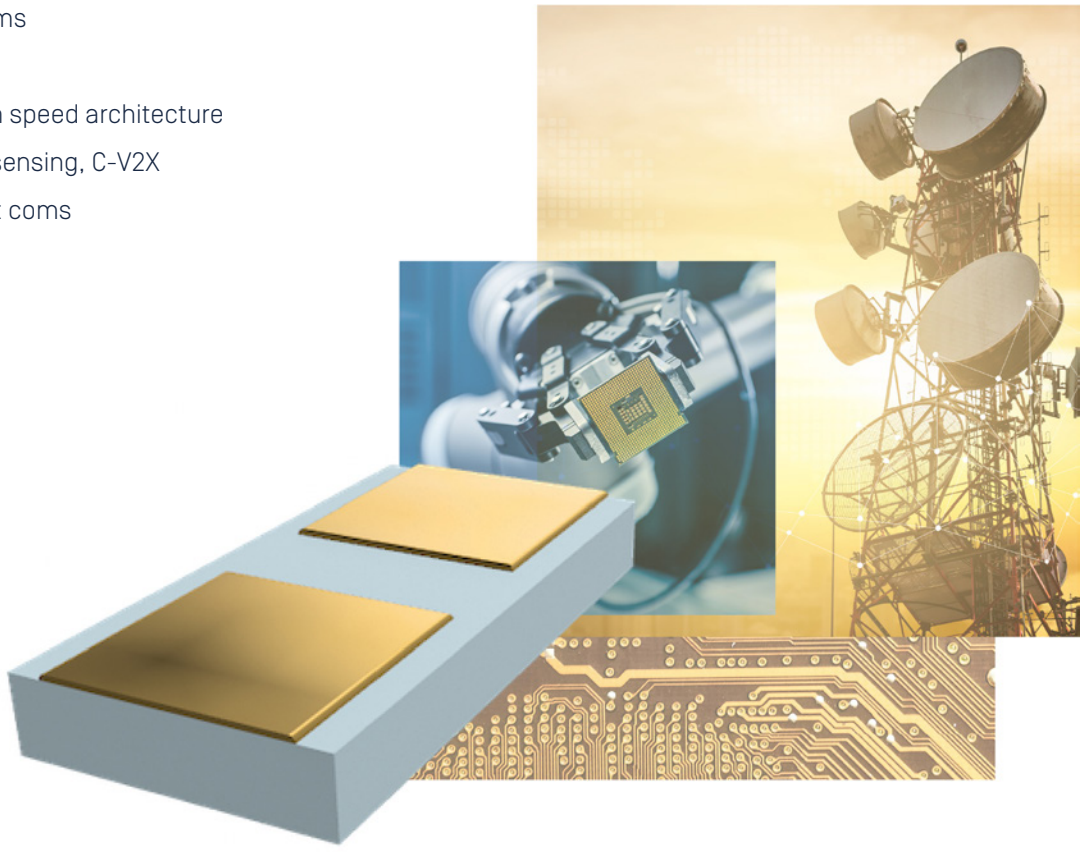
Featured Capacitor Company

Quantic™ Eulex

Introducing the Innovative "Eulex Gap Capacitor"

A High Frequency Ceramic Capacitor Technology Disrupting the RF & Microwave Industry

- 5G and next generation telecoms
- Test & Measurement
- AI & Machine learning new high speed architecture
- Automotive, mmwave / vision sensing, C-V2X
- Military & aerospace radar / sat coms
- Photonics



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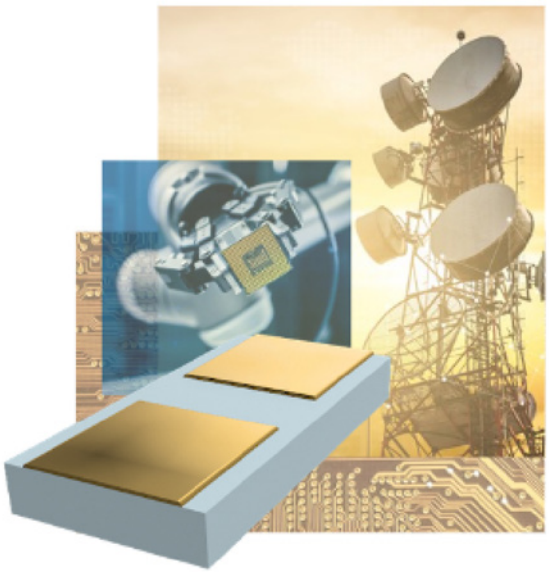
Introducing the "Eulex Gap Capacitor"



The Eulex Gap Capacitor, developed by Quantic™ Eulex, is an innovative solution designed to revolutionize the RF and microwave industry. This novel design overcomes the limitations of traditional single-layer capacitors (SLCs) by offering significant performance and cost benefits. The Eulex Gap Capacitor features an internal structure that creates a true single-layer capacitor without requiring wire-bonding. This design enables a capacitance gain of up to 20 times compared to competitors, using the same dielectric, case size, and voltage.

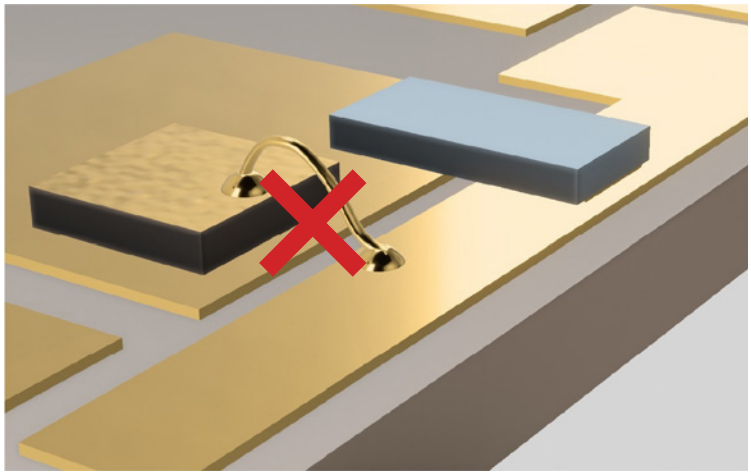
Advantages

- **Increased Capacitance:** As the configuration of the electrodes generates more capacitance from the same dielectric material, the Eulex Gap Capacitor can achieve up to twenty (20) times more capacitance than competitors' designs.
- **Simplified Dielectric Selection:** The Eulex Gap Capacitor covers our competitors' full range of capacitance offerings using only three (3) dielectrics, compared to up to twenty-six (26) dielectrics required by competitors.
- **Elimination of Wire-Bonding:** The Eulex Gap Capacitor can be flip-chip or surface mounted, completely eliminating the need for wire-bonding.
- **Improved Performance:** Independent testing has shown the Eulex Gap Capacitor maintains excellent performance, with no dB loss at lower frequencies and less than 1 dB loss at 67 GHz
- **Lower Manufacturing Costs:** The efficient design of the Eulex Gap Capacitor results in lower manufacturing costs, which are passed on to customers.

