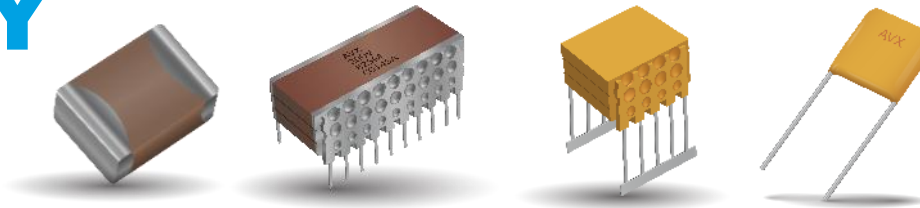




HIGH RELIABILITY, DEFENSE & SPACE APPLICATIONS

MULTI LAYER CERAMIC CAPACITORS - ESTABLISHED RELIABILITY PRODUCTS

HIGH RELIABILITY INTRODUCTION



Products are qualified to ESCC, MIL Specs and DSCC drawings, NASA , COTS+.

Optional custom screening and testing service capabilities are available with an SCD.

AVX has factories in USA and Europe qualified by the DLA , NASA and ESA and to AS9100, IECQ-CECC, TS16949-2009 , ISO 9001-2008.

HIGH RELIABILITY

APPLICATIONS & TEST CAPABILITIES

HIGH RELIABILITY

These products have been designed for the most demanding applications, such as space, aerospace, defense industry, and other high reliability programs.



AVIONICS

- UAV
- Instrumentation/Comms
- Guidance
- Sensor (FLIR, SARS)
- Engine Controls
- Flap and Brake Controls
- Transducer
- Jet Ignition
- Radar Antenna Arrays



SPACE/SATELLITE

- GEO / MEO / LEO
- GPS / DGPS
- Telemetry
- Launch Vehicle
- Rovers
- Communication



DEFENSE

- Munitions
- Radar
- Communication
- Surveillance
- Navigation
- Night Vision
- Target Acquisition
- Countermeasures
- Sonar

HIGH RELIABILITY

CERAMIC CAPACITORS

HIGH RELIABILITY

PME (Precious Metal Electrodes)

BME (Base Metal Electrodes)

MIL	PME BME	SMD Ceramic Capacitors • Leaded Ceramic Capacitors • SMPS Capacitors
DSCC/DLA	PME	SMD Ceramic Capacitors • Leaded Ceramic Capacitors • SMPS Capacitors
NASA	BME	SMD Ceramic Capacitors
ESA / ESCC	PME BME	SMD Ceramic Capacitors • Leaded Ceramic Capacitors • SMPS Capacitors
CECC	PME	SMD Ceramic Capacitors • Leaded Ceramic Capacitors
COTS Plus	BME	SMD Ceramic Capacitors

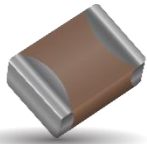
HIGH RELIABILITY

PRODUCT SELECTION GUIDE

CERAMIC CAPACITORS

SURFACE MOUNT CERAMIC CAPACITORS

MIL / DSCC / DLA / COTS-PLUS



- MIL/DSCC dielectrics uses PME technology BP, BG and where wider variation can be accepted, BX, BR
- APS COTS Plus dielectrics NP0, X7R, X8R/L
- Low ESR / ESL compared to other technologies
- Au, PdAg, Tin Lead or Pure Tin terminations available
- APS COTS Plus BME X7R available with Flexitem®

Oper. Temp: -55°C to +150°C

Case: 0402 – 2225

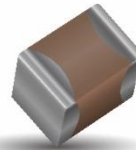
Voltage: 10V - 500V

Capacitance: 0.1pF – 22μF

MIL PRF 123 • MIL PRF 55681 (CDR) • APS COTS+
DSCC 03029 (0402) • DSCC 03028 (0603)
DSCC 05006 (0805) • DSCC 05007 (1206)

↩ Learn More

HIGH TEMPERATURE AT RANGE



- Max Temperature Range 250°C
- Terminations Pd/Ag, SN, Ni/Au
- Dielectrics: VHT (Class II) and C0G/NP0 (Class I)
- Uses PME and BME technologies for maximum capacitance ranges

Oper. Temp: -55°C to +250°C

Case: 0603 – 2225

Voltage: 10V – 50V

Capacitance: 2.2nF – 1μF

MIL STD 202

↩ Learn More

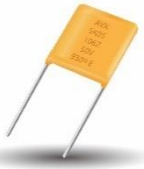
HIGH RELIABILITY

PRODUCT SELECTION GUIDE

CERAMIC CAPACITORS

LEADED CERAMIC CAPACITORS

MIL / DSCC / DLA / BS9100



- Excellent reliability and low ESR / ESL compared to other capacitor technologies PME technologies available
- Radial & Axial epoxy encapsulated for harsh environment
- High voltage range 1-5kV also available: El Salvador

Oper. Temp: -55°C to +125°C

Case: Radial, Axial

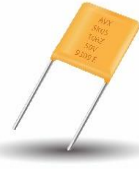
Voltage: 50V – 5,000V

Capacitance: 1pF – 22μF

MIL PRF 20 • MIL PRF 123 • MIL PRF 11015
MIL PRF 39014 • DSCC 87046 • DSCC 87114
DSCC 87081 • DSCC 87043 • DSCC 87047
DSCC 87040 • DSCC 87076 • DSCC 87077
DSCC 89044 • DSCC 87070 • BS9100

Learn More

ESA ESCC / CECC



- QPL PME technologies available
- Excellent reliability and low ESR / ESL compared to other capacitor technologies
- High voltage range 1-5kV also available
- A range of lead types: Leaded Radial (Epoxy coated, Polyurethane Varnish), Straight Dual in Line, L Dual in Line

Oper. Temp: -55°C to +125°C

Case: Radial

Voltage: 50V – 5,000V

Capacitance: 820pF – 180μF

ESCC 3001030 • ESCC 3001034
CECC 30701

Learn More

HIGH RELIABILITY

PRODUCT SELECTION GUIDE

CERAMIC CAPACITORS

SWITCH MODE POWER SUPPLY CAPACITORS (SMPS)

MIL / DSCC / BS9100



- Designed for programs requiring high reliability performance in harsh environment
- Suitable for high current, high power & high temperature applications
- Low ESR / ESL & excellent high frequency performance compared to other technologies

Oper. Temp: -55°C to +125°C

Case: Stacked

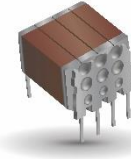
Voltage: 50V – 500V

Capacitance: 0.15 μ F – 270 μ F

MIL-PRF-49470 • BS9100
DSCC 87106/88011

[Learn More](#)

ESA ESCC / CECC



- Designed for space-based programs requiring ultra-high reliability performance
- Designed for high current, high power applications
- Low ESR / ESL and excellent high frequency performance
- A range of lead types: Leaded Radial (Epoxy coated, Polyurethane Varnish), Straight Dual in Line, L Dual in Line

Oper. Temp: -55°C to +125°C

Case: Stacked, Radial

Voltage: 50V – 5,000V

Capacitance: 820pF – 180 μ F

ESCC 3001030 • ESCC 3001034 • CECC 30701

ESCC 3012

[Learn More](#)

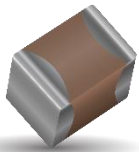
HIGH RELIABILITY

PRODUCT SELECTION GUIDE

CERAMIC CAPACITORS

SURFACE MOUNT CERAMIC CAPACITORS

NASA



- QPL BME technology
- High CV technology enabling case size downsizing, PCB weight and size reduction
- FLEXITERM® for enhanced mechanical stress resistance available for BME
- SnPb termination for BME

Oper. Temp: -55°C to +125°C

Case: 0603 - 1812

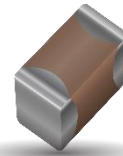
Voltage: 16V - 100V

Capacitance: 2.2nF - 8.2µF

NASA S-311-P-838

[Learn More](#)

ESA ESCC QPL



- QPL BME and PME technologies available
- Low ESR / ESL compared to other technologies
- FLEXITERM® for enhanced mechanical stress resistance available for BME
- PdPtAg or SnPb terminations for PME, SnPb termination for BME

Oper. Temp: -55°C to +125°C

Case: 0402 – 2220

Voltage: 16V – 3KV

Capacitance: 2.2nF – 22µF

ESCC 3009 • ESA 3009034
ESCC 3009041

[Learn More](#)

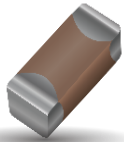
HIGH RELIABILITY

PRODUCT SELECTION GUIDE

CERAMIC CAPACITORS

SURFACE MOUNT CERAMIC CAPACITORS

MIL PRF 32535



- BME technology M and T reliability levels available; made in Coleraine
- Higher CV capability for PCB weight/size reduction
- **Flexiterm® technology for greater protection**
- Max cap value 22 μ F
- Termination with Sn/Pb

Oper. Temp: -55°C to +150°C

Case: 0402 – 2220

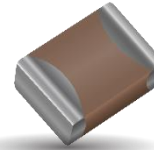
Voltage: 16V - 100V

Capacitance: 2.2nF - 22 μ F

MIL PRF 32535

[↩ Learn More](#)

CECC



- PME technology available , made in France
- NP0 and X7R technologies available
- Terminations; Hybrid, Ni/SnPb, Ni/Sn
- Burn in options available from 0/48/96/168 hours
- Capacitance tolerance from 1% to 20% available

Oper. Temp: -55°C to +125°C

Case: 0805 – 2220

Voltage: 25V – 500V

Capacitance: 4.7pF – 1.5 μ F

CECC 32101 • CECC 32100

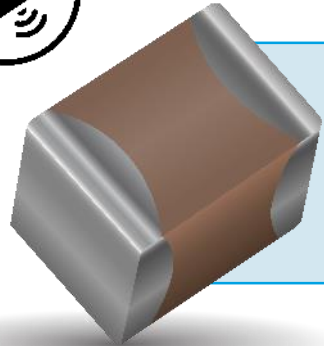
[↩ Learn More](#)

AVX SPACE QPL QUALIFIED CERAMIC PRODUCTS BME



EUROPE MANUFACTURE

WHAT IS SPACE LEVEL BME?



