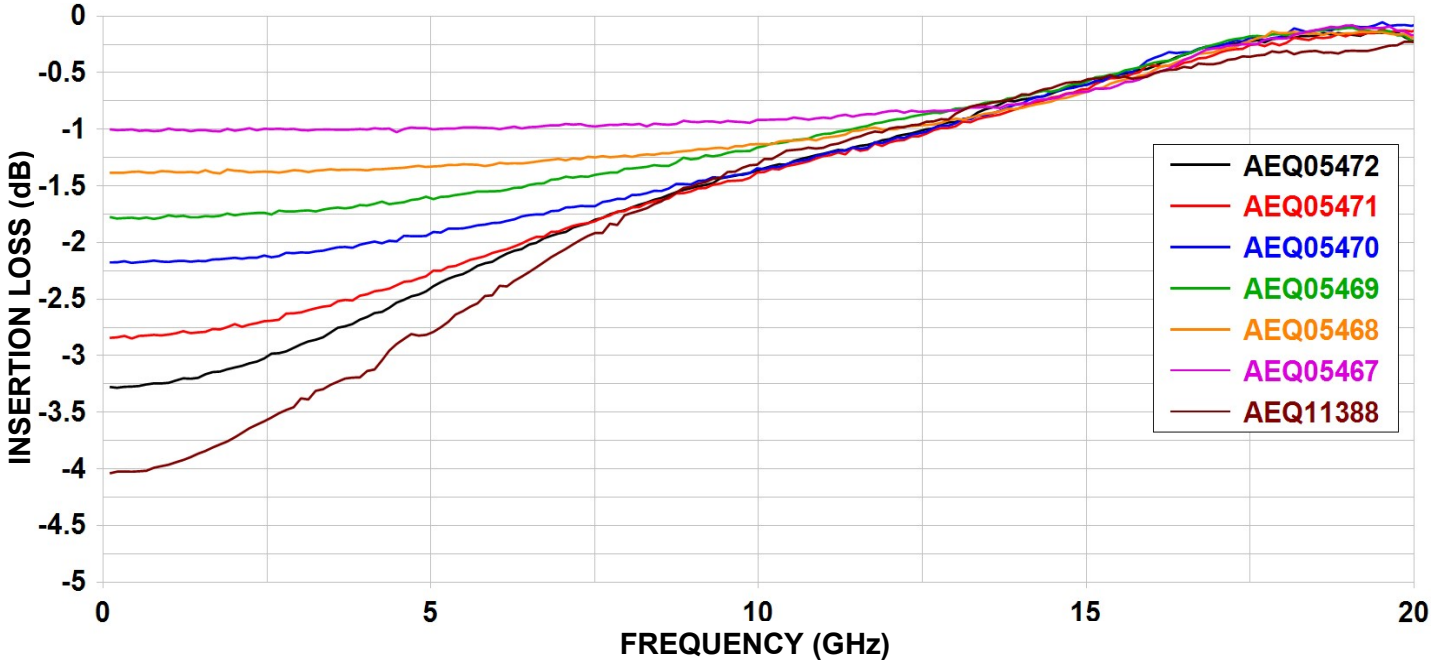
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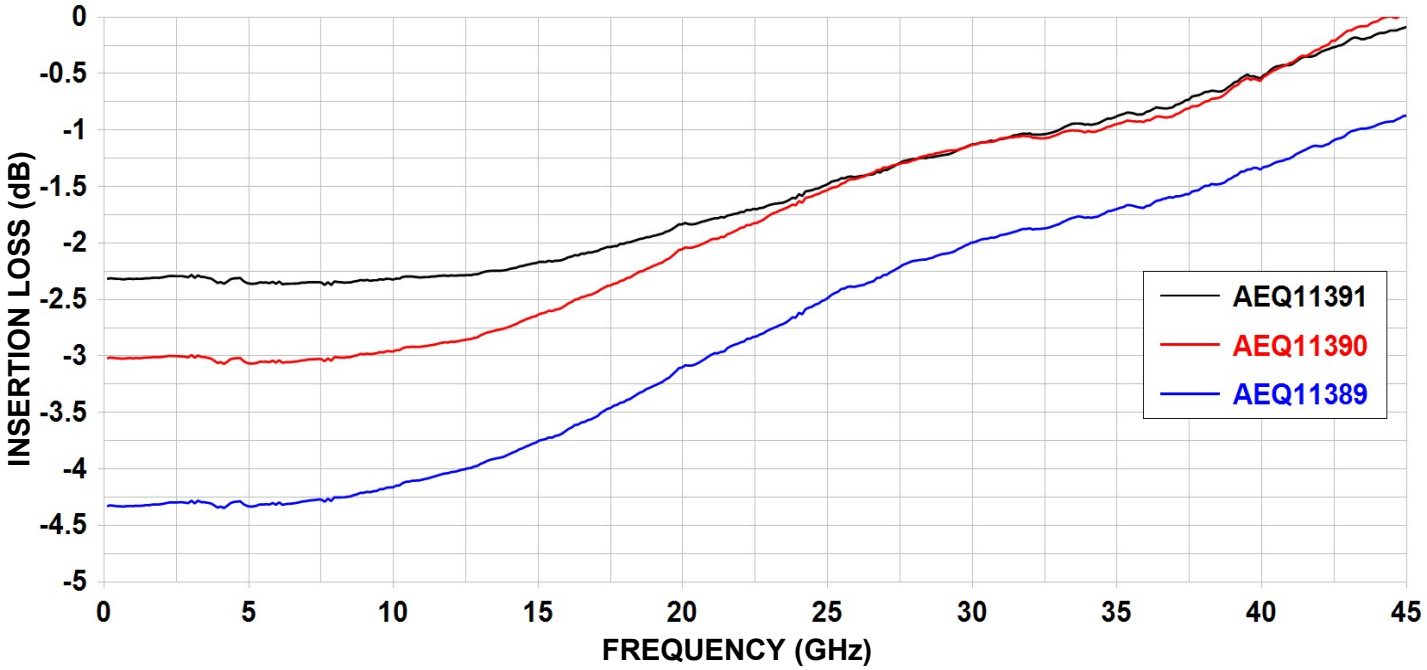
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Typical* Measured Performance** up to 20GHz



