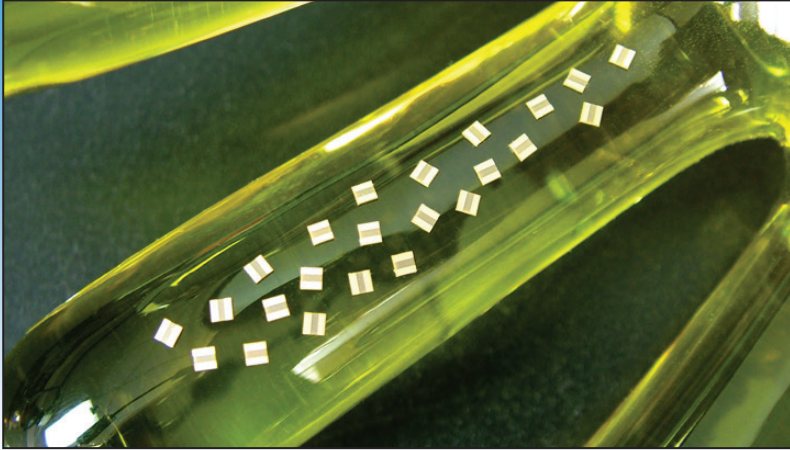


# Gap Cap<sup>®</sup> Single Layer Capacitor



## Description

Series Configured Capacitor for Microwave Applications.

Recessed metallization has been designed to minimize the potential of shorting during attachment (epoxy or solder).

- Available from 0.2pF to 800pF
- Operating frequency up to 30GHz
- Customized solutions

## Applications

- DC Blocking
- RF Bypassing
- Filtering
- Tuning
- Coupling

## Benefits

- Eliminates wire-bonding
- Coplanar waveguide
- Low insertion loss

## Test Level Codes

Commercial Level	
Y	1% AQL 2-Side Visual
X	100% 4-Side Visual 1% AQL Electrical (CAP/DF/IR & DWV)

High Reliability	
A	<b>MIL-PRF-49464 Group A</b> <ul style="list-style-type: none"> <li>● 100% Thermal Shock</li> <li>● 100% Voltage Conditioning</li> <li>● 100% Electrical (CAP/DF/IR &amp; DWV)</li> <li>● 100% 6-Side Visual</li> <li>● Bond Strength</li> <li>● Die Shear</li> <li>● Temperature Coefficient</li> </ul>
	<b>B</b> <ul style="list-style-type: none"> <li>● MIL-PRF-49464 Group A</li> <li>● Immersion</li> <li>● Low Voltage Humidity</li> <li>● Life</li> </ul>
	<b>D</b> <ul style="list-style-type: none"> <li>● Customer Defined</li> </ul>
	<b>E</b> <ul style="list-style-type: none"> <li>● 6-Side Visual</li> </ul>

Tolerance	
Code	Description
A	± 0.05pF
B	± 0.1pF
C	± 0.25pF
D	± 0.50pF
K	± 10%
L	± 15%
M	± 20%
X	GMV (Guarantee Minimum Value)
Z	+80%, -20%

Voltage	
Code	Voltage
2	25 Volts
5	50 Volts

## Part Number Identification

G	10	BU	100	K	5	P	X	10	
Product G = Gap Capacitors	Case Size 10 15 20 25 30 35 40	Material See material tables.	Capacitance (pF) R01 = 0.01pF OR5 = 0.5pF 1R0 = 1.0pF 5R1 = 5.1pF 100 = 10pF 511 = 510pF  Refer to capacitance range tables for available values. Consult an inside sales rep. for custom solutions.	Tolerance A = ± 0.05pF B = ± 0.10pF C = ± 0.25pF D = ± 0.5pF F = ± 1% G = ± 2% J = ± 5% K = ± 10% L = ± 15% M = ± 20% Z = +80% -20%	Voltage 2 = 25V 5 = 50V	Termination P = Ni / Au M = Au	Test Level Y, X, A, B, D and E.  See test level definitions.	Capacitor Quantity In mils 5 8 10 15	Packaging D = Black Dotted E = Repopulated T = Tape and Reel  Leave blank for generic waffle pack.



