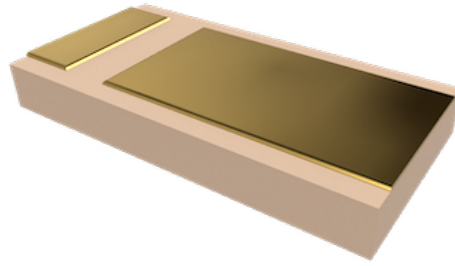


Gap Capacitor

XG1



Product Overview

Eulex single layer SMD mount gap capacitor with (Pt or Au) metallization for solder, or epoxy die attach.

Part Numbering System

XG1	G	0402	N	150	M	P	W
Eulex Gap	Rated Voltage	Case Size	Dielectric Type	Capacitance	Capacitance Tolerance	Metallization Type	Packaging

Dielectrics and Voltage Rating

Dielectric Type		Dielectric Characteristics				Voltage Code	
		Temp Coeff	Tolerance	Temp Range	Metallization		
P	Porcelain	Neg.	B, C, D [G, J >10pF]	-55 to 125°C	Au/Pt	A	6.3VDC
Q	Class I/NPQ	±25ppm	B, C, D [G, J >10pF]	-55 to 125°C	Au/Pt	C	10VDC
N	Class I/NP0	±30ppm	J, K, M	-55 to 125°C	Au/Pt	E	16VDC
C	Class I/NPS	+0-5%	J, K, M	-55 to 125°C	Au/Pt	L	25VDC
X	Class II/X7R	±15%	K, M, P	-55 to 125°C	Au/Pt	G	50VDC
Y	Class III/Y5V	+22%-82%	M, P, Z	-30 to 85°C	Pt	B	100VDC

Tolerance Code									
Code	B	C	D	G	J	K	M	P	Z
Tolerance	±0.10 pF	±0.25 pF	±0.50 pF	±2%	±5%	±10%	±20%	+100 / -0%	+80 / -20%

Termination Material (P/G)

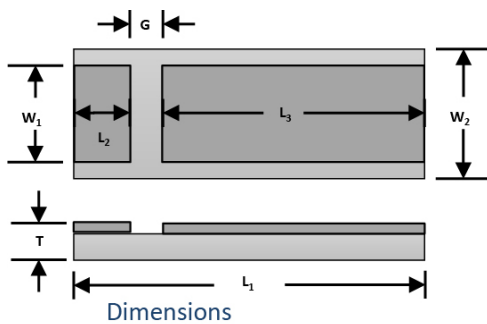
Metallization
Pt 100µin min
Au 100µin min

Packaging (G/W/T)

Package Type	Pack Qty
Gel-Pak/Waffle / Tape and Reel	N/A

Case Size & Dimensions

Case Size	Length (L1) Inch (mm)	Chip Width (W2) Inch (mm)	Thickness (T) Inch (mm)	Small Pad (L2) Inch (mm)	Large Pad (L3) Inch (mm)	Pad Width (W1) Inch (mm)	Gap (G) Inch (mm)
4030	0.400 ±0.015 (10.160 ±0.381)	0.300 ±0.015 (6.620 ±0.381)	0.030 Max (0.762 Max)	0.030 ±0.004 (0.762 ±0.102)	0.305 ±0.005 (7.747 ±0.127)	0.290 ±0.010 (7.366 ±0.254)	0.070 ±0.004 (1.778 ±0.102)
0804	0.080 ±0.004 (2.032 ±0.102)	0.040 ±0.004 (1.016 ±0.102)	0.012 Max (0.305 Max)	0.005 ±0.001 (0.127 ±0.025)	0.070 ±0.002 (1.778 ±0.051)	0.036 ±0.001 (0.914 ±0.025)	0.005 Min (0.127 Min)
0603	0.060 ±0.004 (1.524 ±0.102)	0.030 ±0.003 (0.762 ±0.076)	0.012 Max (0.305 Max)	0.005 ±0.001 (0.127 ±0.025)	0.050 ±0.002 (1.270 ±0.051)	0.026 ±0.001 (0.660 ±0.025)	0.005 Min (0.127 Min)
0402	0.040 ±0.004 (1.016 ±0.102)	0.020 ±0.002 (0.508 ±0.051)	0.009 Max (0.230 Max)	0.005 ±0.001 (0.127 ±0.025)	0.030 ±0.001 (0.762 ±0.025)	0.016 ±0.001 (0.406 ±0.025)	0.003 Min (0.076 Min)
0301	0.030 ±0.004 (0.762 ±0.102)	0.012 Max (0.305 Max)	0.009 Max (0.229 Max)	0.004 ±0.001 (0.102 ±0.025)	0.023 ±0.001 (0.584 ±0.025)	0.006 ±0.001 (0.152 ±0.025)	0.002 Min (0.051 Min)
0201	0.020 ±0.004 (0.508 ±0.102)	0.012 Max (0.305 Max)	0.009 Max (0.229 Max)	0.004 ±0.001 (0.102 ±0.025)	0.014 ±0.001 (0.356 ±0.025)	0.006 ±0.001 (0.152 ±0.025)	0.002 Min (0.051 Min)



