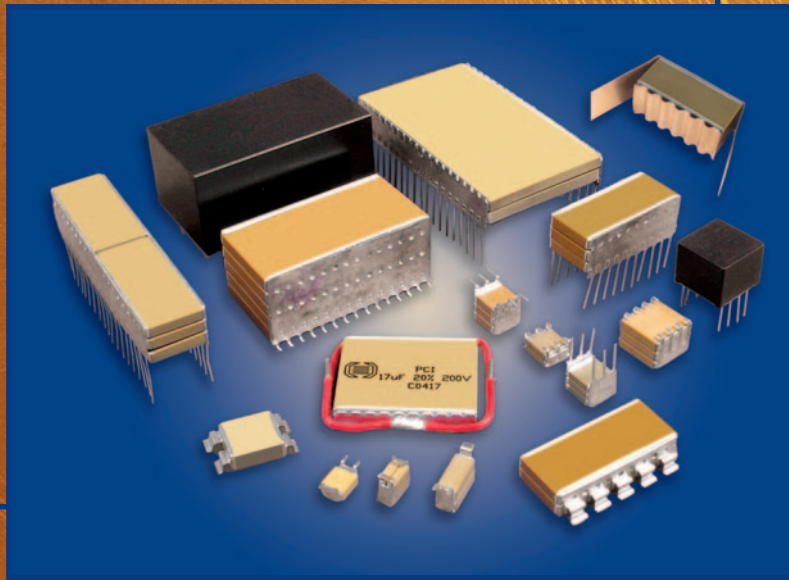




EUROPEAN SIZES



CERAMIC STACKED CAPACITORS FOR SWITCH MODE POWER SUPPLIES

INDUSTRIAL
MILITARY
SPACE

PRESIDIO COMPONENTS, INC.

HIGH PERFORMANCE, HIGH RELIABILITY CERAMIC CAPACITORS

ABOUT PRESIDIO

Presidio Components has been an industry leader in the design and manufacture of ceramic capacitors since 1980. We are dedicated to excellence in manufacturing, process control and customer service. All products are manufactured and tested in our state-of-the-art, 80,000 square foot facility in San Diego, California, allowing for immediate response to your business needs. We have numerous patents, and hundreds of years of combined engineering experience. We can formulate the right product for your application.



For more information about Presidio's products visit our website: www.presidiocomponents.com

TESTING & RELIABILITY

Presidio Components was initially qualified to Mil-PRF-55681 in 1984. Since then we have upgraded our processing line to obtain the highest established reliability of 'S' level. We are also qualified on two additional space level applications, Mil-PRF-123 and Mil-PRF-49470 'T' level. Presidio Components is also proud to be the first QPL supplier to Mil-PRF-49467, the high voltage ceramic capacitor specification. All QPL testing per Mil-STD-202 is done on site at our DLA approved test lab. For a list of environmental test capabilities, consult the factory.

CUSTOMER SERVICE

At Presidio Components we work hard to build positive, long-term relationships with our customers and we will go the extra distance to ensure customer satisfaction. If you cannot find a part anywhere else, call Presidio Components. With more than 100 million parts in inventory, we have many commercial and military parts in stock. Our patented ceramic capacitors are typically used in low noise, filter, tuning, broadband DC blocking, and RF bypass applications.