Key Applications

For DC blocking, coupling, RF bypass, filtering, and tuning in:

- Photonics
- Synchronous Optical Networking (SONET)
- Receive & Transmit Optical Sub-Assemblies (TOSA/ROSA)
- Transimpedance Amplifiers (TIA)
- High-Speed Data
- Test Equipment
- Excellent solution for strip-line or co-planar waveguide

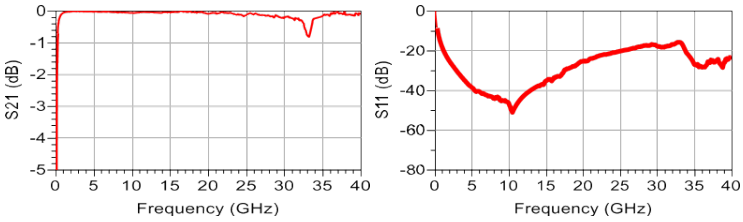


The "Eulex Gap Capacitor" Outperforms the Competition

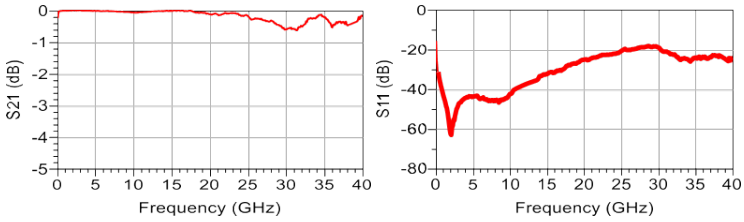
- Up to 20x capacitance
- Fewer dielectrics provide simpler part selection
- High reliability
- SMD eliminates need for wire bond
- Broadband performs to 67GHz

Performance Data

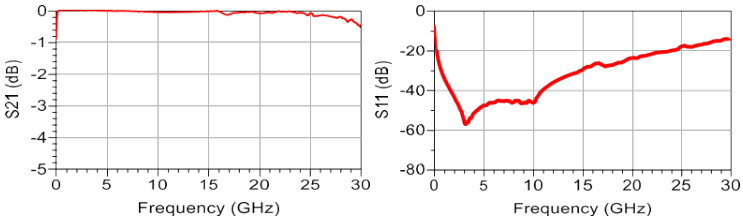
XGE40Q130K
Tested on .020" thick roger board fixture with .008" gap.



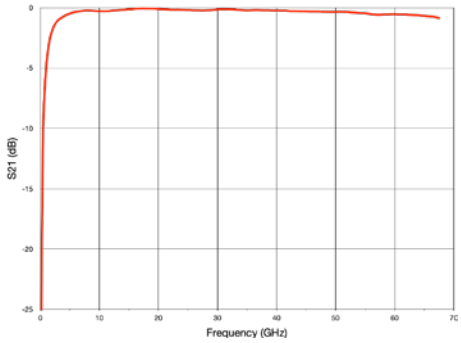
XGE40C271K
Tested on .020" thick roger board fixture with .008" gap.



XGE40N750K
Tested on .020" thick roger board fixture with .008" gap.



XGE15P1R3B Insertion Loss



Modelithics®

Quantic X-Microwave

Our Design Kit of Common Part Sizes

Eulex Part Number	Case Size	Capacitance	Voltage	TCC	Termination
XGG10X300KGW	0201	30pF	50V	±15%	Au
XGG10X820KGW	0201	82pF	50V	±15%	Au
XGG15P0R5BGW	0402	0.5pF	50V	±30ppm	Au
XGG15P0R7BGW	0402	0.7pF	50V	±30ppm	Au
XGG15P1R0BGW	0402	1.0pF	50V	±30ppm	Au
XGG15Q 1R5CGW	0402	1.5pF	50V	±30ppm	Au
XGG15Q2R0CGW	0402	2.0pF	50V	±30ppm	Au
XGG15C100KGW	0402	10pF	50V	+0/-5%	Au
XGG15C300KGW	0402	30pF	50V	+0/-5%	Au
XGG15X820KGW	0402	82pF	50V	±15%	Au
XGG15X181MGW	0402	180pF	50V	±15%	Au
XGG15Y102MGW	0402	1000pF	50V	+22/82%	Pt/Ag
XGG6025Y202MGW	0603	3000pF	50V	+22/82%	Pt/Ag

* Other sizes, values and termination materials are available

High Reliability (Life) Tests

XGB15N100ZG

W90-11 Life Test (20pcs)				
100GOhms	Avg Cap (pF)	DF%	IR	Date
Initial	12.73	20 pass	20 pass	10/30/2023
24hrs	10.94	20 pass	20 pass	10/31/2023
100hrs	12.46	20 pass	20 pass	11/3/2023
500hrs	12.12	20 pass	20 pass	11/20/2023
1000hrs	12.24	20 pass	20 pass	12/11/2023
2000hrs	12.30	20 pass	20 pass	1/22/2024
3000hrs	12.27	20 pass	20 pass	3/3/2024
4000hrs	12.35	20 pass	20 pass	4/14/2024
5000hrs	12.35	20 pass	20 pass	5/26/2024
6000hrs	12.13	20 pass	20 pass	7/7/2024
7000hrs	12.38	20 pass	20 pass	8/18/2024

Rated Voltage: 100 Vdc	IR 025°C: 100 GΩ, 100 vdc
Capacitance: 10pf + 80%/- 20%	IR @125°C: NA
Dissipation Factor: 0.15% Max	Voltage Conditioning: 200 vdc
DWV: 250 Vdc	