Capacitors built with BME (Base Metal Electrode) use a Nickel electrode system. AVX has manufactured BME capacitors for over 20 years - in excess of 110 billion.

AVX has supplied these products primarily into Commercial, Industrial, Automotive markets

Since 2015 a new “high reliability” product group using BME has been qualified and supplied into the Military and Space markets
(traditionally used Pd/Ag Electrodes)

BME Space MLCCs are built using the expertise, knowledge and design features required to deliver high reliability products for this marketplace.

EUROPEAN SPACE AGENCY SPEC. NO. ESCC 3009041

April 2015 QPL SPACE BME

CUSTOMERS: *Tesat • Thales • Airbus • Boeing • India Space •
South Korea Space • UTC/Collins - Orion*

FEATURES

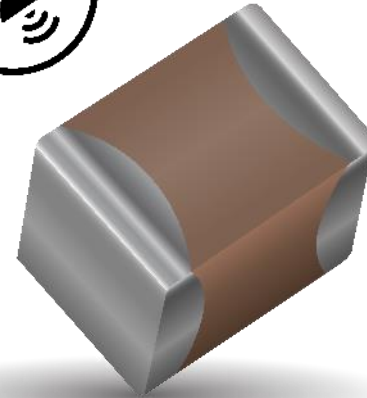
The AVX Space BME (Base Metal Electrode) X7R surface mount MLCCs utilizes the leading-edge technology in MLCC construction and processing.

This technology as approved by ESA, delivers high reliability with a superior capacitance voltage capability compared to conventional technologies.

BENEFITS

1. The Space BME range provides a high CV range.
2. The Space BME enables customers to downsize MLCCs and save PCB space.
3. The range comes with Flexiterm[®] termination which protection against board flexure.

[ESA web link](#)



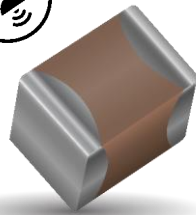
APPLICATIONS

Satellites
Launchers
Exploration craft

E.S.A

3009041

APPROVED



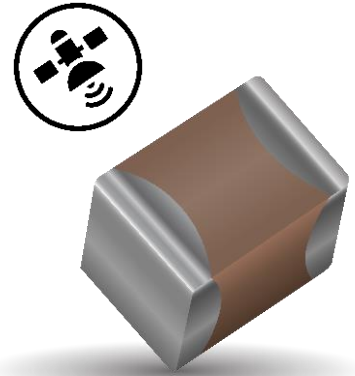
Case Sizes		0402			0603			0805			1206			1210			1812			2220			
Code	Value	16/25v	50v	100v	16/ 25v	50v	100v	16/25v	50v	100v	16/25v	50v	100v	16/25v	50v	100v	16/ 25v	50v	100v	16/ 25v	50v	100v	
222	2.2nf																						
272	2.7nf																						
332	3.3nf																						
392	3.9nf																						
472	4.7nf																						
562	5.6nf																						
682	6.8nf																						
822	8.2nf																						
103	10nf																						
123	12nf																						
153	15nf																						
183	18nf																						
223	22nf																						
273	27nf																						
333	33nf																						
393	39nf																						
473	47nf																						
563	56nf																						
683	68nf																						
823	82nf																						
104	100nf																						
124	120nf																						
154	150nf																						
184	180nf																						
224	220nf																						
274	270nf																						
334	330nf																						
394	390nf																						
474	470nf																						
564	560nf																						
684	680nf																						
824	820nf																						
105	1uf																						
125	1.2uf																						
155	1.5uf																						
185	1.8uf																						
225	2.2uf																						
275	2.7uf																						
335	3.3uf																						
395	3.9uf																						
475	4.7uf																						
565	5.6uf																						
685	6.8uf																						
825	8.2uf																						
106	10uf																						
126	12uf																						
156	15uf		In production																				
186	18uf																						
226	22uf																						

ESCC 3009041

QPL SPACE BME

HOW TO ORDER

3009041	07	226	J	A
Detailed Spec	Component Variant	Capacitance Code 2 Significant Digits+ number of zeros	Capacitance Tolerance	Voltage
3009041	01 (0402) 02 (0603) 03 (0805) 04 (1206) 05 (1210) 06 (1812) 07(2220)	e.g. 103 = 10nF e.g. 225 = 2.2uF e.g. 226 = 22uF	J = 5 % K = 10 % M = 20 %	X = 16 V A = 25 V C = 50 V E = 100 V



Please note all parts are terminated with a minimum 10% Pb plating.

Lot Validation Testing (LVT) can be ordered separately, LVT Groups 3, 2b, 2a, 1.

Size	0402		0603		0805		1206		1210		1812		2220	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
(L) Length	0.90 (0.035)	1.15 (0.045)	1.45 (0.057)	1.75 (0.069)	1.80 (0.071)	2.20 (0.087)	3.00 (0.118)	3.40 (0.134)	3.00 (0.118)	3.40 (0.124)	4.20 (0.165)	4.80 (0.189)	5.3 (0.208)	6.1 (0.24)
(W) Width	0.41 (0.016)	0.61 (0.024)	0.65 (0.026)	0.95 (0.037)	1.05 (0.041)	1.45 (0.057)	1.40 (0.055)	1.80 (0.071)	2.30 (0.091)	2.70 (0.106)	3.00 (0.118)	3.40 (0.124)	4.60 (0.18)	5.41 (0.213)
(T) Thickness	0.61 Max. (0.024)		1.00 Max. (0.039)		1.52 Max. (0.060)		1.80 Max. (0.071)		2.80 Max. (0.110)		2.80 Max. (0.110)		2.80 Max. (0.110)	
(t) terminal	0.1 (0.004)	0.40 (0.015)	0.20 (0.008)	0.50 (0.020)	0.25 (0.010)	0.75 (0.030)	0.25 (0.010)	0.75 (0.030)	0.25 (0.010)	0.75 (0.030)	0.25 (0.010)	0.95 (0.037)	0.25 (0.009)	1.03 (0.041)

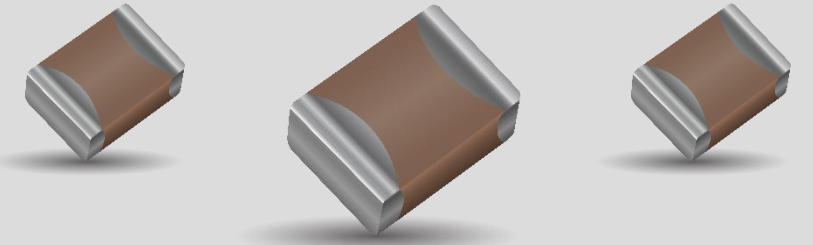
mm (inches)

BENEFITS OF FLEXITERM[®]

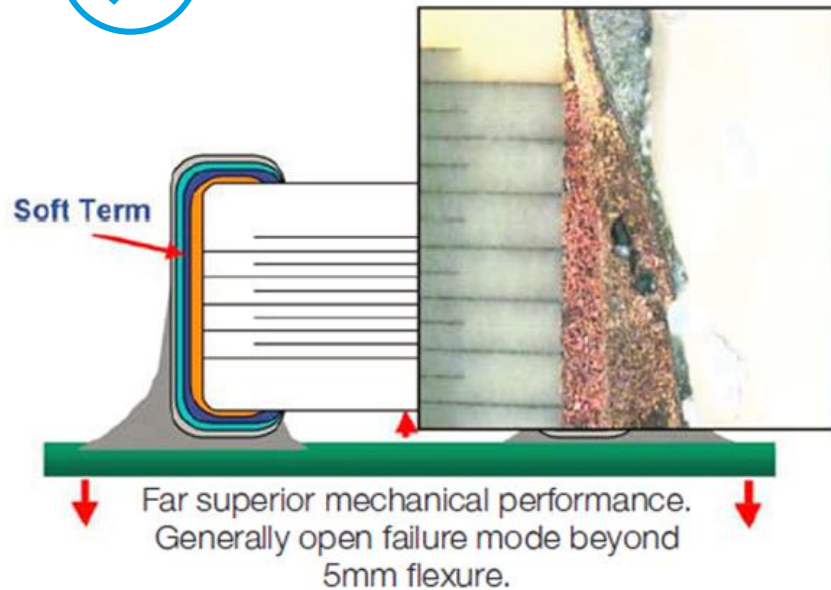
USED IN THE 3009041 RANGE

Benefits of Flexiterm[®]