**MIL-STD-790 DLA APPROVED
FACILITY AND TEST LAB
CAGE CODE: 60212**

Presidio Components, Inc.
San Diego, California

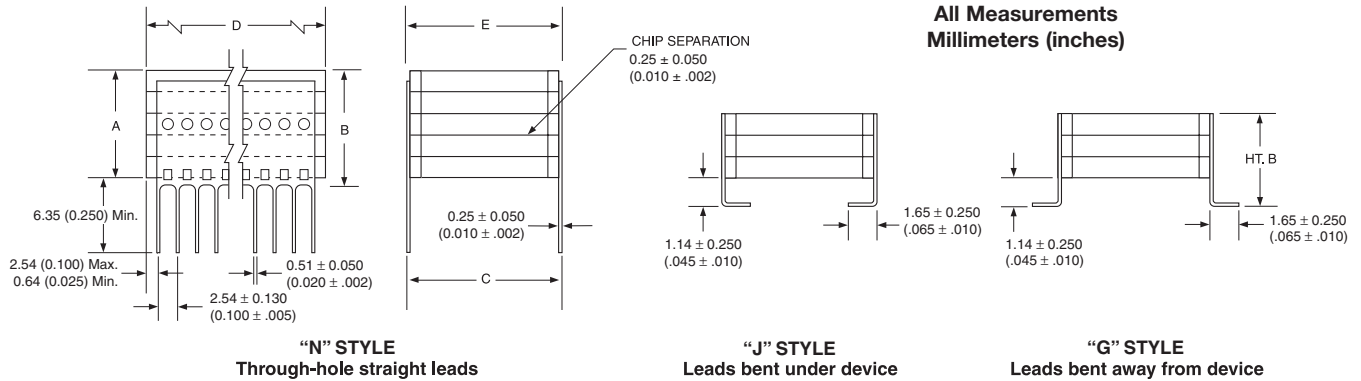


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<https://presidiocomponents.com> • info@presidiocomponents.com

X7R AND NPO STACKED CAPACITORS

CAP DIMENSIONS



PERFORMANCE CHARACTERISTICS

Capacitance: Tested at 1kHz, 25°C, 1 VAC RMS.

Dissipation Factor: X7R < 2.5%, NPO < .15%, at 1kHz, 25°C, 1 VAC RMS.

Insulation Resistance (25°C): 100,000 MegΩ or 1000 MegΩ·μF, whichever is less.

DWV: Per MIL-PRF-49470 for 5 seconds, 50mA maximum charging current.

Burn-in (optional): Per MIL-PRF-49470.

Voltage Temperature Coefficient: From -55°C to +125°C.

X7R: ±15% maximum ΔC without applied voltage
 50 V rated: +15 / -30% ΔC typical at 25 VDC
 +15 / -60% ΔC typical at 50 VDC
 100 V rated: +15 / -30% ΔC typical at 50 VDC
 +15 / -60% ΔC typical at 100 VDC

BX: ±15% maximum ΔC at 0 VDC
 +15 / -25% maximum ΔC at rated voltage

BR: ±15% maximum ΔC at 0 VDC
 +15 / -40% maximum ΔC at rated voltage

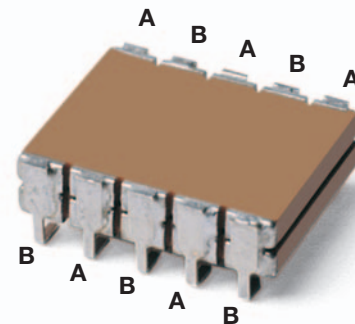
BQ: ±15% maximum ΔC at 0 VDC
 +15 / -50% maximum ΔC at rated voltage

NPO: ±30 ppm per °C max. ΔC at rated voltage

ALSO AVAILABLE IN STACKED CAPACITORS

- Interdigitated stacked capacitors
- Voltage ratings optimized for your application
- BX, N2200, NPO, NPQ (High Q Porcelain)
- MIL-PRF-49470 style capacitors
- Encapsulated / Plastic Packages
- Vertical Stacks
- Optimized Lead Styles