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## Dimensions - 25 Volt Gap Cap

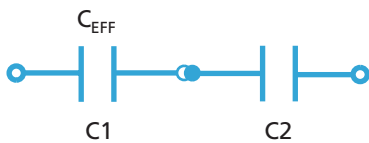
Style	Gap (Nominal)	Dimensions		
		Width	Length	Thickness
G10	0.005" (0.127mm)	0.010" +0/-0.003" (0.254mm +0/-0.076mm)	0.030" Max. (0.762mm Max.)	0.004" ±0.001" (0.102mm ±0.025mm)
G15	0.008" (0.203mm)	0.015" +0/-0.003" (0.381mm +0/-0.076mm)	0.040" Max. (1.016mm Max.)	
G20	0.010" (0.254mm)	0.020" +0/-0.003" (0.508mm +0/-0.076mm)	0.050" Max. (1.270mm Max.)	
G25	0.020" (0.508mm)	0.025" +0/-0.003" (0.635mm +0/-0.076mm)	0.060" Max. (1.524mm Max.)	
G30		0.030" +0/-0.003" (0.762mm +0/-0.076mm)		
G35		0.035" ±0.005" (0.889mm ±0.127mm)		
G50		0.050" ±0.010" (1.27mm ±0.254mm)		

\*UX thickness 0.006" (0.152mm)

## Dimensions - 50 Volt Gap Cap

Style	Gap (Nominal)	Dimensions		
		Width	Length	Thickness
G10	0.005" (0.127mm)	0.010" +0/-0.003" (0.254mm +0/-0.076mm)	0.030" Max. (0.762mm Max.)	0.006" ±0.001" (0.102mm ±0.064mm)
G15	0.008" (0.203mm)	0.015" +0/-0.003" (0.381mm +0/-0.076mm)	0.040" Max. (1.016mm Max.)	
G20	0.010" (0.254mm)	0.020" +0/-0.003" (0.508mm +0/-0.076mm)	0.050" Max. (1.270mm Max.)	
G25	0.020" (0.508mm)	0.025" +0/-0.003" (0.635mm +0/-0.076mm)	0.080" Max. (2.032mm Max.)	
G30		0.030" +0/-0.003" (0.762mm +0/-0.076mm)		
G35		0.035" ±0.005" (0.889mm ±0.127mm)		
G50		0.050" ±0.010" (1.27mm ±0.254mm)		

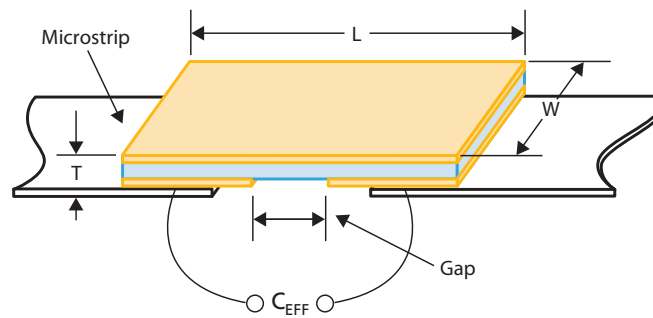
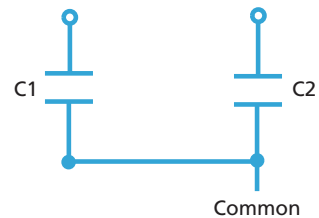
\*UX thickness 0.010" (0.254mm)