- Reduces problems during manufacture
- Reduces problems during life time of capacitor in application
- Protection from thermal stressing



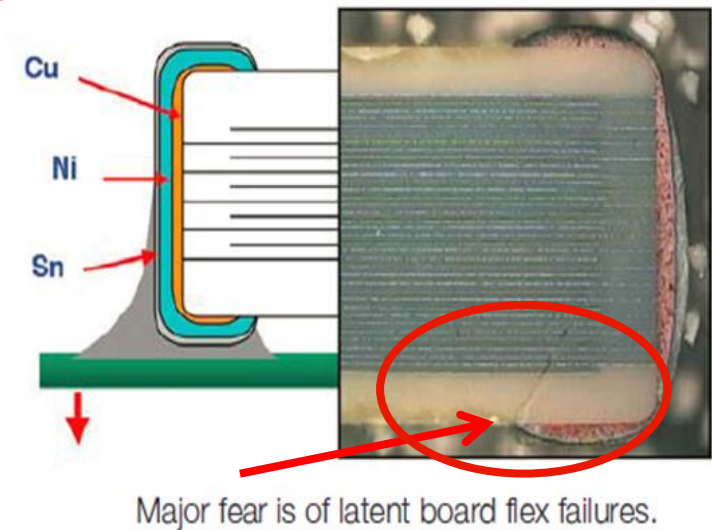
With Flexiterm[®]



VS

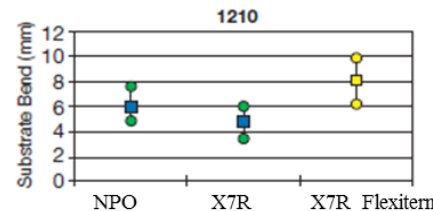
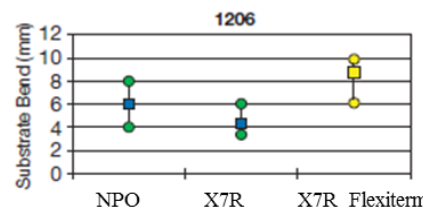
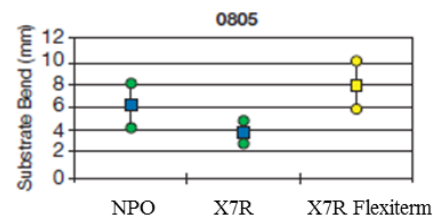
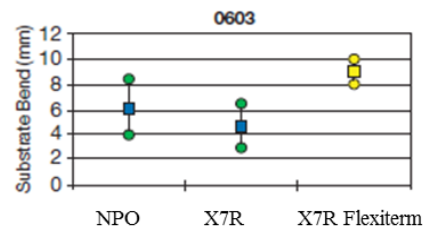
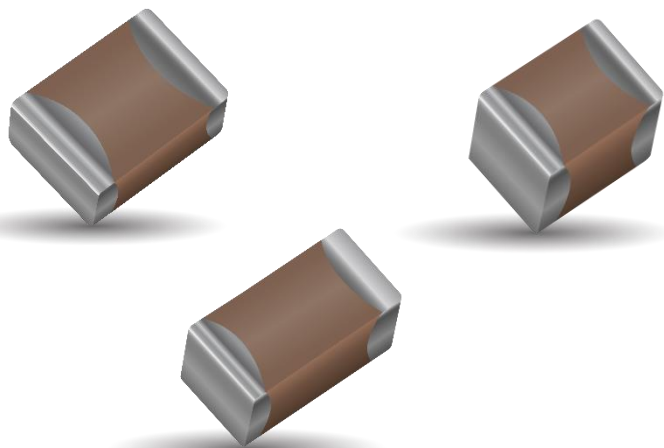


Without Flexiterm[®]

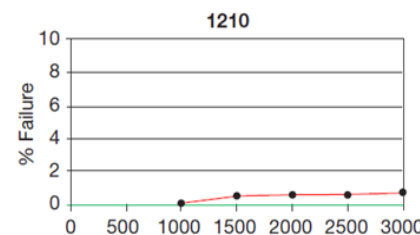
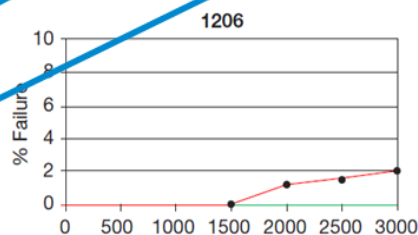
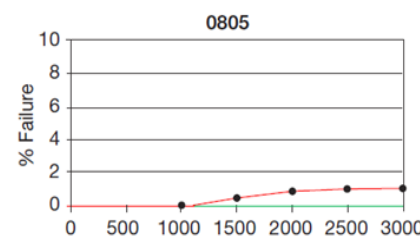
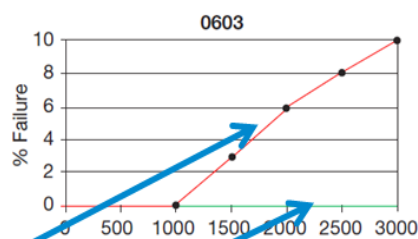


BENEFITS OF FLEXITERM®

USED IN THE 3009041 RANGE



BEYOND 1000 CYCLES: TEMPERATURE CYCLE TEST RESULTS

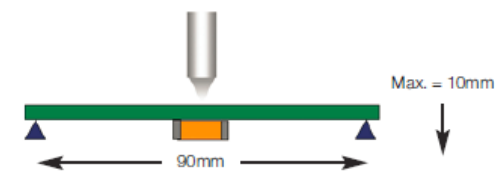


MLCC with out Flexitem®

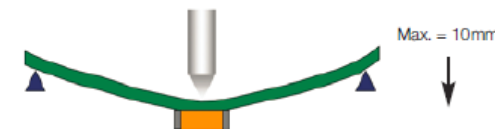
MLCC with Flexitem®

Bend Test

The capacitor is soldered to the printed circuit board as shown and is bent up to 10mm at 1mm per second:



- The board is placed on 2 supports 90mm apart (capacitor side down)
- The row of capacitors is aligned with the load stressing knife



- The load is applied and the deflection where the part starts to crack is recorded (Note: Equipment detects the start of the crack using a highly sensitive current detection circuit)
- The maximum deflection capability is 10mm

NASA G311-P838

QPL SPACE BME 2016

CUSTOMERS: JPL • L3 • Viasat • Collins • Motiv Space •
Ball Aerospace

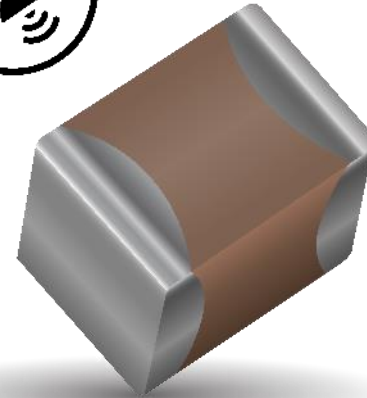
FEATURES

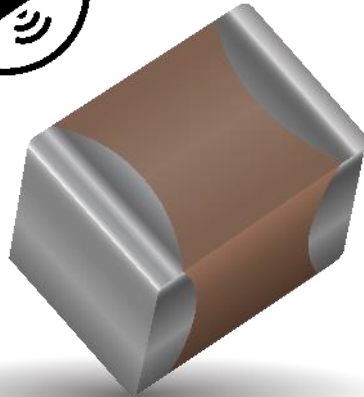
AVX is the first and only company to be awarded the S311-P838 specifications for its Space BME X7R technology.

This technology as approved by NASA, delivers high reliability with a superior capacitance voltage capability compared to conventional technologies.

BENEFITS

1. The Space BME range provides a high CV range.
2. The Space BME enables customers to downsize MLCCs and save PCB space.
3. The range comes with Flexiterm[®] termination which protection against board flexure.