Typical interdigitated stacked capacitor



Interdigitated configuration results in reduced ESL

HOW TO ORDER

PH41	X7R	565	K	2	J	3
SIZE CODE	DIELECTRIC TYPE	CAPACITANCE (IN PICO FARADS)	TOLERANCE CODE	VOLTAGE CODE	LEAD STYLE	NO. OF LEADS
SIZE	NPQ* BR NPO BX X7R BQ	Two significant figures followed by the number of zeros. Example: 103 = 10,000 pF = .01μF	F = ± 1% ≥ 10pF G = ± 2% ≥ 10pF J = ± 5% ≥ 10pF K = ± 10% M = ± 20% Z = + 80% / -20% P = + 100% / -0%	2 = 50 V 3 = 100 V 4 = 200 V 6 = 500 V	J, G, N	Number of Leads Per Sde
			NPQ* NPO NPO ONLY ALL			

* Contact factory for NPQ dielectric



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X7R AND NPO STACKED CAPACITORS

TABLE 1 — MAXIMUM CAPACITANCE (F)

PRESIDIO CASE SIZE

PH41NP0104K2N3
.10μF, 10%, 50V, N Leads

PH32NP0223J6G3
.022μF, 5%, 500V, G Leads

	50V			100 V			200V			500V			"B" Height Max. mm (inches)
	X7R	BX	NPO	X7R	BX	NPO	X7R	BR	NPO	X7R	BQ	NPO	
PH31	2.7	1.8	.056	1.5	.62	.047	—	.33	.036	—	.15	.012	5.3 (.209)
PH32	5.2	3.3	.12	3.0	1.2	.082	—	.68	.082	—	.27	.022	8.9 (.351)
PH33	8.2	5.0	.18	4.7	2.0	.15	—	1.0	.12	—	.39	.039	12.6 (.496)
PH34	1.0	6.8	.22	5.6	2.7	.20	—	1.5	.15	—	.56	.047	16.3 (.642)
PH41	5.6	3.3	.10	2.7	1.2	.082	—	.56	.068	—	.22	.018	5.3 (.209)
PH42	10	6.8	.22	5.6	2.5	.18	—	1.2	.15	—	.47	.039	8.9 (.351)
PH43	16	10	.33	8.2	3.9	.27	—	1.8	.22	—	.68	.056	12.6 (.496)
PH44	20	12	.39	10	5.2	.33	—	2.2	.27	—	1.0	.068	16.3 (.642)
PH51	8.2	5.6	.18	3.9	1.8	.12	—	1.0	.10	—	.39	.027	5.3 (.209)
PH52	16	10	.39	8.2	3.9	.27	—	2.2	.22	—	.82	.056	8.9 (.351)
PH53	25	15	.56	12	6.0	.39	—	3.3	.33	—	1.2	.082	12.6 (.496)
PH54	33	22	.68	15	8.2	.47	—	3.9	.39	—	1.5	1.0	16.3 (.642)
PH61	15	10	.33	8.2	3.6	.22	—	2.2	.18	—	.82	.056	5.3 (.209)
PH62	30	22	.68	15	7.5	.47	—	4.7	.39	—	1.8	.12	8.9 (.351)
PH63	47	33	1.0	22	12	.68	—	6.8	.56	—	2.7	.18	12.6 (.496)
PH64	62	39	1.2	33	16	1.0	—	10	.68	—	3.3	.22	16.3 (.642)
PH71	30	18	.56	15	6.2	.47	—	3.3	.33	—	1.5	.10	5.3 (.209)
PH72	56	39	1.2	27	14	1.0	—	6.8	.68	—	3.3	.22	8.9 (.351)
PH73	90	56	1.8	39	20	1.5	—	10	1.0	—	4.7	.33	12.6 (.496)
PH74	110	68	2.2	47	27	1.8	—	12	1.2	—	5.6	.39	16.3 (.642)
PH76	30	18	.56	15	6.8	.47	—	3.3	.33	—	1.5	.10	5.3 (.209)
PH77	56	39	1.2	27	14	1.0	—	6.8	.68	—	3.3	.22	8.9 (.351)
PH78	90	56	1.8	39	22	1.5	—	10	1.0	—	4.7	.33	12.6 (.496)
PH79	120	68	2.2	47	30	1.8	—	12	1.2	—	5.6	.39	16.3 (.642)
PH81	33	22	.68	18	7.5	.56	—	3.9	.47	—	1.5	.15	5.3 (.209)
PH82	62	47	1.5	39	15	1.2	—	8.2	1.0	—	3.3	.33	8.9 (.351)
PH83	100	68	2.2	56	24	1.8	—	12	1.5	—	4.7	.47	12.6 (.496)
PH84	130	82	2.7	68	33	2.2	—	15	1.8	—	5.6	.56	16.3 (.642)
PH86	56	33	1.0	27	12	.82	—	6.8	.68	—	2.2	.22	5.3 (.209)
PH87	100	68	2.2	56	25	1.8	—	15	1.5	—	4.7	.47	8.9 (.351)
PH88	160	100	3.3	82	39	2.7	—	22	2.2	—	6.8	.68	12.6 (.496)
PH89	200	120	3.9	100	52	3.3	—	27	2.7	—	8.2	.82	16.3 (.642)
PH91	75	47	1.5	39	16	1.2	—	10	1.0	—	4.7	.33	5.3 (.209)
PH92	140	100	3.3	82	33	2.7	—	22	2.2	—	10	.68	8.9 (.351)
PH93	220	150	4.7	120	52	3.9	—	33	3.3	—	15	1.0	12.6 (.496)
PH94	270	180	5.6	150	72	4.7	—	39	3.9	—	18	1.2	16.3 (.642)