$$C_{EFF} = \text{SERIES EQUIVALENT}$$

$$C1 = C2 \quad C_{EFF} = C1 \div 2$$

All Gap Cap values are listed as  $C_{EFF}$



## Capacitance values - 25 Volt Gap Cap

Style	G10			G15			G20			G25			G30			G35			G50		
CAPACITANCE (pF)																					
MATERIAL	MIN	MAX	TOL	MIN	MAX	TOL	MIN	MAX	TOL	MIN	MAX	TOL	MIN	MAX	TOL	MIN	MAX	TOL	MIN	MAX	TOL
PI	0.02	0.03	A	0.03	0.07	A	0.04	0.10	A	0.05	0.15	A	0.06	0.15	A	0.07	0.20	A			
PG	0.02	0.05	A	0.04	0.10	A	0.05	0.15	A	0.07	0.20	A	0.08	0.25	A	0.09	0.25	A			
AH	0.04	0.08	A	0.06	0.15	A	0.08	0.25	A	0.10	0.30	A	0.15	0.35	A	0.15	0.45	A			
CF	0.04	0.09	A	0.08	0.15	A	0.10	0.30	A	0.15	0.35	A	0.15	0.45	A	0.20	0.50	A			
NA	0.04	0.08	A	0.07	0.15	A	0.09	0.25	A	0.15	0.35	A	0.15	0.40	A	0.15	0.50	A			
CD	0.06	0.10	A	0.15	0.25	A	0.15	0.45	A	0.20	0.60	B	0.25	0.70	B	0.30	0.80	B			
CG	0.15	0.25	A	0.25	0.50	A	0.30	0.90	B	0.35	1.1	B	0.45	1.3	C	0.50	1.6	C			
DB	0.15	0.25	A	0.25	0.55	B	0.30	0.90	B	0.35	1.1	B	0.45	1.4	C	0.50	1.6	C			
NP	0.15	0.30	A	0.30	0.65	B	0.35	1.1	C	0.40	1.3	C	0.55	1.6	C	0.60	1.9	C			
NR	0.25	0.60	A, B	0.50	1.2	B	0.65	2.0	C	0.75	2.4	C	0.95	3.0	D	1.1	3.6	D			
NS	0.50	1.2	B	0.90	2.2	C, K	1.2	3.9	D, K	1.4	4.7	D, K	1.8	5.6	D, K	2.2	6.8	K			
NU	0.95	2.4	C, K	1.8	4.3	C, K	2.4	7.5	D, K	3.0	9.1	D, K	3.6	11	K	4.3	13	K			
NV	1.4	3.6	C, K	2.7	6.8	D, K	3.6	11	D, K	4.3	13	K	5.6	16	K	6.2	20	K			
BD	1.1	2.7	K	2.2	5.1	K	2.7	9.1	K	3.3	11	K	4.3	13	K	5.1	16	K			
BC	2.0	5.1	K	3.9	10	K	5.1	16	K	6.2	20	K	8.2	24	K	9.1	27	K			
BE	2.0	4.7	K	3.9	9.1	K	5.1	16	K	6.2	20	K	7.5	24	K	9.1	27	K			
BL	3.3	7.5	K	6.2	15	K	8.2	24	K	10	30	K	12	39	K	15	43	K			
BJ	5.1	13	K	10	24	K	13	43	K	16	51	K	20	62	K	24	75	K			
BN	7.5	18	K	15	33	K	18	56	K	22	68	K	27	82	K	33	100	K			
BU	15	33	K, M	27	62	K, M	33	110	K, M	43	130	K, M	51	160	K, M	62	180	K, M			
BV	22	51	M	43	100	M	51	160	M	68	200	M	82	240	M	100	300	M			
UX	40	60	M	90	120	M	150	200	M	190	250	M	265	300	M	310	350	M	500	800	M