Typical* Measured Performance** up to 45GHz



* Typical measured performance mounted on RO4350B test board at 25°C.

** Electrical specifications based on typical mounted performance at room temperature. Insertion loss shall vary ±0.5dB over temperature.

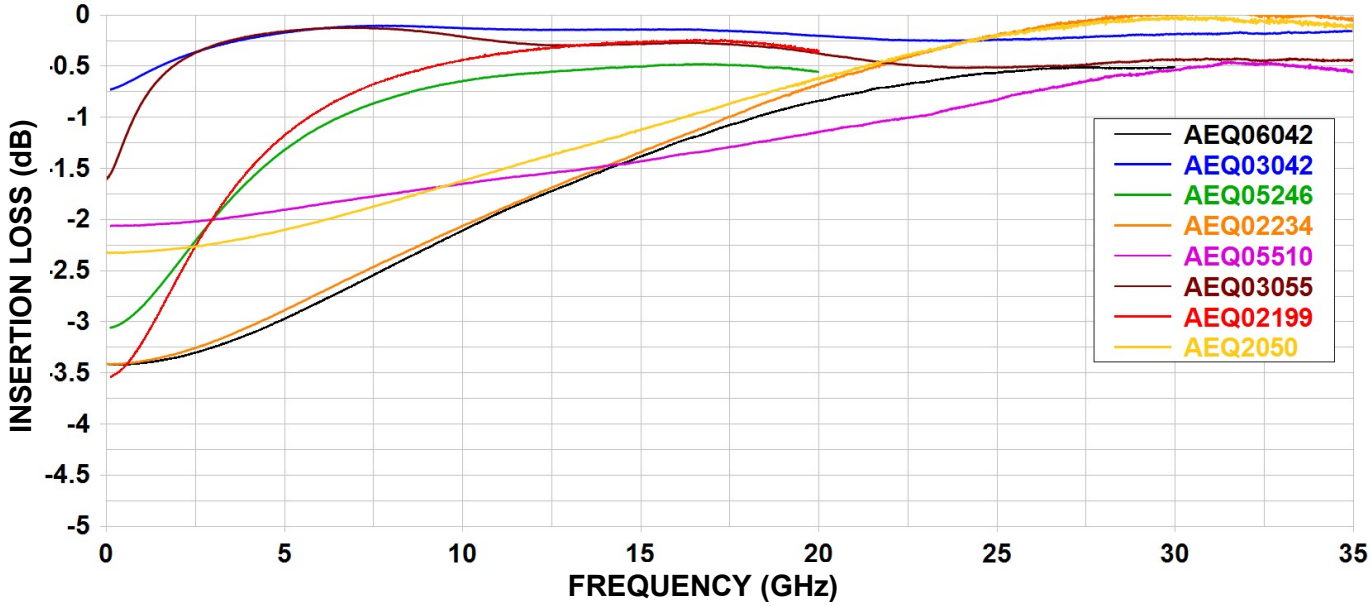
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Typical* Measured Performance** up to 35GHz