Humidity Test (12 pcs)				
240Hrs	Avg Cap (pF)	DF	IR	Date
Initial	11.84	12 pass	12 pass	12/5/2023
Final	13.26	12 pass	12 pass	12/15/2023

XGB15N120MG

W90-13 Life Test (20pcs)				
100GOhms	Avg Cap (pF)	DF%	IR	Date
Initial	13.73	20 pass	20 pass	11/27/2023
24hrs	13.80	20 pass	20 pass	11/28/2023
100hrs	13.76	20 pass	20 pass	12/1/2023
500hrs	13.78	20 pass	20 pass	12/18/2023
1000hrs	13.77	20 pass	20 pass	1/8/2024
2000hrs	13.65	20 pass	20 pass	2/19/2024
3000hrs	13.62	20 pass	20 pass	3/31/2024
4000hrs	13.70	20 pass	20 pass	5/12/2024
5000hrs	13.77	20 pass	20 pass	6/23/2024
6000hrs	13.77	20 pass	20 pass	8/4/2024

Rated Voltage: 100 Vdc	IR 025°C: 100 GΩ, 100 vdc
Capacitance: 12pF +/- 20%	IR @125°C: NA
Dissipation Factor: 0.15% Max	Voltage Conditioning: 200 vdc
DWV: 250 Vdc	

XGB15C470MG

W50-11 Life Test (20pcs)				
100GOhms	Avg Cap (pF)	DF%	IR	Date
Initial	46.10	20 pass	20 pass	10/30/2023
24hrs	43.68	20 pass	20 pass	10/31/2023
100hrs	44.29	20 pass	20 pass	11/3/2023
500hrs	43.53	20 pass	20 pass	11/20/2023
1000hrs	43.27	20 pass	20 pass	12/11/2023
2000hrs	43.15	20 pass	20 pass	1/22/2024
3000hrs	37.95	20 pass	20 pass	3/3/2024

Rated Voltage: 100 Vdc	IR 025°C: 100 GΩ, 100 vdc
Capacitance: 4/pF +/- 20%	IR @125°C: NA
Dissipation Factor: 0.15% Max	Voltage Conditioning: 200 vdc
DWV: 250 Vdc	

XGB15X121MG

W02-12 Life Test (20pcs)				
100GOhms	Avg Cap (pF)	DF%	IR	Date
Initial	123.35	20 pass	20 pass	10/20/2023
24hrs	110.15	20 pass	20 pass	10/21/2023
100hrs	103.95	20 pass	20 pass	10/24/2023
500hrs	106.10	20 pass	20 pass	11/10/2023
1000hrs	104.3	20 pass	20 pass	12/1/2023
2000hrs	102.9	20 pass	20 pass	1/12/2024
3000hrs	99.14	20 pass	20 pass	2/22/2024
4000hrs	98.97	20 pass	20 pass	4/4/2024
5000hrs	99.05	20 pass	20 pass	5/16/2024
6000hrs	98.2	20 pass	20 pass	6/27/2024

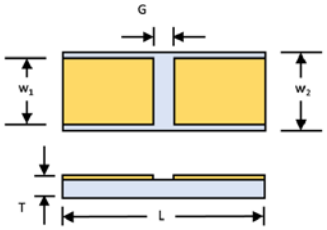
Rated Voltage: 100 vic	IR 025°C: 100 GΩ, 100 vdc
Capacitance: 120pF +/- 20%	IR @125°C: NA
Dissipation Factor: 2.5% Max	Voltage Conditioning: 200 vdc
DWV: 250 Vdc	

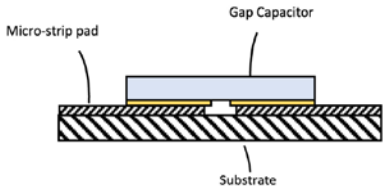
Humidity Test (12 pcs)				
240Hrs	Avg Cap (pF)	DF	IR	Date
Initial	122.75	12 pass	12 pass	12/5/2023
Final	121.24	12 pass	12 pass	12/15/2023

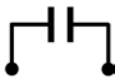
XGB15P2R4MG

W40-12 Life Test (20pcs)				
100GOhms	Avg Cap (pF)	DF%	IR	Date
Initial	2.36	19 pass	19 pass	10/20/2023
24hrs	2.31	19 pass	19 pass	10/21/2023
100hrs	2.30	19 pass	19 pass	10/24/2023
500hrs	2.29	19 pass	19 pass	11/10/2023
1000hrs	2.26	19 pass	19 pass	12/1/2023
2000hrs	2.29	19 pass	19 pass	1/12/2024
3000hrs	2.35	19 pass	19 pass	2/22/2024
4000hrs	2.26	19 pass	19 pass	4/4/2024
5000hrs	2.28	19 pass	19 pass	5/16/2024
6000hrs	2.26	19 pass	19 pass	6/27/2024
7000hrs	2.27	19 pass	19 pass	8/8/2024

Rated Voltage: 100 Vdc	IR 025°C: 100 GΩ, 100 vdc
Capacitance: 2.4pF +/- 20%	IR @125°C: NA
Dissipation Factor: 0.15% Max	Voltage Conditioning: 200 vdc
DWV: 250 Vdc	







