DLI DIELECTRIC LABORATORIES
a Knowles Precision Devices brand

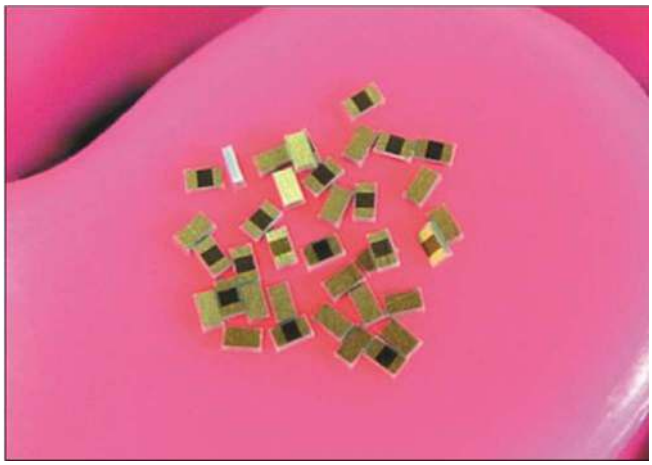
knowles PRECISION DEVICES
COMPEX • DLI • JOHANSON MFG
NOVACAP • SYFER • VOLTRONICS
www.knowlescapacitors.com

Gain Equalizers

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
- Footprint interchangeable; gain slopes from 1 to 3.5 dB
- Conductive Epoxy and solder SMT mountable
- Characteristic Impedance: 50Ω
- Operating & Storage Temp: -55˚C to +125˚C
- Moisture Sensitivity Level: MSL1
- No Ground Connection Required
- Superior, repeatable microwave performance

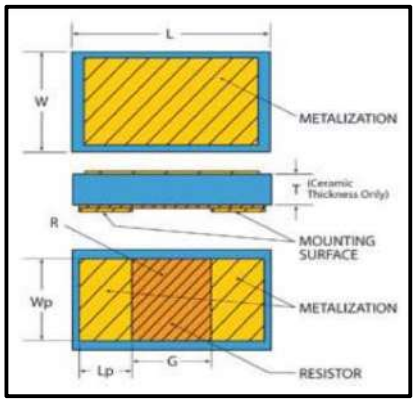
Part Number		L	W	T	Lp	Wp	G	Nominal Slope
Epoxy	Solderable							
AEQ2050[1]	AEQ05510[2]	30 ± 2	18 ± 2	5 ± 1	9 ± 1	14 ± 1	8 ± 1	2.25 dB
AEQ2199[1]	AEQ05246[2]	28 ± 2	16 ± 2	7 ± 1	7 ± 1	14 ± 1	12 ± 1	3.5 dB
AEQ2234[1]	AEQ06042[2]	32 ± 2	16 ± 2	5 ± 1	8 ± 1	12 ± 1	12 ± 1	3.25 dB
AEQ3042[3]	AEQ3042[3]	40 ± 2	20 ± 2	6 ± 1	17.5 ± 1	17.5 ± 1	3 ± 1	0.6 dB
AEQ3055[3]	AEQ3055[3]	40 ± 2	20 ± 2	6 ± 1	15.4 ± 1	18.4 ± 1	7.2 ± 1	1.5 dB
AEQ05467[4]	AEQ05467[4]	28 ± 1	16 ± 1	7 ± 1	7 min.	14 ± 1	10	1.0 dB
AEQ05468[4]	AEQ05468[4]	28 ± 1	16 ± 1	7 ± 1	7 min.	14 ± 1	10	1.5 dB
AEQ05469[4]	AEQ05469[4]	28 ± 1	16 ± 1	7 ± 1	7 min.	14 ± 1	10	2.0 dB
AEQ05470[4]	AEQ05470[4]	28 ± 1	16 ± 1	7 ± 1	7 min.	14 ± 1	10	2.5 dB
AEQ05471[4]	AEQ05471[4]	28 ± 1	16 ± 1	7 ± 1	7 min.	14 ± 1	10	3.0 dB
AEQ05472[4]	AEQ05472[4]	28 ± 1	16 ± 1	7 ± 1	7 min.	14 ± 1	10	3.5 dB

All dimensions in mils. Mechanical outline drawings for equalizers listed above are available. Please contact DLI Applications Engineering for details.
Operational Temperature Range: - 55 C to + 125 C