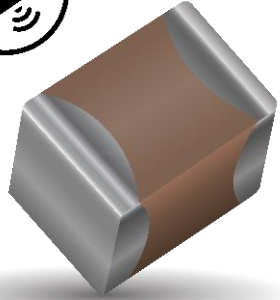
NASA G311-P838

QPL SPACE BME RANGE

Case Size		B (0603)				C (0805)				D (1206)				E (1210)				F (1812)				
Code	Value	16V	25V	50V	100V	16V	25V	50V	100V	16V	25V	50V	100V	16V	25V	50V	100V	16V	25V	50V	100V	
222	2.2 (nF)																					
272	2.7																					
332	3.3																					
392	3.9																					
472	4.7																					
562	5.6																					
682	6.8																					
822	8.2																					
103	10																					
123	12																					
153	15																					
183	18																					
223	22																					
273	27																					
333	33																					
393	39																					
473	47																					
563	56																					
683	68																					
823	82																					
104	100																					
124	120																					
154	150																					
184	180																					
224	220																					
274	270																					
334	330																					
394	390																					
474	470																					
564	560																					
684	680																					
824	820																					
105	1 (µF)																					
125	1.2																					
155	1.5																					
185	1.8																					
225	2.2																					
275	2.7																					
335	3.3																					
395	3.9																					
475	4.7																					
565	5.6																					
685	6.8																					
825	8.2																					
106	10																					

NASA G311P838

QPL SPACE BME



HOW TO ORDER

G311P838

GSFC
Identifier

A

Ultrasonic
Examination
A = 100%

F

Size Code
A = 0402
B = 0603
C = 0805
D = 1206
E = 1210
F = 1812

X

Dielectric
Type
X = X7R

825

Capacitance
in pF
2 significant
digits +
number of
zeros
e.g.
103 = 10nF
225 = 2.2 μ F

J

Tolerance
J = $\pm 5\%$
K = $\pm 10\%$
M = $\pm 20\%$

1

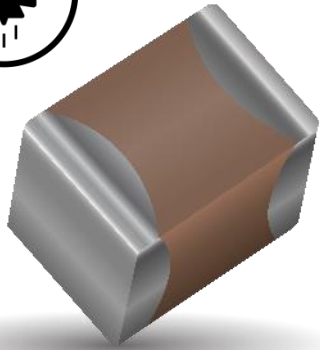
Voltage
1 = 25Vdc
2 = 50Vdc
3 = 100Vdc
6 = 16Vdc

R

Termination
R = Sn/Pb
plated

3

Packaging/
Marking
1 = T/R unmarked capacitors
2 = T/R marked capacitors
3 = Waffle Pack,
unmarked capacitors
4 = Waffle Pack,
marked capacitors



USA MIL PRF 32535

QPL Feb 2018

AVX has completed the qualification (QPL) with the same BME technology to the USA spec. no. **Mil Prf 32535** since Feb 2018. This range **is not** ITAR restricted.

The Mil Prf 32535 qualification uses the same technology as the E.S.A and NASA product groups. It has been expanded to include the 0402 and 2220 case sizes.

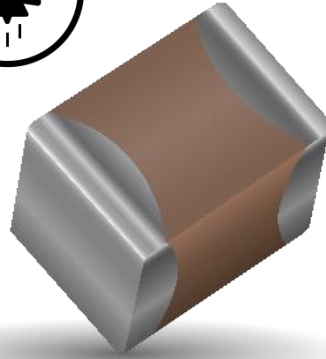
Subsequently the ESA 3009041 spec range has been extended to include the 0402 and 2220 range – **Mid 2018**

USA MIL PRF 32535

QPL SPACE BME

M32535	08	E2	Z	226	K	R	M	B
Mil Spec	Slash Sheet Number	Characteristic	Voltage	Capacitance	Tolerance	Termination	Product Level	Electrode
M32535	02 = 0402 03 = 0603 04 = 0805 05 = 1206 06 = 1210 07 = 1812 08 = 2220	E2 +/- 15 %	Y = 16 V Z = 25 V A = 50 V B = 100 V	682 = 6.8 nF 103 = 10 nF 474 = 470 nF 475 = 4.7 uF 226 = 22 uF	J = ±5% K = ±10 % M = ±20%	R = Epoxy Ni Sn/Pb	M = Standard T = Space level	B = BME

MIL PRF 32535 X7R APPROVED RANGE



MIL PRF 325353

QPL APPROVED

CUSTOMERS:

- Raytheon • Inovar • Seakr • Boeing
- Sandia Nat Labs • Northrup G • Viasat • Mercury Space • Collins

Mil		M3253502			M3253503			M3253504			M3253505			M3253506			M3253507			M3253508		
Case Sizes		0402			0603			0805			1206			1210			1812			2220		
Code	Value	16/25V	50V	100V	16/25V	50V	100V	16/25V	50V	100V	16/25V	50V	100V	16/25V	50V	100V	16/25V	50V	100V	16/25V	50V	100V
222	2.2 (nF)																					
272	2.7																					
332	3.3																					
392	3.9																					
472	4.7																					
562	5.6																					
682	6.8																					
822	8.2																					
103	10																					
123	12																					
153	15																					
183	18																					
223	22																					
273	27																					
333	33																					
393	39																					
473	47																					
563	56																					
683	68																					
823	82																					
104	100																					
124	120																					
154	150																					
184	180																					
224	220																					
274	270																					
334	330																					
394	390																					
474	470																					
564	560																					
684	680																					
824	820																					
105	1 (µF)																					
125	1.2																					
155	1.5																					
185	1.8																					
225	2.2																					
275	2.7																					
335	3.3																					
395	3.9																					
475	4.7																					
565	5.6																					
685	6.8																					
825	8.2																					
106	10																					
126	12																					
156	15																					
186	18																					
226	22																					

USA MIL PRFSPACE BME APPLICATIONS & ADVANTAGES 32535

Space BME products can deliver for its customers on:

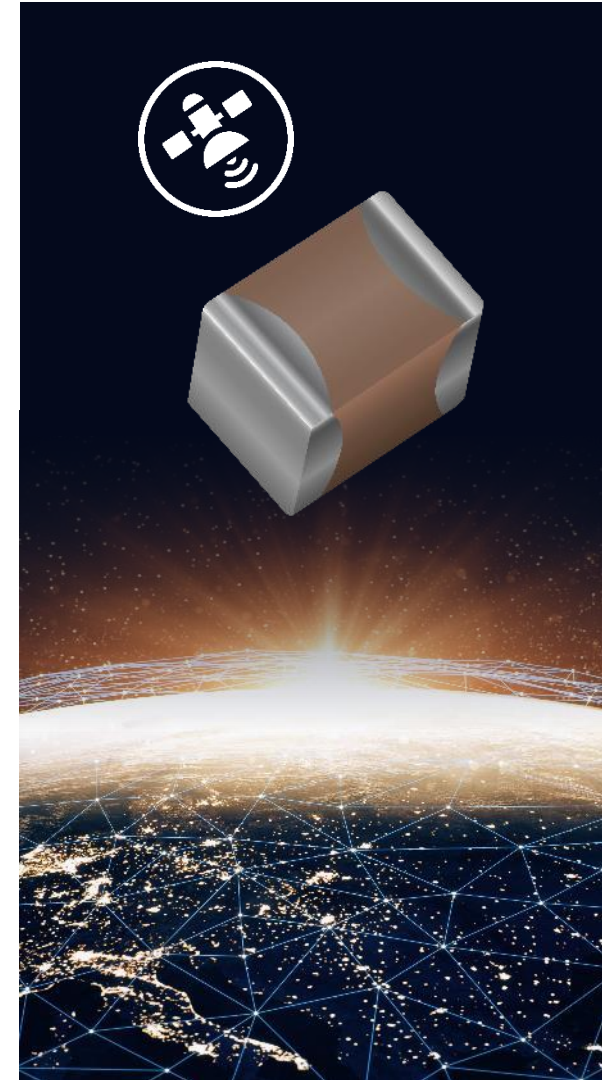
Improved CV efficiency delivering optimized PCB usage by downsizing MLCC sizes plus a reduction in the number of capacitors purchased → weight savings.

Improved mechanical stress resistance with the use of Flexiterm[®] plus Improved thermal cycling performance esp. on smaller case sizes compared to standard termination products up to 3000 cycles -55 to +125°C.