PH88BX396K3J14
39μ, 10%, 100V, J Leads

DIMENSIONS mm (inch)

	PH31-34	PH41-44	PH51-54	PH61-64	PH71-74	PH76-79	PH81-84	PH86-89	PH91-94
C (±.5mm)	6.4 (.252)	8.2 (.322)	10.2 (.400)	14.0 (.551)	15.2 (.600)	20.3* (.800)	10.2 (.400)	15.2 (.600)	20.3* (.800)
D (Max) Width	6.4 (.252)	8.7 (.342)	10.7 (.421)	13.6 (.535)	21.6 (.850)	16.6 (.653)	38.2 (1.503)	38.2 (1.503)	40.6 (1.598)
E (Max) Length	7.4 (.291)	9.2 (.362)	10.7 (.421)	14.9 (.586)	16.8 (.661)	21.6 (.850)	12.0 (.472)	18.9 (.744)	24.0 (.944)
Leads per Side	3	3	4	5	7	6	14	14	14
Chip Size	2424	3033	3740	5550	5783	7763	37148	57148	77148

Notes:

1. "B" height dimensions in Table 1 are based on commonly ordered parts. Optimized heights are available.
2. * Tolerance is ± .8mm (.032").
3. The above case sizes are the most commonly used. Other case sizes are available, consult factory or website.
4. Vertical stacks are available, consult factory.
5. Other voltages available; consult factory.
6. Consult factory for NPQ dielectric.



PRESIDIO COMPONENTS, INC.

X7R AND NPO STACKED CAPACITORS

TABLE 2 — MAXIMUM CAPACITANCE (F)

PRESIDIO CASE SIZE

	50V			100 V			200V			500V			"B" Height Max. mm (inches)
	X7R	BX	NPO	X7R	BX	NPO	X7R	BR	NPO	X7R	BQ	NPO	
PR21	2.2	1.2	.056	2.2	.47	.33	.47	.27	.027	.18	.12	.010	4.6 (.181)
PR22	4.7	2.5	.10	4.7	1.0	.68	1.0	.52	.050	.33	.22	.018	7.5 (.295)
PR31	2.7	1.5	.068	1.8	.82	.047	.68	.39	.039	.25	.15	.012	5.08 (.200)
PR32	5.6	3.0	.12	3.9	1.5	.10	1.2	.82	.080	.47	.3	.025	8.13 (.320)
PR41	4.7	2.7	.10	3.3	1.2	.082	1.2	.68	.068	.39	.25	.022	4.9 (.192)
PR42	10	5.6	.22	6.8	2.5	.15	2.2	1.2	.12	.82	.5	.047	8.2 (.323)
PR51	6.8	4.2	.15	4.7	2.2	.12	1.8	1.0	.10	.56	.39	.033	4.9 (.192)
PR52	12	8.2	.33	10	4.5	.25	3.6	2.2	.20	1.2	.82	.068	8.2 (.323)
PR61	15	7.5	.33	10	3.9	.25	3.3	2.2	.20	1.2	.82	.068	4.9 (.192)
PR62	30	15	.68	20	8.2	.47	6.8	3.9	.39	2.5	1.5	.12	8.2 (.323)