Capacitance Rating

6.3V	4030	0804	0603	0402	0301	0201
Dielectric	Cap (pF)	Cap (pF)	Cap (pF)	Cap (pF)	Cap (pF)	Cap (pF)
P	1100	32	5	6.2	1.5	0.7
Q	2000	56	27	15	2.7	1.3
N	6500	180	90	33	9	3.9
C	24000	680	330	120	33	15
X	150000	3900	2000	750	200	82
Y	820000	24000	12000	4500	1100	560

10V	4030	0804	0603	0402	0301	0201
Dielectric	Cap (pF)	Cap (pF)	Cap (pF)	Cap (pF)	Cap (pF)	Cap (pF)
P	850	24	12	4.5	1.2	0.6
Q	1500	42	21	8.0	2.0	1.0
N	4900	130	70	25	7	3
C	18500	500	250	95	25	12
X	110000	3100	1500	560	150	68
Y	670000	18500	9300	3500	890	425

Capacitance Rating

16V	4030	0804	0603	0402	0301	0201
Dielectric	Cap (pF)	Cap (pF)	Cap (pF)	Cap (pF)	Cap (pF)	Cap (pF)
P	680	18	9.1	3.9	1.0	0.5
Q	1200	33	18	6.2	1.8	0.8
N	3900	110	56	20	5.6	3.3
C	15000	390	200	75	20	9.1
X	90000	2500	1200	470	120	56
Y	560000	15000	7500	2700	680	340

25V	4030	0804	0603	0402	0301	0201
Dielectric	Cap (pF)	Cap (pF)	Cap (pF)	Cap (pF)	Cap (pF)	Cap (pF)
P	560	16	8.2	3	0.7	0.4
Q	1000	27	15	5.6	1.5	0.7
N	3300	91	47	18	5.1	2
C	12000	330	18	62	15	8.2
X	75000	2100	1000	400	100	50
Y	430000	12000	6200	2400	600	270

50V	4030	0804	0603	0402	0301	0201
Dielectric	Cap (pF)	Cap (pF)	Cap (pF)	Cap (pF)	Cap (pF)	Cap (pF)
P	510	15	7.5	2.7	0.7	0.3
Q	910	24	12	5.1	1.2	0.5
N	3000	82	43	15	4.7	2
C	11000	300	150	56	15	6.8
X	70000	1900	1000	370	90	45
Y	420000	11000	5600	2200	560	240

100V	4030	0804	0603	0402	0301	0201
Dielectric	Cap (pF)	Cap (pF)	Cap (pF)	Cap (pF)	Cap (pF)	Cap (pF)
P	470	12	6.8	2.2	0.6	0.2
Q	820	22	10	4.3	1.0	0.6
N	2700	75	40	13	4	1.8
C	10000	290	130	51	12	7.5
X	62000	1800	900	330	82	40
Y	390000	10000	5100	2000	510	220

Test Conditions

No.	Item	Test Condition	Requirements
1	Visual & Dimensions	Suitable optical or mechanical measurement system	<ul style="list-style-type: none"> No major defects Conforms to individual specification sheet
2	Capacitance	<ul style="list-style-type: none"> Measured at $1.0 \pm 0.2 V_{rms}$, $1.0 MHz \pm 10\%$ Measured at room temperature 	<ul style="list-style-type: none"> Shall not exceed specified capacitance plus allowed tolerance.
3	Dielectric Strength	<ul style="list-style-type: none"> 250% of rated voltage. Duration: 1 to 5 sec. Charge & discharge current $< 50mA$. 	<ul style="list-style-type: none"> No evidence of damage or arc-over during test.
4	Insulation Resistance	<ul style="list-style-type: none"> Time rated voltage applied for 120 secs Max Test at room temperature 	<ul style="list-style-type: none"> $\geq 100G\Omega$ minimum
5	Temperature Coefficient	<ul style="list-style-type: none"> No electrical load Allow temperature to equilibrate prior to measure 	<ul style="list-style-type: none"> Capacitance change $\pm 30ppm$ between -55 to $+125^{\circ}C$ from reference measurement at $20^{\circ}C$.
6	Termination Strength	<ul style="list-style-type: none"> MIL-STD-883, device mounted to Au metalized alumina substrate with Au-Sn20. Apply force parallel to substrate until failure. 	<ul style="list-style-type: none"> Die bond strength 2N min.
7	High Temperature Load	<ul style="list-style-type: none"> Test temp.: $125 \pm 3^{\circ}C$ Applied voltage: Rated Volt Test time: $1000 + 24 / - 0$ hrs. Cap. / DF / I.R. Measurement to be made after de-aging at $150^{\circ}C$ for 1hr then 24 ± 2hr age at RT 	<ul style="list-style-type: none"> No major damage Cap change: within $\pm 7.5\%$ or $\pm 0.75pF$ whichever is larger I.R. $\geq 1G\Omega$

Packaging Details

Dimensions (mm)					
A	B	P	W	L	T
Samples Provided in Gel-Pak AD-22T-00X8					

Mounting Methods

Solder Attach

Parts are mounted terminations down.
 Solder compositions suitable for Au attachment are acceptable.
 Au-Sn20 or In-Pb30 solder is recommended.
 Do not exceed $320^{\circ}C$.
 Heating cycle to remain below $5^{\circ}C/sec$ and cooling below $4^{\circ}C/sec$.

Epoxy Bonding

Parts are suitable for conductive epoxy bonding.
 Epoxy should be deposited towards edge of part, taking care not to short gap between terminals.