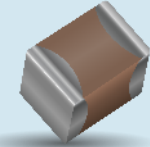
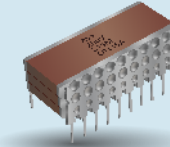
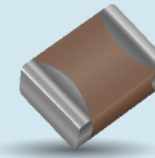
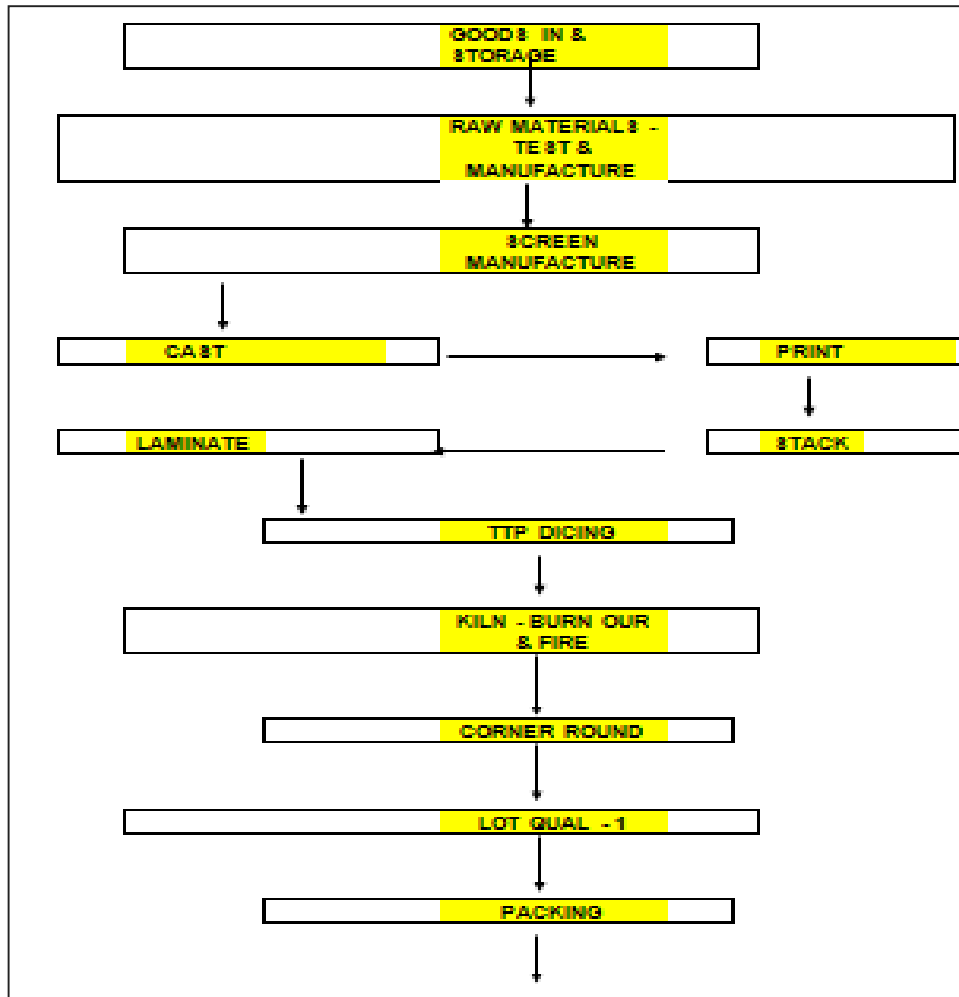
Products can be used in all the traditional X7R applications.

Larger Sizes - Higher Caps eg 1206 to 2220 used in Power Supply design – I/P and O/P smoothing, filtering, and more.

Smaller devices 0402 to 0805 used more in High density Circuit applications for coupling, decoupling, bypass, and more.



Coleraine first phase ESCC – NASA – MIL Process Flow TTP - ESCC



1. Materials Preparation

Ceramic Slurry and Electrode Ink

2. Fabrication Process

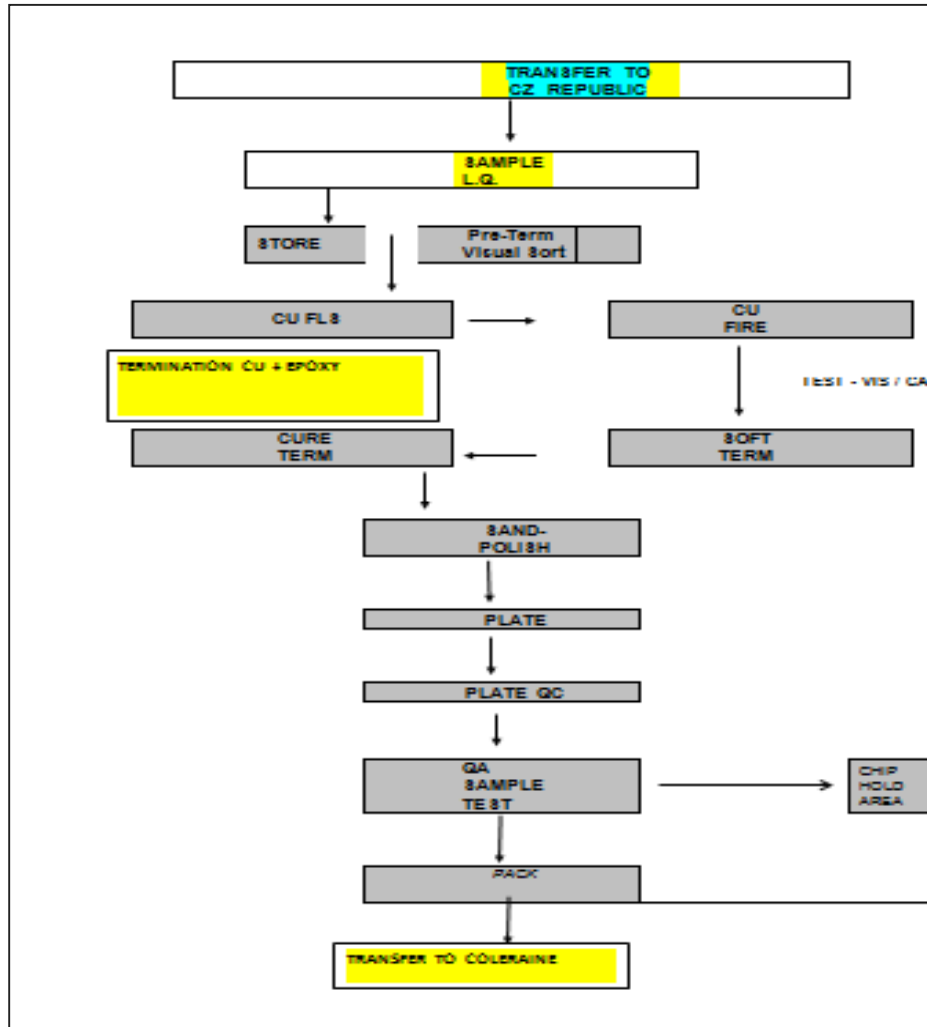
Tape Casting with Ceramic
Tape Ceramic Printing
Tape Printed Layer Stacking
Pad Lamination
Pad Cutting into Single Caps

3. Burn Out of Organics

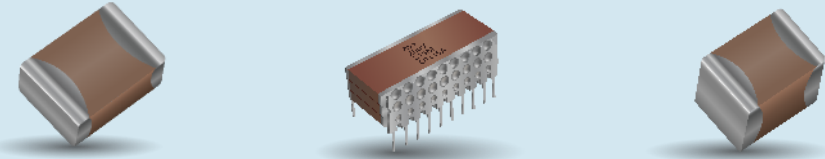
4. Sinter (N2 atm)

5. Corner Round the Edges

Czech Plant Second Phase ESCC + NASA



MIL has 100% CSAM Before the Termination Process



Pre-Termination Visual Inspection

Thick Film Cu Termination

Cu (Term) Fire (N2 Atm)

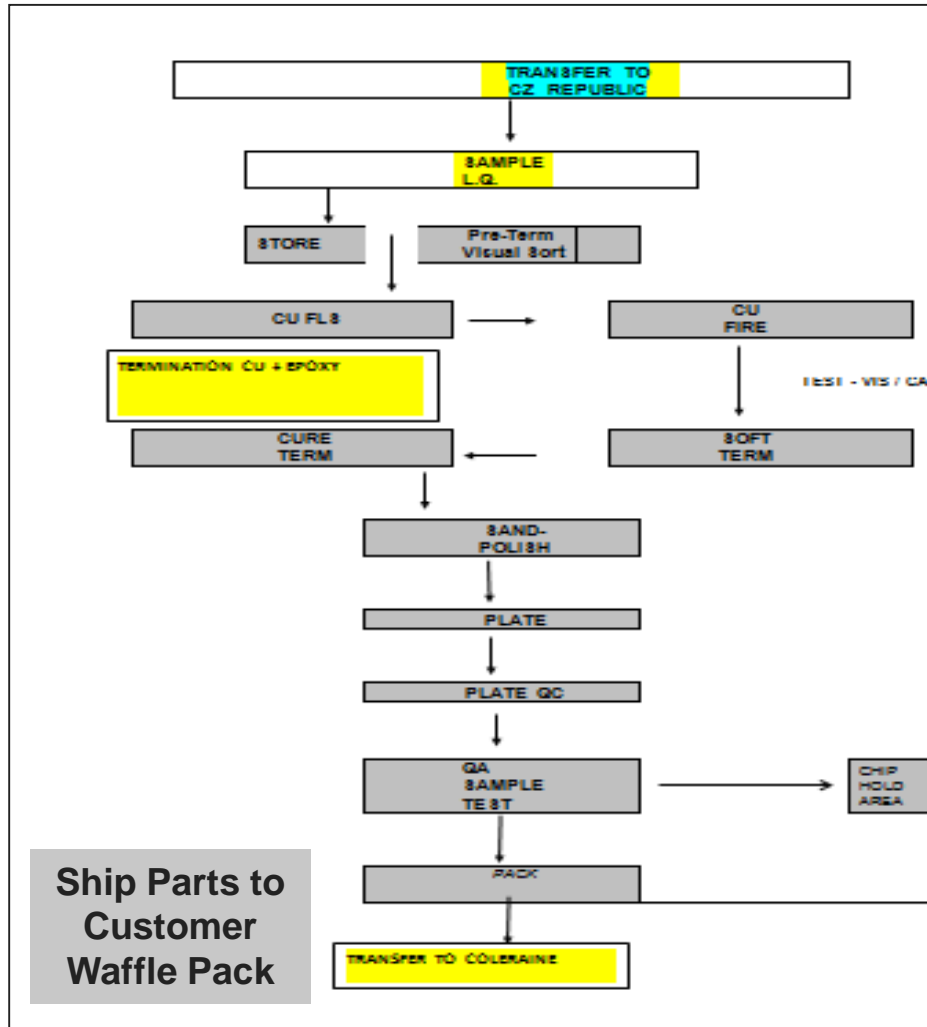
Epoxy Term Application

Epoxy (Term Cure)