Quantic™ Eulex

Standard Dimensions

SIZE	XG10	XG15	XG20	XG25	XG30	XG35	XG40	XG50
Pad Width [W_1] inch (mm)	0.010 ±0.003 (0.254 ±0.076)	0.015 ±0.003 (0.381 ±0.076)	0.020 ±0.003 (0.508 ±0.076)	0.025 ±0.003 (0.635 ±0.076)	0.030 ±0.003 (0.762 ±0.076)	0.035 ±0.005 (0.889 ±0.127)	0.040 ±0.005 (1.016 ±0.127)	0.050 ±0.010 (1.27 ±0.254)
Chip Width [W_2] inch (mm)	0.016 Max (0.406 Max)	0.020 Max (0.508 Max)	0.025 Max (0.635 Max)	0.030 Max (0.762 Max)	0.035 Max (0.889 Max)	0.045 Max (1.143 Max)	0.050 Max (1.27 Max)	0.065 Max (1.615 Max)
Length [L] inch (mm)	0.023 Max (0.584 Max)	0.040 Max (1.016 Max)	0.050 Max (1.270 Max)	0.080 Max (2.032 Max)	0.080 Max (2.032 Max)	0.080 Max (2.032 Max)	0.080 Max (2.032 Max)	0.080 Max (2.032 Max)
Thickness [T] inch (mm)	0.005 ±0.002 (0.127 ±0.051)	0.005 ±0.002 (0.127 ± 0.051)	0.005±0.002 (0.127 ±0.051)	0.005 ±0.002 (0.127 ±0.051)	0.005±t0.002 (0.127±0.051)	0.007 ±0.002 (0.178±0.051)	0.007±40.002 (0.178 ±0.051)	0.007±0.002 (0.178 ±0.051)
Gap [G] inch (mm)	0.003 Nom (0.076) Nom	0.005 Nom (0.127) Nom	0.005 Nom (0.127) Nom	0.005 Nom (0.127) Nom	0.005 Nom (0.127) Nom	0.005 Nom (0.127) Nom	0.010 Nom (0.254) Nom	0.010 Nom (0.254) Nom

Custom dimensions also available

Selection Guide

		XG15		XG20		XG25		XG30		XG35		XG40		XG50	
	Dielectric	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
6.3 Volt	P	0.95	1.1	1.8	2	2.8	3.3	4	4.7	5.7	6.5	7.5	8.7	11	13
	Q	3.2	3.6	5.8	6.6	9.1	10	13	15	18	22	24	28	40	44
	N	14	16	25	29	40	47	60	68	82	91	110	120	170	190
	C	48	56	88	100	140	160	200	240	280	330	370	430	590	680
	X	410	470	760	870	1200	1400	1700	2000	2400	2800	3200	3600	5000	5800
	Y	1700	2000	3200	3600	5000	5700	7400	8400	10000	12000	13000	15000	21000	24000
16 Volt	P	0.65	0.75	1.2	1.4	1.9	2.2	2.7	4.4	3.7	4.4	4.8	5.6	7.5	8.7
	Q	2.2	2.5	3.9	4.6	6.2	7.2	9	10	12	14	16	18	25	3
	N	9.4	11	17	20	27	31	39	45	51	60	68	80	108	125
	C	33	39	60	70	94	110	140	160	180	210	240	280	370	430
	X	290	330	510	600	810	930	1100	1300	1600	1800	2100	2400	3200	3800
	Y	1200	1400	2100	2500	3400	3900	4900	5600	6500	7600	8600	10000	13000	15000
25 Volt	P	0.55	0.65	1	1.8	1.6	1.8	2.3	2.6	3.1	3.5	4	4.6	6.3	7.1
	Q	1.9	2.1	3.3	3.7	5.2	5.8	7.5	8.5	10	11	13	15	20	24
	N	8	9	14	16	23	25	33	36	43	50	58	65	90	100
	C	27	33	50	57	80	90	110	130	150	180	200	220	320	360
	X	240	270	430	490	680	750	970	1100	1300	1500	1800	2000	2700	3000
	Y	1000	1200	1800	2000	2800	3200	4000	4600	5500	6200	7200	8200	11000	13000
50 Volt	P	0.5	0.55	0.9	1	1.4	1.5	2	2.2	2.7	3	3.5	3.9	5.4	6
	Q	1.6	1.8	2.9	3.2	4.5	5	6.5	7.2	8.8	10	12	13	18	20
	N	7	7.8	12	14	20	22	27	33	38	43	49	56	80	86
	C	25	27	43	49	68	75	100	110	130	150	170	190	270	300
	X	210	230	370	420	580	650	840	930	1200	1300	1500	1700	2400	2600
	Y	870	970	1600	1800	2500	2700	3500	3900	4800	5200	6200	6800	9800	11000
100 Volt	P	0.4	0.45	0.75	0.82	1.2	1.3	1.6	1.8	2.3	2.5	2.9	3.3	4.6	5.1
	Q	1.3	1.5	2.4	2.7	3.7	4.3	5.4	6.2	7.2	8.2	9.6	11	15	18
	N	5.8	6.6	11	12	16	18	23	27	33	36	39	47	65	72
	C	20	23	37	40	57	640	82	91	110	130	150	160	230	270
	X	180	200	330	360	490	560	700	780	960	1100	1200	1400	2000	2200
	Y	750	820	1300	1500	2000	2300	3000	3300	4000	4500	5200	5800	8200	9100

Part Numbering

XG	L	40	X	302	K	G	W
Gap Capacitor	Voltage Code	Case Size	Dielectric Type	Capacitance Value	Capacitance Tolerance	Metallization Type	Packaging

Dielectric Type	P Porcelain	Q NPQ (Class I)	N NPO (Class I)	C NCS (Class I)	X X7R (Class II)	Y Y5V (Class III)
Operating Temperature Range	-55°C to 125°C	-55°C to 125°C	-55°C to 125°C	-55°C to 125°C	-55°C to 125°C	-30°C to +85°C
Temperature Coefficient [/°C]	Neg.	+25ppm	+30ppm	+0-5%	+15%	+22% -82%
Max Dissipation Factor	0.01%	0.10%	0.15%	0.05%	2.50%	4.00%
Min Insulation Resistance @ 25°C	100GΩ	100GΩ	100GΩ	100GQΩ	100GΩ	10GΩ
Min Insulation Resistance @ 125°C	100GΩ	10GΩ	10GΩ	10GΩ	10GΩ	1GΩ

Capacitance Code	
R05	0.05pF
0R2	0.20pF
1R0	1.0pF
2R7	2.7pF
270	27pF
271	270pF
102	1000pF

Below 10pF, R denotes a decimal point. For 10pF and above, first 2 digits are significant values and 3rd digit indicates the number of zeros.