DIMENSIONS mm (inch)

	PR21-22	PR31-32	PR41-42	PR51-52	PR61-62
C (±.5mm)	6.4 (.252)	6.4 (.252)	8.2 (.322)	10.2 (.400)	14.0 (.551)
D (Max) Width	5.4 (0.213)	6.9 (.27)	8.7 (.342)	10.7 (.421)	13.6 (.535)
E (Max) Length	7.6 (.300)	7.6 (.3)	9.2 (.362)	10.7 (.421)	14.9 (.586)
Leads per Side	2	3	3	4	5
Chip Size	2620	2626	3233	3740	5451

Notes:

1. "B" height dimensions in Table 2 are based on commonly ordered parts. Optimized heights are available.
2. The above case sizes are the most commonly used. Other case sizes are available, consult factory or website.
3. Vertical stacks are available, consult factory.
4. Other voltages available; consult factory.
5. Consult factory for NPQ dielectric.



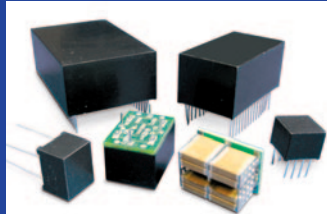
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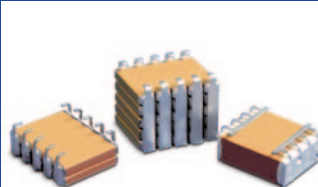
HIGH RELIABILITY CERAMIC CAPACITORS