Electroplate with Ni and Sn/Pb

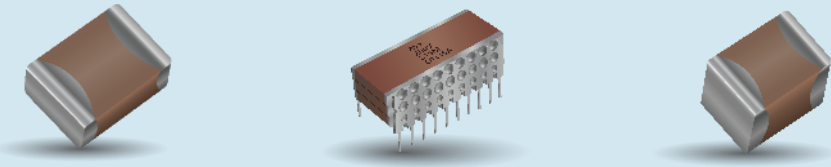
Electrical Test and Reliability Sample Test

Coleraine Third Phase ESCC – NASA – MIL



NASA and MIL has 100% CSAM + Group B Type Tests Adds 8 to 10 weeks to Cycle Time:

ESCC has “optional” L.V.T Tests + Cycle Time



100% Burn In

100% Electrical Screening Cap / DF, Voltage, and IR

100% Visual Sort

Sample Tests TC, LVT, and more.

Data pack prep

Tape & Reel → Ship

EXCESS STOCK - INTERIM STORES - LOCATION

Excess Stock (Finished)		qty	Mid Store Pre -Space Finish Stock	Pre-Term Stores Space Stock				
ITEM	<i>Phase 3</i>	ON HAND	ITEM	<i>Phase 2</i>	ON HAND	ITEM	<i>Phase 1</i>	
04021C332KH8ECR - M32535		24	04021C332KHCEAR - M32535		2314	04021C332KHUEAR - M32535		293609
04021C472KH2EBR - M32535		1025	04025C682KHCEAR - M32535		3375	04021C472KHUEAR - M32535		781588
04025C682KH2EBR - M32535		113	04021C682KHCEAR - M32535		273	04025C153KHUEAR - M32535		948835
0402YC103KE2DNR - ESCC		26	04023C123KHCEAR - M32535		1815	06035C222JEUDGR - ESCC		380851
04025C103KH8EER - M32535		200	04025C153KHCEAR - M32535		2973	06031C222KHUEAR - M32535		241970
04025C273KH8ECR - M32535		34	06031C222KHCEAR - M32535		13611	06031C272JEUDGR - ESCC		534130
06035C562KH8FCR - NASA		306	06035C273JEC DGR - ESCC		2407	06033C332KEUDGR - ESCC		568905
06035C562KH8FDR - NASA		71	06035C273KECDG7 - ESCC		3969	06031C332JEUDGR - ESCC		711952
06031C562JH8FCR - NASA		90	06035C393JEC DGR - ESCC		8698	06031C392JEUDGR - ESCC		687206
06035C682JE2DUR - ESCC		30	06035C473JHCFAR - NASA		2021	06031C472JEUDGR - ESCC		262661
06033C822KE8DOR - ESCC		125	06035C563KHCEAR - M32535		8507	06033C562JEUDGR - ESCC		547903
06035C103JH8FCR - NASA		352	06033C104JEC DGR - ESCC		372	06031C562JHUFAR - NASA		562674
06035C103KE2DNR - ESCC		38	06033C104JHCFAR - NASA		8919	06033C682JEUDGR - ESCC		215069
And More...			And More...			And More...		
Total Excess Stock - 272 Part numbers		27,900 pcs	Total Excess Stock - 98 Part numbers		375,000 pcs	Total Excess Stock - 93 Part nos		13M +
Sizes - 0402 to 2220			Sizes - 0402 to 2220			Sizes - 0402 to 2220		
		ESCC + 6 to 8 Weeks (No LVT) + 16 Weeks with LVT						
		NASA + 8 to 10 Weeks with waiver + 18 Weeks W/O						
		Mil 32535 + 8 to 10 weeks for M level						
		Mil 32535 + 18 to 20 weeks T level						

GSOP GENERIC SEARCH

AVAILABLE TO AVX WORLDWIDE TEAM

GSOP ACCESS

Welcome

Welcome to Access AVX

AVX is an industry leader in passive components with manufacturing operations located around the world. This global reach complements our strategic focus on the fastest growing data processing and telecommunications markets. Our comprehensive product mix also includes components for automotive, consumer, aerospace/military, instrumentation and medical equipment.

Should you need technical assistance or wish to report a problem with this system please let us know using the contact information on this page.

Useful Links

[AVX Limited Standard Terms and Conditions](#)

[AVX Corporation Website](#)

[AVX Part Builder](#)

Updated 12:00 GMT 18/Jan/2016

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Access AVX Server Administrator

Steve McDonagh
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SELECT MENU

The screenshot shows the AVX website's navigation menu. The menu is organized into four main categories: Admin, Products, Quotations, and Orders. The 'Design-In' option under the Quotations category is highlighted in blue. The website also features a 'Welcome' message, a 'Contacts' section with regional administrator information, and a footer with the AVX logo and website URL.

Admin

- My Account
- Customer Manager
- Customer Projects
- Customer Contacts
- User Admin

Products

- Pricing
- Search by Part
- Generic Search
- Part Attribute Search

Quotations

- Search Quotes
- Set RFQ Pref
- RFQ Coord Manager
- Samples App
- Design-In**
- Design-In
- Design-In Approval
- Design-In Approval - NEW

Orders

- Drawing-Search
- Search Orders
- Search Shipments

Welcome

AVX is an industry leader in providing high-quality, reliable, and cost-effective solutions for your business. Our products are designed to meet the most demanding requirements of your application, and our customer support is available around the world to help you get the most out of your investment.

Should you need any assistance, please let us know. We will be happy to help you.

Contacts

Access AVX Administrator (America) Dwight Herring +1 864 967 9348 Email Dwight	Access AVX Administrator (Europe) Eva Bukvaldova +420 575 757 515 Email Eva	Access AVX Administrator (Asia) Stella Pan +86 (0)21 3255 1933*110 Email Stella	Access AVX Server Administrator Steve McDonagh +44 (0)28 703 40482 Email Steve
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GMT 18/Jan/2016

SELECT GENERIC SEARCH

Access AVX Menu ▾ Help Change Language ▾

Home Generic Search x

Generic Product Search

You can search for an AVX part or a Competitor part using * as a wildcard character.
For example entering 0805*102* will select any part number beginning 0805 and containing the characters 102.

For best performance please provide the first 4 characters.

 AVX Competitor

[Search Database](#)

ENTER PART NUMBER

Enter first section of part number:

3009041 (ESA spec)

M32535 (Mil spec)

G311P838 (Nasa Spec)

Note pricing information must be quoted separately.

Quantities shown are the max number available.

May be made up from a number of smaller lots - important when SLDC is requested.

Dates on screen earliest standard lead times for additional quantities.