Capacitance Tolerance		
B	+0.10pF	(P,Q) <9.1pF
C	+0.25pF	(P,Q) <9.1pF
D	+0.50pF	(P,Q) <9.1pF
G	+2%	(P,Q) 10pF
J	+5%	(P,Q,N)>10pF
K	+10%	(All Dielectrics)
M	+20%	(All Dielectrics)
Z	+80/-20%	(All Dielectrics)

Voltage Code	
A	6.3VDC
E	16VDC
L	25VDC
G	50VDC
B	100VDC

Metallization	
G	Gold (99.9%, 100µin min)

Packing	
W	ESD Waffle Pack

Electrical & Mechanical Characteristics	
Voltage Rating:	6.3, 16, 25, 50, 100 WVDC
Insulation Resistance:	See Chart (Dielectric code)
Dielectric Withstanding Voltage:	250% of WVDC
Dissipation Factor:	See Chart (Dielectric code)
Capacitance Test:	Values > 1000pF (1.0±0.2 VRMS @ 1KHz, 25°C) Values ≤ 1000pF (1.0±0.2 VRMS @ 1MHz, 25°C)
Shear Strength:	Size dependent
Metallization Thickness:	100µin min (99.9% Au)

Quantic Eulex

Vertical Layer MLCC

Wire-Bondable Capacitors in Smallest Case Sizes Available

Vertical layer capacitors are multi-layer ceramic capacitors (MLCC) oriented with their terminations at the top and bottom. They feature high-purity gold conductors ideal for wire bonding, soldering, or epoxy die attach. Quantic Eulex vertical layer capacitors are Class II dielectric and are available in a range of sizes suitable for IC packages and amplifier applications.

Advantages

- High self-resonance frequencies
- Capacitance values up to 100nF
- Voltages to 100V Small case sizes from 1515 up Class II (-55°C to 125°C)
- Custom sizes available
- Roadmap for High
- Temperature to 300°C

Applications

- DC Blocking over a wide frequency range
- RF Bypass
- Filtering Tuning
- Microwave

Specifications/Test Condition	Dielectric	
	X5R (D)	X7R (X)
Operating Temperature Range	–55°C to 85°C	–55°C to 125°C
Temperature Coefficient	±15%	±15%
Capacitance Test	1kHz @ 1VAC rms	1kHz @ 1VAC rms
Dissipation Factor	+10% Max	+5% Max
Insulation Resistance @ 25°C	≥500MΩ µF	≥1000MΩ µF
Dielectric Withstanding Voltage	250% WVDC	250% WVDC
Wire Bond Pull Strength (0.001" dia. Au wire)	3 grams min	3 grams min
Shear Strength	Size-Dependent	Size-Dependent

The bottom of the vertical layer capacitor is typically soldered or die attached to a circuit, and the top connection is made by wire-bond.

Download the Vertical Layer MLCC Data Sheet and Selection Guide.

RoHS

Quantic Eulex develops innovative ceramic components for the most demanding high frequency microwave, millimeter-wave, and 5G applications. Quantic Eulex solutions deliver design advantages through small-footprint, low profiling packaging, and a wide voltage range— fully tested up to 67 GHz with a roadmap planned from 6.5 to 100 GHz. The reliability of Quantic Eulex capacitors is well established at temperatures ranging from –55°C to +125°C.

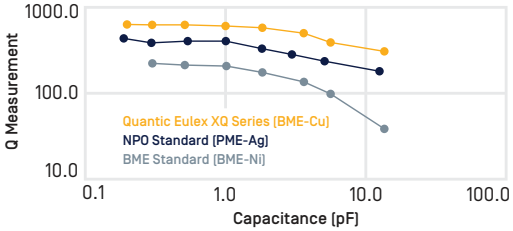
Monterey Park, CA | 323.266.6603 | info@quanticeulex.com | quanticeulex.com

Quantic Eulex

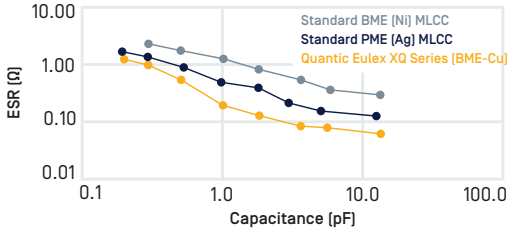
Ultra-High Q MLCC

Ultra-Low ESR, RF and Microwave Capacitor

XQ Series 0402, Q Level Comparison @ 1 GHz



XQ Series 0402, ESR Level Comparison @ 1 GHz



Specifications/Test Condition

	NP0 (Class I)	X8G (Class I)
Size	01005, 0201, 0402, 0505, 0603, 0805, 1111	0603, 0805
Capacitance1	0.1pF to 1000pF	0.2pF to 82pF
Capacitance Tolerance	Cap ≤ 5pF: A(±0.05pF), B(±0.1pF), C(±0.25pF) 5pF < Cap < 10pF: B(±0.1pF), C(±0.25pF), D(±0.5pF) Cap ≥ 10pF: F(±1%), G(±2%), J(±5%)	
Rated Voltages (WVDC)	6.3V, 10V, 25V, 50V, 100V, 200V, 250V, 500V, 1500V	250V, 500V
Q2	01005, 0201, 0402/25V to 50V: Cap < 30pF: Q ≥ 400 + 20 C; Cap ≥ 30pF: Q ≥ 1000 0402/100 V~200V, 0603, 0805, 0505, 1111: Cap < 30pF: Q ≥ 800 + 20 C; Cap ≥ 30pF: Q ≥ 1400	
Insulation Resistance	≥ 10GΩ @ 25°C or ≥ 100GΩ @ 125°C	
Operating Temperature	–55°C to +125°C	–55°C to +150°C
Capacitance Charge (TC)	±30ppm/°C	
Dissipation Factor (DF)	0.10% Max	0.15% Max

Features

- Ultra-High Q
- Ultra-Low ESR/ESL
- Ultra-Stable dielectric characteristic (± 30ppm/°C)
- Pb-free terminations and copper electrodes
- Capacitance (0.1 to 1000pF)
- Available in narrow tolerances
- Size 01005 to 1111
- Voltage up to 1500V
- Operating temperature to 150°C (X8G)

Applications

- Power Station
- Base Station
- UHF/Microwave
- Timing Circuits
- Mixers
- 5G Networks

Download the Ultra-High Q MLCC Data Sheet and Selection Guide.