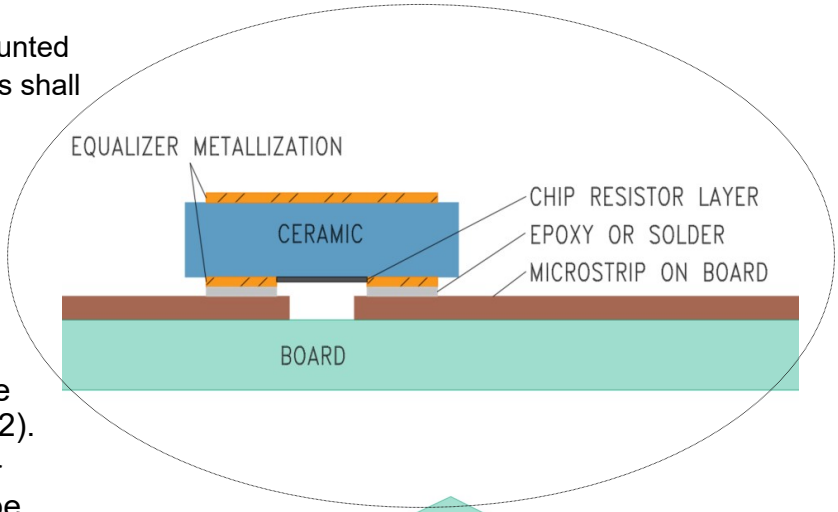


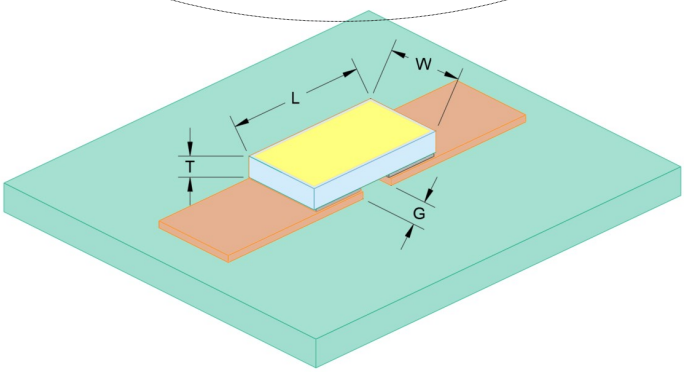
* Typical measured performance mounted on RO4350B test board at 25°C.

** Electrical specifications based on typical mounted performance at room temperature. Insertion loss shall vary ±0.5dB over temperature.

Gain Equalizer Mounting Recommendations

1. Equalizer width should be approximately as wide as 50 Ω line trace on PCB.
2. The gap in the microstrip line should be nominally equal to dimension G (page 2).
3. Vacuum pick-up tool recommended for component handling. If pressure is to be applied during component placement, it should be done uniformly across the part.
4. Thin, unmounted circuit boards are prone to warpage during reflow. This can cause solder attach defects and cracking of components during handling or subsequent housing installation. Measures should be taken to avoid flexing the board.





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