EXAMPLE OF NASA SPEC PARTS

Inventory Enquiry

Save this Search

Description

Generic Search

Search String

G311*

Search

Part Number	AVX Spec	Location	Pack Qty	Lead Time	Qty Available	Info
G311P838ABX103J3R2	*****	Europe	1	15.Mar.2021	49	Price
G311P838ABX103K2R1	*****	Europe	1	15.Mar.2021	103	Price
G311P838ABX104J1R2	*****	Europe	1	15.Mar.2021	64	Price
G311P838ABX104J2R2	*****	Europe	1	15.Mar.2021	54	Price
G311P838ABX104K2R1	*****	Europe	1	15.Mar.2021	72	Price
G311P838ABX104K6R3	*****	Europe	1	15.Mar.2021	104	Price
G311P838ABX222J2R2	*****	Europe	1	15.Mar.2021	59	Price
G311P838ABX473J2R2	*****	Europe	1	15.Mar.2021	26	Price
G311P838ABX473K1R3	*****	Europe	1	15.Mar.2021	92	Price
G311P838ABX562J3R2	*****	Europe	1	15.Mar.2021	90	Price
G311P838ABX562K2R2	*****	Europe	1	15.Mar.2021	306	Price
G311P838ACX103K2R3	*****	Europe	1	15.Mar.2021	96	Price
G311P838ACX103K3R2	*****	Europe	1	15.Mar.2021	43	Price
G311P838ACX104J2R1	*****	Europe	1	15.Mar.2021	90	Price
G311P838ACX104K2R2	*****	Europe	1	15.Mar.2021	149	Price

Return

Next >>

EXAMPLE OF MIL SPEC PARTS

Inventory Enquiry

[Save this Search](#)

Description

Search String [Search](#)

Part Number	AVX Spec	Location	Pack Qty	Lead Time	Qty Available	Info
M3253502E2A273KRTB	*****	Europe		1 15.Mar.2021		34 Price
M3253502E2A682KRTB	*****	Europe		1 15.Mar.2021		113 Price
M3253502E2B332KRTB	*****	Europe		1 15.Mar.2021		24 Price
M3253502E2B472KRTB	*****	Europe		1 15.Mar.2021		1,025 Price
M3253503E2A104KRMB	*****	Europe		1 15.Mar.2021		21 Price
M3253503E2A104KRTB	*****	Europe		1 15.Mar.2021		2,489 Price
M3253503E2A333KRTB	*****	Europe		1 15.Mar.2021		92 Price
M3253503E2Z104KRMB	*****	Europe		1 15.Mar.2021		12 Price
M3253503E2Z104KRTB	*****	Europe		1 15.Mar.2021		342 Price
M3253504E2A184KRTB	*****	Europe		1 15.Mar.2021		39 Price
M3253504E2A224JRMB	*****	Europe		1 15.Mar.2021		35 Price
M3253504E2A224KRTB	*****	Europe		1 15.Mar.2021		147 Price
M3253504E2B104KRTB	*****	Europe		1 15.Mar.2021		112 Price
M3253504E2B223KRMB	*****	Europe		1 15.Mar.2021		35 Price
M3253504E2B223KRTB	*****	Europe		1 15.Mar.2021		951 Price

[Return](#) [Next >>](#)

EXAMPLE OF ESCC SPEC PARTS

Inventory Enquiry

[Save this Search](#)

Description

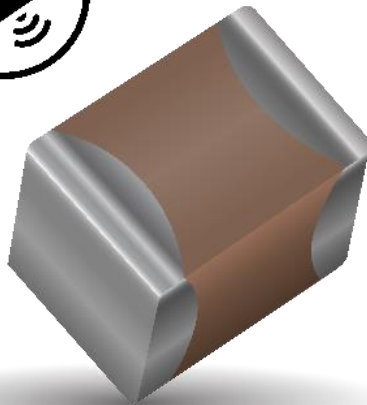
Search String [Search](#)

Part Number	AVX Spec	Location	Pack Qty	Lead Time	Qty Available	Info
300904101333KA	*****	Europe	1	09.Nov.2020	142	Price
300904102103JA	*****	Europe	1	09.Nov.2020	56	Price
300904102103JC	*****	Europe	1	09.Nov.2020	26	Price
300904102103JX	*****	Europe	1	09.Nov.2020	9	Price
300904102103KC	*****	Europe	1	09.Nov.2020	38	Price
300904102103KE	*****	Europe	1	09.Nov.2020	40	Price
300904102104JA	*****	Europe	1	09.Nov.2020	18	Price
300904102104JA	*****	Europe	1	23.Nov.2020	41	Price
300904102104KA	*****	Europe	1	09.Nov.2020	477	Price
300904102104KA	*****	Europe	1	21.Dec.2020	86	Price
300904102104KA	*****	Europe	1	23.Nov.2020	11	Price
300904102104KC	*****	Europe	1	09.Nov.2020	69	Price
300904102104KC	*****	Europe	1	09.Nov.2020	534	Price
300904102104KC	*****	Europe	1	23.Nov.2020	41	Price
300904102222JX	*****	Europe	1	09.Nov.2020	16	Price

[Return](#) [Next >>](#)

LOW INDUCTANCE MLCC CAPACITORS FOR HIGH SPEED MICRO-PROCESSOR CIRCUITS

Product Description:



Inter-Digitated Capacitors (IDC) provide semiconductor package and board level decoupling

The **ESL** of the capacitor(s) determine response time of the power delivery network

Low ESL device delivers *faster response time*

Higher speed processors need this faster response achieved via multiple MLCC caps in parallel OR a single IDC

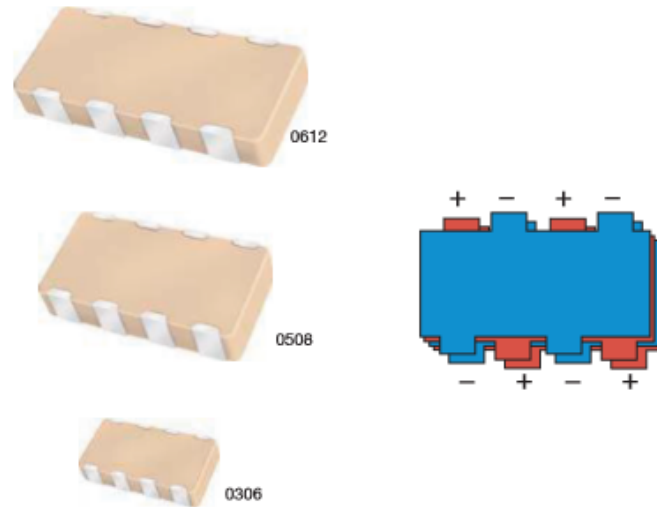
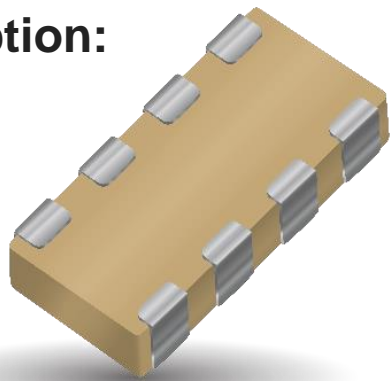
IDC typical small sizes 0306 or 0508, 0612 larger

Available with a max height of 0.95mm or the **low-profile version 0.55mm**

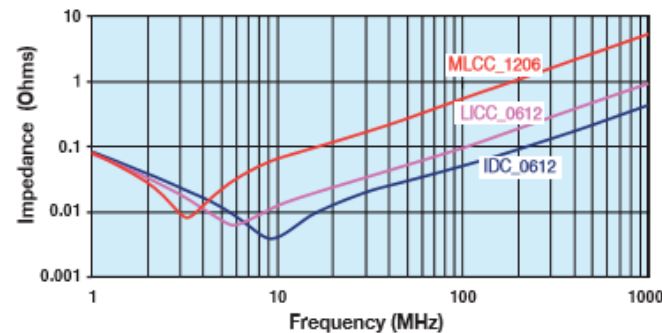
Available in Sn/Pb finish for Space and military applications

LOW INDUCTANCE MLCC CAPACITORS FOR HIGH SPEED MICRO-PROCESSOR CIRCUITS

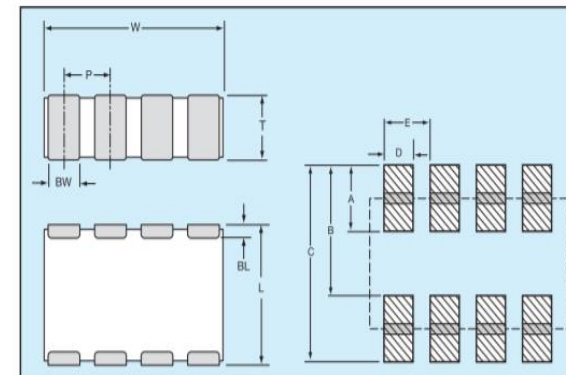
Product Description:



TYPICAL IMPEDANCE



PHYSICAL DIMENSIONS AND PAD LAYOUT



Consult factory for additional requirements

- = X7R
- = X5R
- = X7S

PHYSICAL CHIP DIMENSIONS MILLIMETERS (INCHES)

SIZE	W	L	BW	BL	P
0306	1.60 ± 0.20 (0.063 ± 0.008)	0.82 ± 0.10 (0.032 ± 0.006)	0.25 ± 0.10 (0.010 ± 0.004)	0.20 ± 0.10 (0.008 ± 0.004)	0.40 ± 0.05 (0.015 ± 0.002)
	2.03 ± 0.20 (0.080 ± 0.008)	1.27 ± 0.20 (0.050 ± 0.008)	0.30 ± 0.10 (0.012 ± 0.004)	0.25 ± 0.15 (0.010 ± 0.006)	0.50 ± 0.05 (0.020 ± 0.002)
0508	3.20 ± 0.20 (0.126 ± 0.008)	1.60 ± 0.20 (0.063 ± 0.008)	0.50 ± 0.10 (0.020 ± 0.004)	0.25 ± 0.15 (0.010 ± 0.006)	0.80 ± 0.10 (0.031 ± 0.004)