RoHS

Quantic Eulex develops innovative ceramic components for the most demanding high frequency microwave, millimeter-wave, and 5G applications. Quantic Eulex solutions deliver design advantages through small-footprint, low profiling packaging, and a wide voltage range— fully tested up to 67 GHz with a roadmap planned from 6.5 to 100 GHz. The reliability of Quantic Eulex capacitors is well established at temperatures ranging from –55°C to +125°C.

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Quantic™ Eulex

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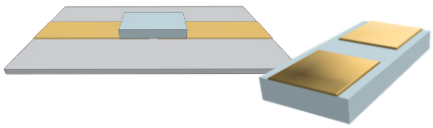
Ceramic Capacitors for the most demanding high frequency, microwave & millimeter-wave applications.

Innovative technology allows ceramic capacitors to be manufactured with higher capacitance using fewer dielectrics while improving temperature and frequency performance in a high reliability package.

- Up to 20X capacitance
- Frequencies exceeding 100GHz
- Ultra-high Q dielectrics
- Simple part selection
- Wide range of voltages
- High Reliability

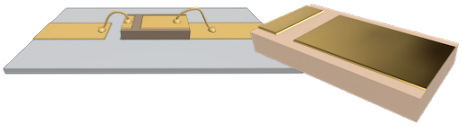
Featured Products



Gap Capacitors

Microwave / millimeter wave gap capacitor for DC blocking, RF bypass, impedance matching, filtering, tuning, coupling.

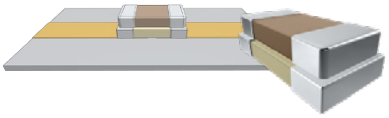
- 10X Capacitance Design
- Ultra-Stable High Q Dielectrics
- 6.3 Volt to 100 Volt
- Standard and Custom Sizes Available
- No Wire-bond



Binary Capacitors

Suitable for Ga-As, 5G, telecom, industrial, military and space applications requiring high self resonance frequencies to 100GHz

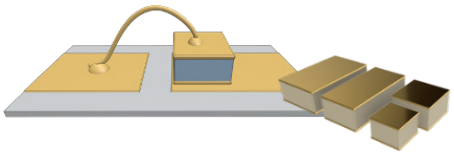
- 20X capacitance design
- Wire-bondable
- Additional Capacitor on Device
- Configurable Design



Broadband Blocks

Broadband Block combines Eulex patented Gap Capacitor with high capacitance MLCC. For microwave/mm-wave, optical transceivers, broadband test equipment.

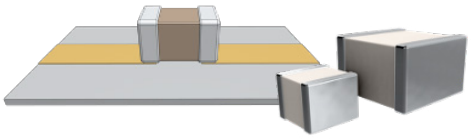
- Size 0201 thru 0805 / 10, 100, 220nF
- Low insertion Loss to 100GHz
- Lowest Profile



Vertical Layer

High capacitance, wire-bondable MLCC. Class II dielectric for RF Bypass and DC Blocking for wide frequency range.

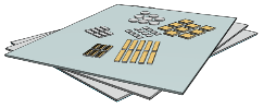
- Miniature Form Factor (1515-5080)
- Wire-bondable, Au Terminations
- Class II (-55°C to 125°C)
- High Frequency Response



Ultra-High Q

High frequency performance MLCC (high Q / low ESR design). Economical solution for demanding RF applications.

- Size 01005 thru 1111
- 0.1pF to 1000pF
- 6.3 volt to 1500 volt
- NP0 dielectric (±30ppm / °C)



Substrates

Eulex has the capability to manufacture custom substrates from a range of ceramic materials with thin or thick film metallization and inclusion of thick film resistors.

- High Purity AlO
- High Q dielectrics >100GHz
- AlN with Exceptional Thermal Conductivity
- Custom Size & Shape
- Metallization Options

Quantic™ Evans

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SWaP Optimized Capacitors for Mission-Critical Applications

Quantic Evans hybrid wet tantalum capacitors are the most power dense in the industry, providing significant SWaP savings when compared to traditional capacitor technologies. Their trusted and proven products are qualified and in service with all Tier 1 aerospace and defense contractors.

- Voltage ranges from 10V - 125V (higher for Capacitor Bank Assemblies)
- Ultra-low ESR
- Withstands extreme temperature, shock, and vibration environments
- Unlimited Shelf Life
- Space Grade (routinely screened and qualified to NASA-INST 002); ESA approved
- ECCN EAR99

Featured Products

TDB Series

- 1.0" x 1.0" square base (5 heights)
- Voltage Range: 10V-125V
- Cap Range: 750uF – 150,000uF

TDD Series

- 1.4" x 1.4" square base (6 heights)
- Voltage Range: 10V-125V
- Cap Range: 1.5mF - 300mF
- Ultra low ESR
- DLA 15010

TDE Series

- 1.4" x 1.4" square base (6 heights)
- Voltage Range: 60V-110V
- Cap Range: 2.2mF - 25mF
- Ultra low ESR

THQ Series

- 1.4" round base (5 heights)
- Voltage Range: 10V-125V
- Cap Range: 1.1mF - 200mF
- >over 20 years of proven field service
- DLA 04001, DLA 04003, DLA 04004, DLA 09022

THQA2/M2/S2 Series

- 0.6" round base
- M2 - mounting case option
- S2 – High Shock Option
- Voltage Range: 10V-125V
- Cap Range: 215uF – 10,000uF
- DLA 04005

HyCap Series

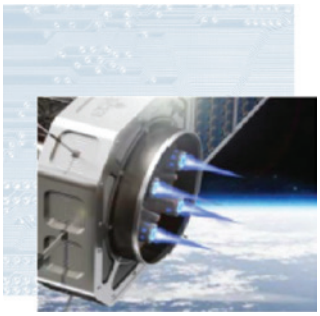
- Axial Form Factor
- 3 case sizes – T1, T2, T4
- Voltage Range: 10V-150V
- Cap Range: 2uF – 2700uF
- High temp 200°C options available
- DLA 10004, DLA 93026

Capattery series

- Double layer carbon capacitor technology
- Voltage range: 5.5V – 11V
- Capacitance range: 0.47F – 1F
- High shock options available

Modules

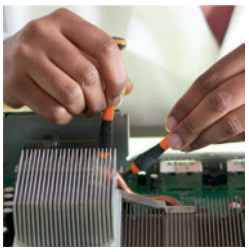
- Configurable with any
- Quantic Evans capacitor
- Available in 2 – 8 capacitor assemblies
- Can choose connector, wiring,orien tation, and more