**HIGH VIBRATION
'S' LEADS**



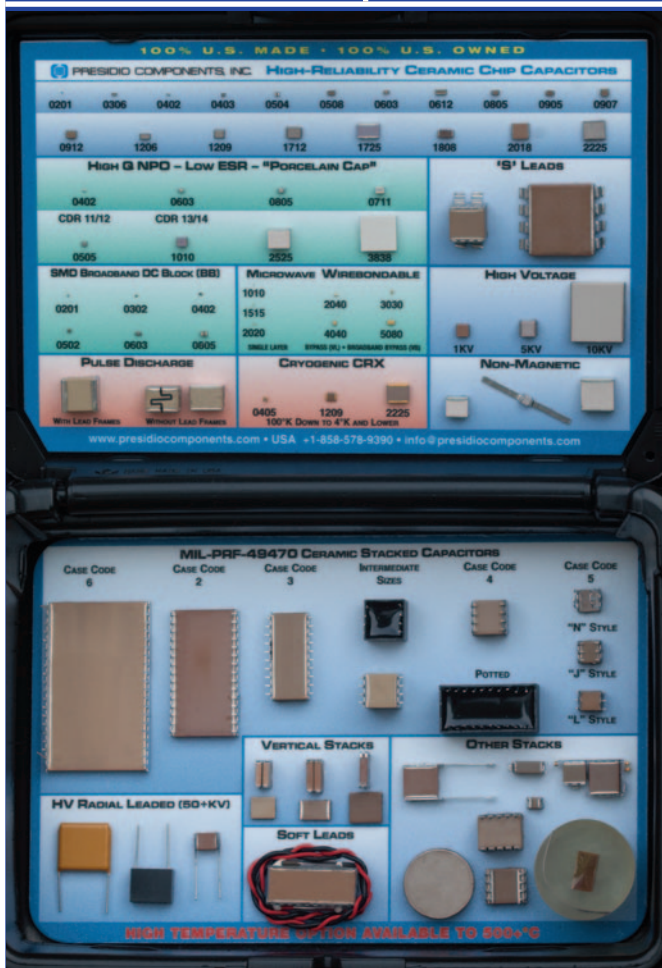
ENCAPSULATED



CUSTOM LEADS



**HIGH TEMP
DOWNHOLE OIL**



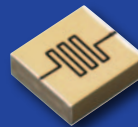
**10V to 10+kV in Multiple
Dielectrics**

X7R, BX, N2200, NPO

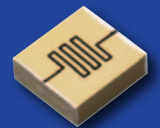
**Chips, Stacks, & Radial Led for
Applications up to 500+°C**

**Lead Frames for
Board Flex Compliance**

**Stacked Capacitors for
Increased Energy Density**



**Pulse Capacitors
with Bleed Resistors**



Qualified Military & Space Supplier

MIL-PRF-123, -49464, -49467, -49470, -55681, -32535

MIL-STD-202 and MIL-STD-790

NASA S311P829



**CUSTOM STACKED
CUSTOM ASSEMBLY**



**SPECIAL SHAPES
AND SIZES**



**HIGH TEMP HIGH VOLTAGE
RADIAL LEADS**



**HIGH FREQUENCY
HIGH POWER**

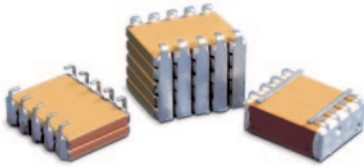


MILITARY & SPACE QUALIFICATIONS

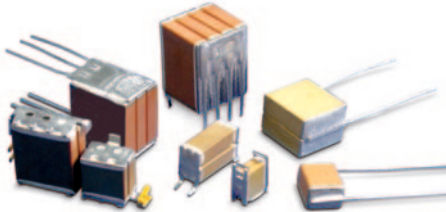
NASA SPEC	DESCRIPTION
S311-P-829 Most Popular chip series for space, many parts within 4 weeks	SMD Chips 0402 to 2225 — 5V to 100V — TOR Compliant (0402 - 0.1 μ F - 10V), (0805 - 1 μ F - 10V), (1812 - 4.7 μ F - 10V) Includes reverse geometry for low inductance chips Toughest standard screening available
MIL SPECS	DESCRIPTION
MIL-PRF-55681-‘S’ Level	SMD 0805 TO 2225 — 50V and 100V CDR01, CDR02, CDR03, CDR04, CDR05, CDR06, CDR31, CDR32, CDR33, CDR34, CDR35 CDR 11 & 12 (0505) — CDR 13 & 14 (1010) 50V to 500V
MIL-PRF-123	SMD Chips 0805 to 2225 — 50V and 100V — TOR Compliant CKS51, CKS52, CKS53, CKS54, CKS55, CKS56, CKS57
MIL-PRF-32535	SMD Chips 0201 to 2220 — 4V to 200V — Qualified 0201 0.01 μ F, 0402 0.1 μ F up to 0805
MIL-PRF-49467	Radial Lead up to 5000V — TOR Compliant
MIL-PRF-49470	SMPS Ceramic Stack 25V to 500V — TOR Compliant