PAD LAYOUT DIMENSIONS

SIZE	A	B	C	D	E
0306	0.38 (0.015)	0.89 (0.035)	1.27 (0.050)	0.20 (0.008)	0.40 (0.015)
	0.64 (0.025)	1.27 (0.050)	1.91 (0.075)	0.28 (0.011)	0.50 (0.020)
0508	0.89 (0.035)	1.65 (0.065)	2.54 (0.101)	0.45 (0.018)	0.80 (0.031)

LOW INDUCTANCE MLCC CAPACITORS FOR HIGH SPEED MICRO-PROCESSOR CIRCUITS

IDC Product Qualification Plan Hi Rel

PERFORMANCE SPECIFICATION SHEET

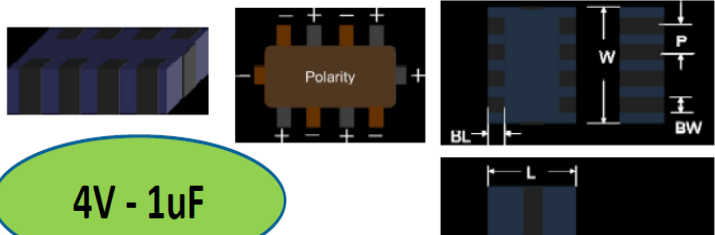
CAPACITORS, CHIP, MULTIPLE LAYER, FIXED, CERAMIC DIELECTRIC (GENERAL PURPOSE), STANDARD RELIABILITY AND HIGH RELIABILITY, STYLE IDC 0306 (Interdigitated Capacitor)

This specification sheet is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification sheet and MIL-PRF-32535.

0306

X7S



4V - 1uF

TABLE I. Style IDC 0306 capacitor characteristics.

Part or Identifying Number (PIN) 1/	Capacitance (pF)	Capacitance tolerance	VTL/TC	Rated voltage (Vdc)	Electrode Material
M3253511E3-104---	100,000	M	X7S	4	B
M3253511E3-224---	220,000	M	X7S	4	B
M3253511E3-334---	330,000	M	X7S	4	B
M3253511E3-474---	470,000	M	X7S	4	B
M3253511E3-105---	1,000,000	M	X7S	4	B

PERFORMANCE SPECIFICATION SHEET

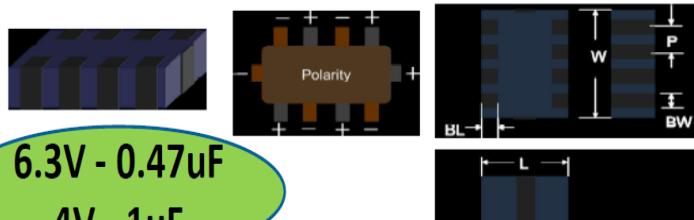
CAPACITORS, CHIP, MULTIPLE LAYER, FIXED, CERAMIC DIELECTRIC (GENERAL PURPOSE), STANDARD RELIABILITY AND HIGH RELIABILITY, STYLE IDC 0508 (Interdigitated Capacitor)

This specification sheet is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification sheet and MIL-PRF-32535.

0508

X7R



6.3V - 0.47uF
4V - 1uF

Part or Identifying Number (PIN) 1/	Capacitance (pF)	Capacitance tolerance	VTL/TC	Rated voltage (Vdc)	Electrode Material
M3253513E2-104---	100,000	M	X7R	6.3	B
M3253513E2-224---	220,000	M	X7R	6.3	B
M3253513E2-334---	330,000	M	X7R	6.3	B
M3253513E2-474---	470,000	M	X7R	4	B
M3253513E2-684---	680,000	M	X7R	4	B
M3253513E2-105---	1,000,000	M	X7R	4	B

PERFORMANCE SPECIFICATION SHEET

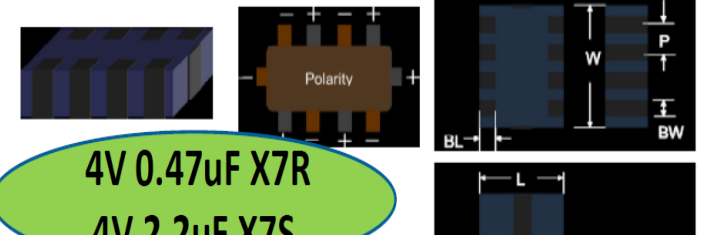
CAPACITORS, CHIP, MULTIPLE LAYER, FIXED, CERAMIC DIELECTRIC (GENERAL PURPOSE), STANDARD RELIABILITY AND HIGH RELIABILITY, STYLE IDC Thin 0508 (Interdigitated Capacitor)

This specification sheet is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification sheet and MIL-PRF-32535.

0508 -
Thin

X7R &
X7S

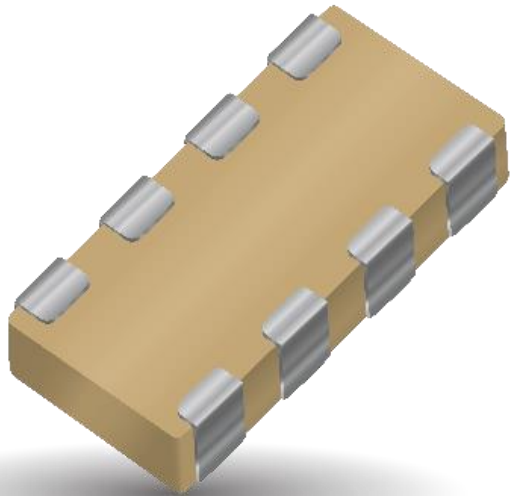


4V 0.47uF X7R
4V 2.2uF X7S

TABLE I. Style IDC Thin 0508 capacitor characteristics.

Part or Identifying Number (PIN) 1/	Capacitance (pF)	Capacitance tolerance	VTL/TC	Rated voltage (Vdc)	Electrode Material
M3253512E2-334---	330,000	M	X7R	4	B
M3253512E2-474---	470,000	M	X7R	4	B
M3253512E3-684---	680,000	M	X7S	4	B
M3253512E3-105---	1,000,000	M	X7S	4	B
M3253512E3-225---	2,200,000	M	X7S	4	B

LOW INDUCTANCE MLCC CAPACITORS FOR HIGH SPEED MICRO-PROCESSOR CIRCUITS



IDC - Low Inductance device qualification underway for Mil 32535 specification

Product focus 10T 0306 1uF & 0508 2.2uF

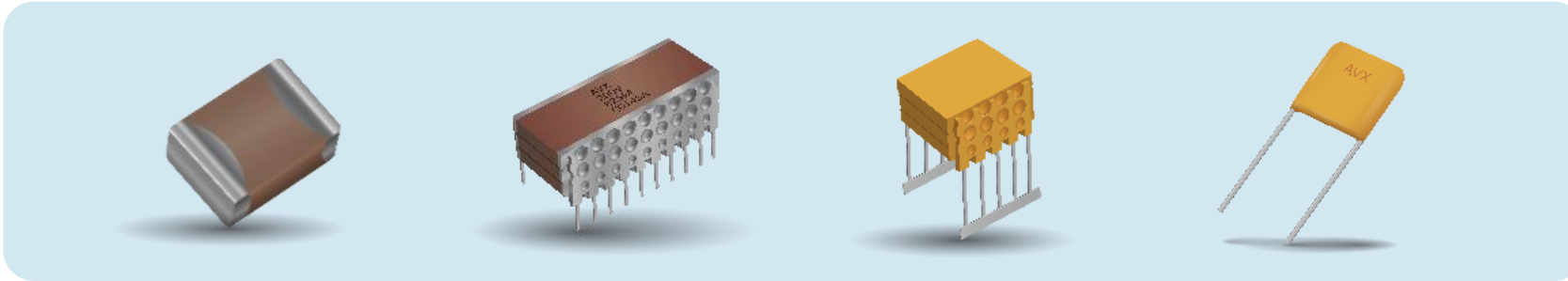
- Samples on 4000hr testing
- Tests to complete Dec 2020

DLA Audit 2nd Half 2020 of Penang facility (COVID ?)

Materials and Process Optimized

- **Ceramic formulation modified for improved v/um capability**
- **Tooling available for 10T termination and electrical testing**
- **Testing systems now available for 100% Burn-In**
- **100% CSAM Pre + Post termination**

SUMMARY



Space / High Reliability Ceramic Capacitors continuous business growth.

Manufacturing capacity additions emphasis at CSAM and Burn In.

In house high reliability excess stock inventory available.

Technical product and range development:

- NP0 (C0G) offering in MIL32535 Space BME
 - Low Inductance (Interdigitated, LICC) offering in MIL32535 Space BME
-

Additional FAE and marketing support

THANK YOU.



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