Common Applications

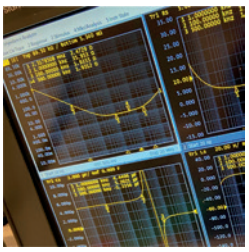
- Radar (T/R module)
- Power hold-up (MIL-STD-704 / DO 160)
- Propulsion in Space
- Oil & Gas
- Directed Energy
  - Electromagnetic pulse
  - Pulsed laser
  - High power microwave Electric

Design



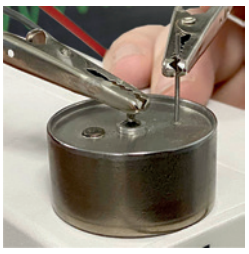
The operating principal behind Quantic Evans hybrid technology lies within the combination of a high voltage bearing Tantalum Pentoxide (Ta205) anode and a Ruthenium Oxide (RuO2) cathode. When paired, this combination yields the most power dense capacitor in the industry. Quantic Evans capacitors come in a rugged, hermetically sealed, tantalum case and have an unlimited shelf life. Their robust design allows for extreme duty cycles and can withstand high currents, high temperature, and high shock/vibration environments. They are well suited for applications from undersea to deep space and everything in between.

SWaP Optimized



Quantic Evans capacitors are 1/10th the size of traditional wet tantalum capacitors and ¼ the size of the industry's leading aluminum electrolytic capacitor. They also provide high capacitance ratings, long operating life, low ESR, and high current handling capability in a hermetically sealed Hi-Rel package.

Testing



Quantic Evans is certified to ISO9001 and AS9100. Our product is 100% serialized, Inspected, characterized and fully traceable. Every capacitor that is built undergoes over 48 hours of extensive testing which has given it its unmatched reputation for quality and reliability. These capacitors have been proven in over 20 years of field service and numerous customer application qualification tests for use in Military and Aerospace Systems.

Quantic™ Evans

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Quantic™ Paktron

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Stacked, Multilayer Polymer (MLP) Film Capacitors for Mission-Critical Applications

Quantic™ Paktron stands out as a pioneer in capacitor technology with its innovative stacked, multilayer polymer (MLP) construction. This advanced design offers significant advantages over conventional wound film capacitors, making Quantic™ Paktron a preferred choice across diverse markets including automotive, commercial, high-reliability, military, space, and telecommunications sectors. These stacked, multilayer polymer (MLP) film capacitors serve as an excellent alternative to ceramic capacitors in critical "cannot fail" applications that require robust mechanical and electrical performance.

All Quantic™ Paktron products are design registrable.

Angstor

- 0.10uF – 10uF
- 100VDC – 1200VDC
- 7.5mm – 15mm lead spacing

Capstick

- 0.33uF – 20uF
- 50VDC – 1200VDC
- 10mm – 15mm lead spacing
- SMD versions available

Quencharc RC-Snubber

- 200VDC – 1600VDC
- up to 2W power ratings
- UL/CSA versions available

New High Voltage MLP

- <2uF typical values available
- 1000VDC-1200VDC
- 27.5mm lead spacing
- SMD and thru-hole options

Advantages

Unique advantages over conventional wound film capacitors
- higher frequency operation
- lower ESR and ESL
- High dV/dT

Self -Encased Design
- volumetrically efficient square shape
- lightweight, higher capacitance density compared to boxed, wound capacitors
- mechanically resilient body

Ultra-High ripple current ratings
- ultra-low D.F. due to stacked construction, specialty dielectrics
- unique design improves heat dissipation

High stability
- zero DC-bias derating
- low temperature coefficients
- 20+ year life expectancy without significant cap degradation

Wide Operating Temperature range
- -55°C to +125°C, vs polypropylene (-55°C to 85°C [105°C]): stable parameters across this range

Self Healing
- during a fault condition, the affected area of the capacitor is "cleared", isolating the fault and allowing the capacitor to continue to operate as normal
- mechanically flexible, no susceptibility to piezoelectric effect, surge cracking

Standard values
- corresponding to the needs of wide bandgap switching applications
- custom values available

Lead Times 8-10 weeks, less in some cases

Manufactured in USA

Applications

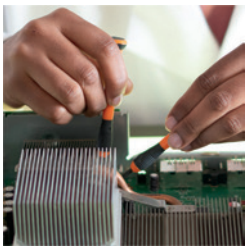
- EMI filtering
- VPX Systems
- L-C filtering (power converters, power amplifiers, etc.)
- Low energy pulse applications (ignition, systems, etc)
- Boost converters
- Switched mode power supplies
- DC Block Applications (HF, plasma amplifiers, etc)
- DC link applications, (low energy)
- Voltage smoothing,
- Coupling and de-coupling
- Timing/tuning

AEC-Q200 qualification expected in Q4 2024, with final testing underway

Quantic Paktron MLP Design

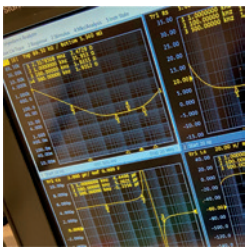
Advantages

- Stable under Bias Voltage
- Stable under AC Voltage
- Stable over Temperature
- Mechanically Flexible (doesn't crack)
- Little to no derating required
- Self Healing - Does not fail short



Construction

Quantic Paktron specializes in Ultra Low ESR multilayer polymer film capacitors and leads in Film-Chip and SMT designs. The metallized electrode used in Quantic Paktron's proprietary Interleaf® Technology process assures reliable performance. Multilayer Polymer (MLP) surface mount, chip and lead framed capacitors are replacing MLC (ceramic) capacitors in higher voltage and reliability-sensitive equipment. This includes mobile and airborne power bus, server, PFC, renewable energy, inverter, and motor drive applications. Quantic Paktron holds in excess of seventy-five patents for film capacitors and machine design.



Quality

Quantic Paktron's unique approach to quality assurance sets us apart in the multiindustry sales markets. Since 1953, we have crafted and refined our own documented quality system tailored specifically to the capacitor industry. This system not only meets but exceeds the requirements of standardized systems in various markets, allowing us to deliver unrivaled products unrestricted by market limitations. At Quantic Paktron, our relentless focus on quality assurance drives us to consistently produce the finest products in the industry. Our manufacturing facility is ISO 9001:2015 certified.