Metallizations as noted in [ ] above

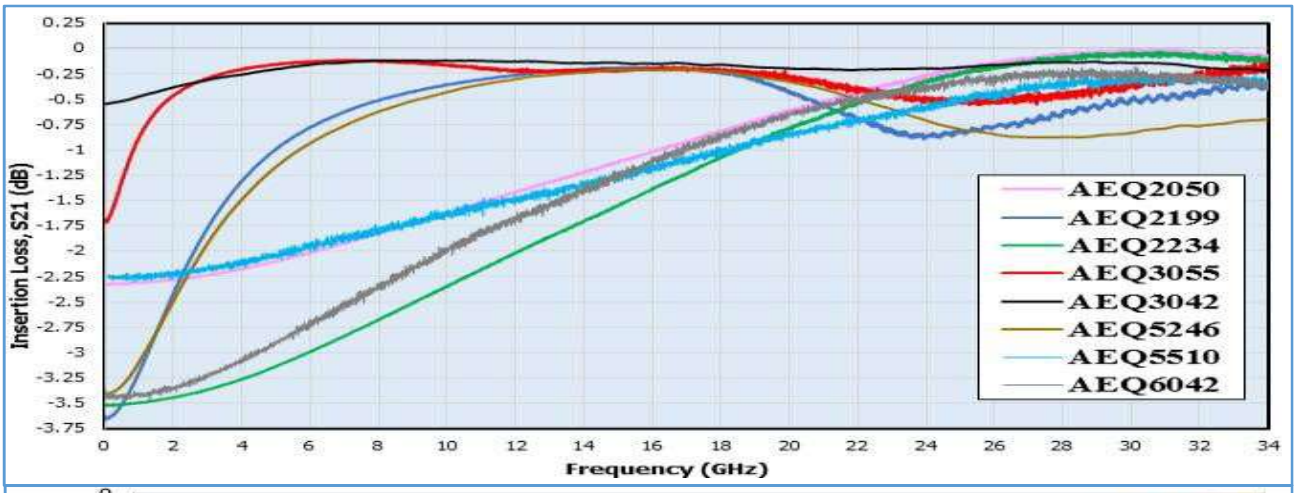
1.	TOP: 100 MICROINCHES MIN. Au OVER 400 ± 100 ANGSTROMS TiW	MOUNTING SURFACE: 100 MICROINCHES MIN. Au OVER 400 ± 100 ANGSTROMS TiW OVER TaN Resistor Layer
2.	TOP: 100 MICROINCHES MIN. Au OVER 50 MICROINCHES MIN. NiV OVER 300 ANGSTROMS MIN. TiW	MOUNTING SURFACE: 25 MICROINCHES MIN. Au OVER 50 MICROINCHES MIN. NiV OVER 5 MICROINCHES MIN. Au OVER 300 ANGSTROMS MIN. TiW OVER TaN Resistor Layer
3.	TOP: 50 MICROINCHES MIN. Au OVER 400 +/- 100 ANGSTROMS TiW	MOUNTING SURFACE: 20 MICROINCHES MAX. Au OVER 30 MICROINCHES MIN. Ni OVER 50 MICROINCHES MIN. Au OVER 400 +/- 100 ANGSTROMS TiW OVER TaN Resistor Layer
4.	TOP: 15 MICROINCHES MIN. Au OVER 50 MICROINCHES MIN. NiV OVER 300 ANGSTROMS MIN. TiW	MOUNTING SURFACE: 15 MICROINCHES MIN. Au OVER 50 MICROINCHES MIN. NiV OVER 300 ANGSTROMS MIN. TiW OVER TaN Resistor Layer

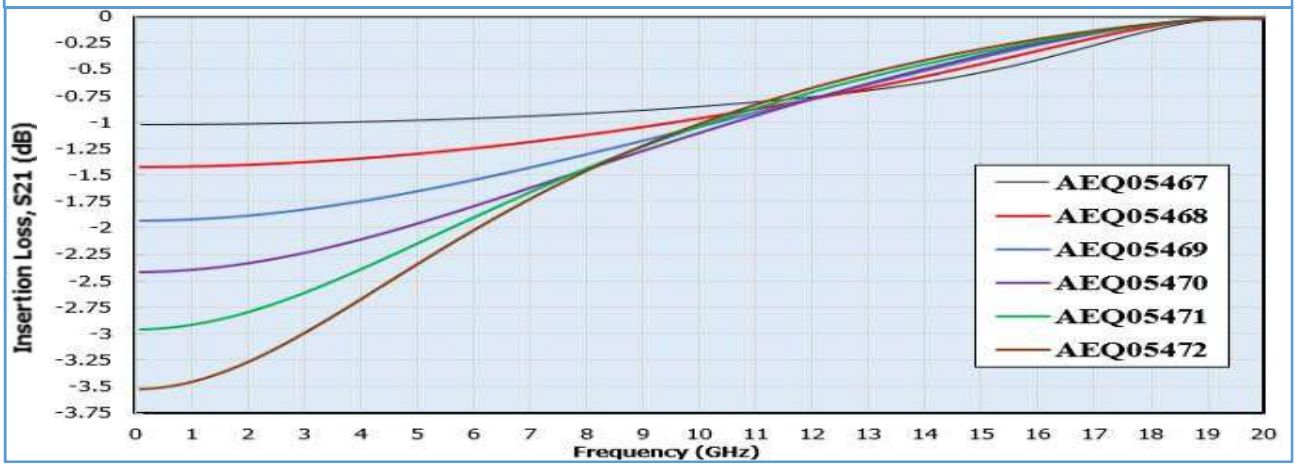
Physical Dimensions



2777 Route 20 East, Cazenovia, NY 13035| Ph.: (315)655-8710 | KCCSales@knowles.com

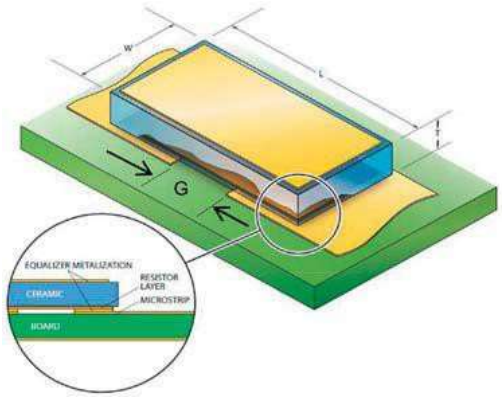
Gain Equalizers





Die Attach 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.
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.



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.

Certified System ISO 9001 Quality
Certified System AS9100 Aerospace
RoHS 2011/65/EU Lead Free