DLA DRAWINGS	DESCRIPTION	DLA DRAWINGS	DESCRIPTION
06019 06022	0505 and 1010 RF for Space: Equivalent to CDR 11, 12, 13 & 14 but with a higher screening level	87046	Radial Leads NPO - 1000V
03028	SMD - 0603	87114	Radial Leads NPO - 3000V
03029	SMD - 0402	87076	Radial Leads NPO - 5000V
05001	SMD - 0805 RF	87077	Radial Leads NPO - 5000V
05002	SMD - 0603 RF	87043	Radial Leads X7R - 1000V
05003	SMD - 0402 RF	87040	Radial Leads X7R - 2000V
05006	SMD - 0805 - Extended Range	87047	Radial Leads X7R - 3000V
05007	SMD - 1206 - Extended Range	87044	Radial Leads X7R - 4000V
91019	SMD - 2220 - 25V and 50V	87070	Radial Leads X7R - 5000V
14004	SMD - 0306 - Thin Low Inductance Chips	87081	Radial Leads X7R - 10,000V
14005	SMD - 0508 - Thin Low Inductance Chips	88011	SMPS Stack NPO - 25V to 500V

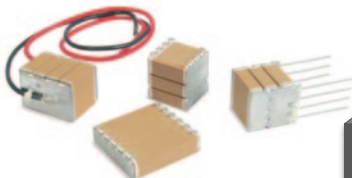
PRESIDIO PRODUCT LINES



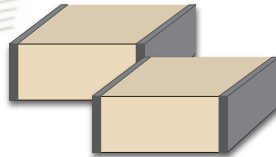
INTERDIGITATED LEADS



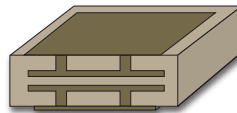
OPTIMIZED STACKED ASSEMBLY



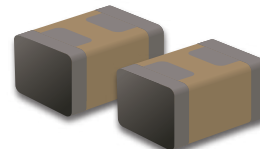
**HIGH FREQUENCY
HIGH POWER**



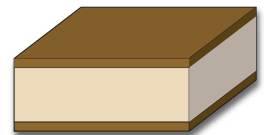
**HIGH Q NPO
RF CAPACITORS**



**HIGH Q & BROADBAND
SINGLE LAYER**



**BROADBAND DC BLOCK
BB SERIES**



**BYPASS & BROADBAND
VL/VB SERIES**

PRESIDIO COMPONENTS, INC. maintains more than 100 million commercial and military parts in inventory. We also offer multitudes of intermediate sizes, voltages, tolerances, termination finishes, lead-frame styles and more.

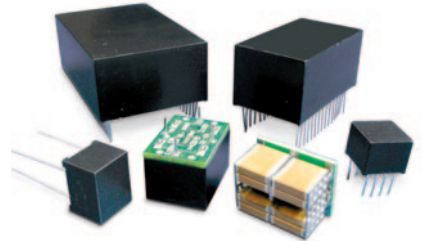
Some of our specialties include ceramic capacitors for high temperatures, cryogenic temperatures, pulse discharge applications as well as high Q dielectric, negative and positive temperature characteristic and piezoelectric ceramic formulations.

Backed with numerous patents and hundred of years of combined experience, Presidio is well suited to offer a solution to your demanding applications. Please contact our engineering team to discuss your specific needs.

100% U.S. Made, 100% U.S. Owned



'S' LEADS



ENCAPSULATED

MAIN PRODUCT CATALOGS

Click Catalog Cover or Scan QR Code to Visit Product Page on Website



**SURFACE MOUNT
CERAMIC CHIP
CAPACITORS**



**HIGH RELIABILITY
EXTENDED RANGE
CHIPS FOR SPACE**



**CERAMIC STACKED
CAPACITORS
FOR SMPS**



**HIGH TEMPERATURE
CERAMIC
CAPACITORS**



**HIGH VOLTAGE RADIAL LEADED
& MIL-PRF-49467
CERAMIC CAPACITORS**



**CERAMIC CAPACITORS
FOR RF ENGINEERS**



**HIGH Q NPO
CERAMIC CAPACITORS
FOR RF & MICROWAVE**



**PULSE DISCHARGE
CERAMIC CAPACITORS**



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**REV. 2
SEPTEMBER 2025**