Quantic™ Paktron

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Quantic™ UTC

718 Monterey Pass Road
Monterey Park, CA 91754
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TEL 323-266-6603
URL quanticutc.com
EML info@quanticutc.com

A Global Leader in Multilayer Ceramic Capacitors

Quantic™ UTC specializes in **multilayer ceramic capacitors and high frequency switch mode power supply capacitors**, both standard and custom, for high-reliability and mission-critical applications in the military, aerospace, telecommunications, and industrial industries.

Industries

- Military and Aerospace
- Space (High Reliability)
- Industrial
- Telecommunications
- Computing

Applications

- Filtering
- Snubbers
- Energy Storage
- Power Conversion
- Coupling - DeCoupling
- Munitions

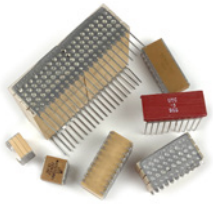
Featured Products

MLCC

- Voltage Range: 6.3V-12KV
- Cap Range: 1.2pF - 220uF
- Size: 01005 - 13060
- Dielectric: NP0, X7R, X5R
- Application: Industrial and commercial

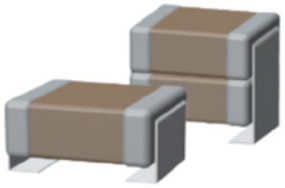
SMPS

- Voltage Range: 50V-500V
- Cap Range: .01uF – 27uF
- Size: Case Code Size 1-6
- Dielectric: NP0, X7R
- Application: Military, high end protection



Military (MIL-PRF-49470)

- B Level Voltage: 50V-500V
- Cap Range: 0.15uF - 47uF
- Size: Case Size 3, 4, 5
- Dielectric: BX, BR, BQ
- T (Space) Level Qualified Products
- Application: Military Mil-Prf-49470

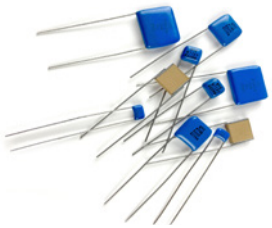


MegaCap Type (BC Series)

- Voltages to 1000V
- Higher capacitance on same footprint
- Dielectric: C0G and X7R
- Applications: Industrial Smoothing and Decoupling, resonant charging systems, DC to DC conversion, DC blocking, power supplies

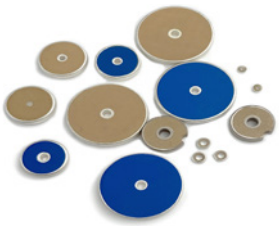
Pulse Energy

- Available in High temperature up to 250 °C
- Up to 10KV range for single and multi-pulse firing applications
- Custom sizes, capacitance, and voltage ranges are available
- Applications: Missiles, Downhole, detonation



Radial Leaded

- Voltage Range: 250V-10,000V
- Cap Range: .05pF - .68uF
- Size: .25 x .22 to .55 x .28
- Dielectric: NP0, X7R



Discoidal

- Cap Range: .05pF – 7.2uF
- Voltage Range: 25V-3000V
- Size: 0502 - 6429
- Temperature Dielectric: NP0, X7R
- Application: EMI suppression filter

Planar Arrays

- Voltage Range: 50V-2000V
- Cap Range: 100pF – uF
- Size: Custom/Standard: Circular,
- Sub D, ARINC
- Dielectric: NP0, X7R
- Application: Connectors, low-pass filter

Capacitors Portfolio for Mission Critical Applications

Quantic offers a diverse range of capacitor technologies, including multilayer polymer film capacitors, multilayer ceramic capacitors and assemblies, high-frequency RF & Microwave ceramic capacitors, as wel as the most power-dense hybrid wet tantalum capacitors in the industry. These capacitors are designed to deliver critical performance in defense, aerospace, energy, and communications applications, where reliability, space efficiency, weight reduction, and power optimization are critical requirements.

Quantic™ Evans

Hybrid Wet Tantalum

Evans hybrid wet tantalum capacitors are the most power dense in the industry, providing significant SWaP savings compared to traditional capacitor technologies.

- Voltage range from 10 to 125V
- Cap values ranges from 22uF-1F
- Rugged hermetically sealed design withstands high shock & vibration
- Ultra-low ESR “enable” high-current applications
- Space Grade (Qualified to NASA-INST-002)

www.quanticevans.com

Quantic™ Paktron

Stacked, Multi-layer Polymer (MLP) Film

Paktron’s Multilayer Polymer capacitors offer a ceramic capacitor alternative in specific “cannot fail” applications that demand robust mechanical & electrical solutions.

- Highest ripple current rating per C*V in the industry
- Offers better electrical stability over temperature compared to XB
- Self healing - does not fail short
- Mechanically flexible does not crack
- Voltage ratings from 50VDC-1200VDC
- Cap values from 0.1uF-20uF

www.quanticpaktron.com

Quantic™ Eulex

High Frequency RF & Microwave Ceramic

Eulex's Patented technology allows ceramic capacitors to be manufactured with higher capacitance using fewer dielectrics improving temperature and frequency performance in a high reliability package.

- Up to 20X capacitance
- Frequencies exceeding 100GHz
- Ultra-high Q dielectrics
- Product offering includes gap, binary, broadband, vertical layer, ultra-high Q
- Voltage range from 6.3V-1500V

www.quanticeulex.com

Quantic™ UTC

Multi-layer Ceramic (MLCC)

UTC manufactures standard and engineered high-reliability multi-layer ceramic chip capacitors (MLCCs) and leaded devices, approved to produce MIL-PRF 49470 parts to standard (B) level and (T) space levels, in addition to a wide variety of DLA drawings.

- Equipped to perform a variety of MIL-PRF testing
- Low ESR & ESL – excellent for frequency decoupling
- Multiple dielectrics available including NP0, X7R, X5R, Y5V - PME and BME formulations.
- Low-cost manufacturing options available
- Product offerings include MLCCs, planar arrays, discoidals, pulse energy. megacap type (BC), safety caps and SMPS.

www.quanticutc.com