## Capacitance values - 50 Volt Gap Cap

Style	G10			G15			G20			G25			G30			G35			G50		
CAPACITANCE (pF)																					
MATERIAL	MIN	MAX	TOL	MIN	MAX	TOL	MIN	MAX	TOL	MIN	MAX	TOL	MIN	MAX	TOL	MIN	MAX	TOL	MIN	MAX	TOL
PI	0.02	0.02	A	0.03	0.05	A	0.03	0.08	A	0.04	0.15	A	0.05	0.15	A	0.06	0.20	A	0.07	0.35	A
PG	0.02	0.03	A	0.03	0.06	A	0.04	0.10	A	0.05	0.20	A	0.07	0.25	A	0.07	0.25	A	0.09	0.50	A
AH	0.03	0.05	A	0.05	0.10	A	0.06	0.15	A	0.08	0.30	A	0.10	0.35	A	0.15	0.45	A	0.15	0.75	A, B
CF	0.03	0.06	A	0.06	0.10	A	0.07	0.20	A	0.09	0.35	A	0.15	0.45	A	0.15	0.50	A	0.20	0.90	A, B
NA	0.03	0.05	A	0.05	0.10	A	0.07	0.15	A	0.08	0.35	A	0.15	0.40	A	0.15	0.45	A	0.20	0.85	A, B
CD	0.04	0.09	A	0.08	0.15	A	0.15	0.30	A	0.15	0.55	A	0.20	0.70	A, B	0.20	0.80	A, B	0.30	1.4	A, B
CG	0.08	0.15	A	0.15	0.35	A	0.20	0.60	A	0.30	1.1	A, B	0.35	1.3	A, B	0.40	1.5	A, B	0.50	2.7	A, B
DB	0.08	0.15	A	0.20	0.35	A	0.25	0.60	A	0.30	1.1	B	0.35	1.3	B, C	0.40	1.6	B, C	0.50	2.7	B, C
NP	0.09	0.20	A	0.20	0.40	A	0.25	0.70	B	0.35	1.3	B, C	0.40	1.6	B, C	0.50	1.9	B, C	0.60	3.3	B, C
NR	0.20	0.40	A	0.35	0.80	B	0.45	1.3	B, C	0.60	2.4	C	0.75	3.0	D	0.90	3.6	D	1.2	6.2	D, K
NS	0.35	0.8	C, K	0.65	1.5	C, K	0.85	2.4	C, K	1.1	4.7	C, K	1.4	5.6	D, K	1.6	6.2	D, K	2.2	11	D, K
NU	0.65	1.6	C, K	1.3	3.0	C, K	1.7	5.1	D, K	2.2	9.1	D, K	3.0	11	K	3.3	13	K	4.3	22	K
NV	0.95	2.4	C, K	2.0	4.7	C, K	2.7	7.5	D, K	3.3	13	D, K	4.3	16	K	5.1	20	K	6.2	33	K
BD	0.75	1.8	K	1.5	3.6	K	2.0	5.6	K	2.7	11	K	3.3	13	K	3.9	15	K	5.1	27	K
BC	1.4	3.3	K	3.0	6.8	K	3.9	11	K	4.7	20	K	6.2	24	K	7.5	27	K	9.1	51	K
BE	1.4	3.3	K	2.7	6.2	K	3.6	10	K	4.7	20	K	6.2	24	K	6.8	27	K	9.1	4.7	K
BL	2.2	5.1	K	4.3	10	K	6.2	16	K	7.5	30	K	10	36	K	11	43	K	15	75	K
BJ	3.6	8.2	K	7.5	16	K	10	27	K	12	51	K	16	62	K	18	68	K	24	120	K
BN	5.1	12	K	10	22	K	13	39	K	18	68	K	22	82	K	24	100	K	33	160	K
BU	9.1	22	M	20	43	M	24	68	M	33	130	M	43	160	M	47	180	M	62	330	M
BV	15	36	M	30	68	M	39	110	M	51	200	M	68	240	M	75	300	M	100	510	M
UX			60	70	M	90	120	M	140	160	M	180	190	M	200	250	M	380	550	M	M

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