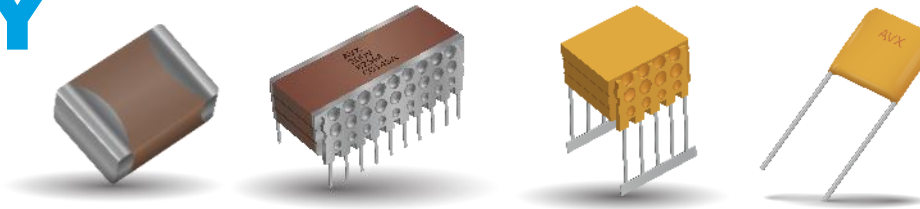




HIGH RELIABILITY, DEFENSE & SPACE APPLICATIONS

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

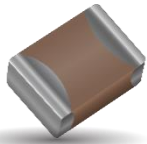
HIGH RELIABILITY

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

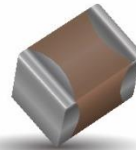
Voltage: 10V - 500V

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](#)

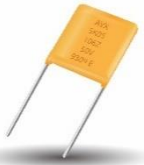
HIGH RELIABILITY

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: 0.15μF – 270μF

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 – 180μF

ESCC 3001030 • ESCC 3001034 • CECC 30701

ESCC 3012

Learn More

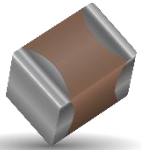
HIGH RELIABILITY

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

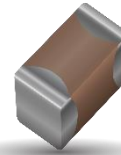
Voltage: 16V - 100V

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](#)

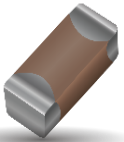
HIGH RELIABILITY

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
- **Flexitem® technology for greater protection**
- Max cap value 22 μ F
- Termination with Sn/Pb

Oper. Temp: -55°C to +150°C

Case: 0402 – 2220

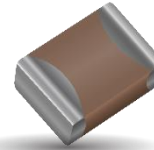
Voltage: 16V - 100V

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

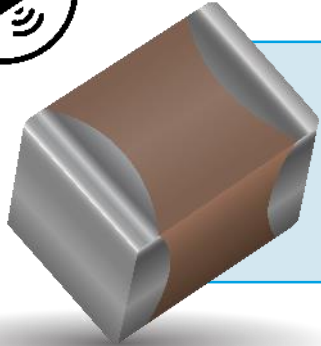
CECC 32101 • CECC 32100

➤ [Learn More](#)

AVX SPACE QPL QUALIFIED CERAMIC PRODUCTS BME



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

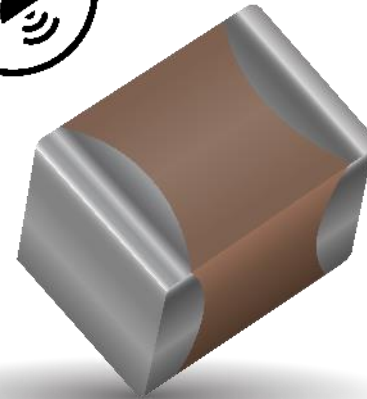
The AVX Space BME (Base Metal Electrode) X7R surface mount MLCCs utilizes the leading-edge technology in MLCC construction and processing.

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 Flexitem® termination which protection against board flexure.

[ESA web link](#)



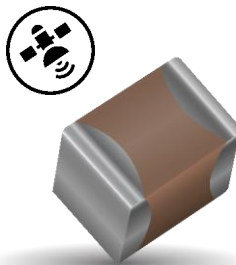
APPLICATIONS

Satellites
Launchers
Exploration craft

E.S.A

3009041

APPROVED



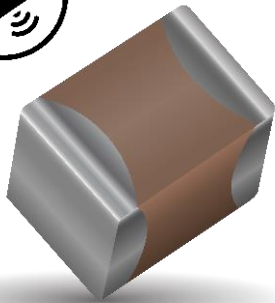
Case Sizes		0402			0603			0805			1206			1210			1812			2220		
Code	Value	16/25v	50v	100v	16/ 25v	50v	100v	16/25v	50v	100v	16/25v	50v	100v	16/25v	50v	100v	16/ 25v	50v	100v	16/ 25v	50v	100v
222	2.2nf																					
272	2.7nf																					
332	3.3nf																					
392	3.9nf																					
472	4.7nf																					
562	5.6nf																					
682	6.8nf																					
822	8.2nf																					
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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																					
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)	e.g. 103 = 10nF	J = 5 %	X = 16 V
	02 (0603)	e.g. 225 = 2.2uF	K = 10 %	A = 25 V
	03 (0805)	e.g. 226 = 22uF	M = 20 %	C = 50 V
	04 (1206)			E = 100 V
	05 (1210)			
	06 (1812)			
	07(2220)			



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)

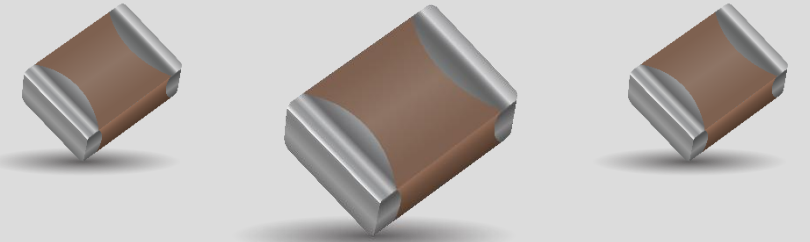
mm (inches)

BENEFITS OF FLEXITERM®

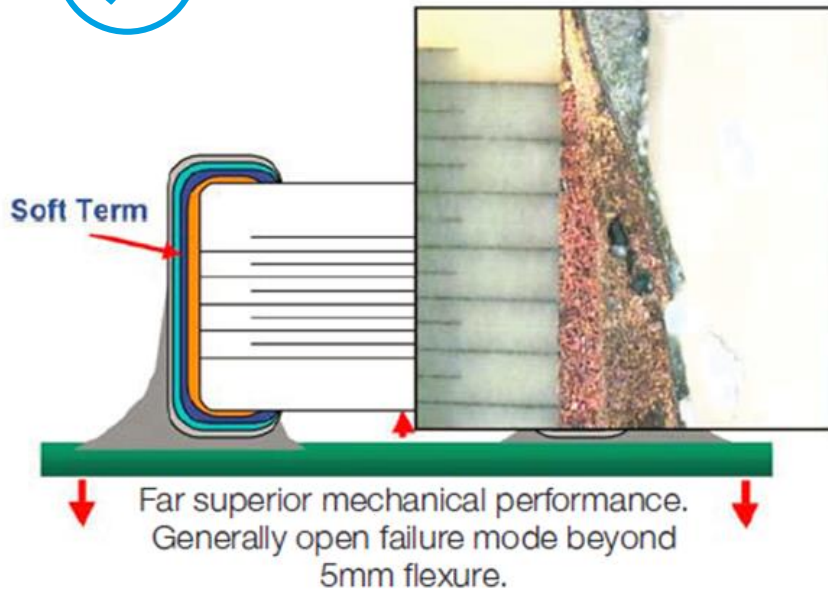
USED IN THE 3009041 RANGE

Benefits of Flexitem®

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



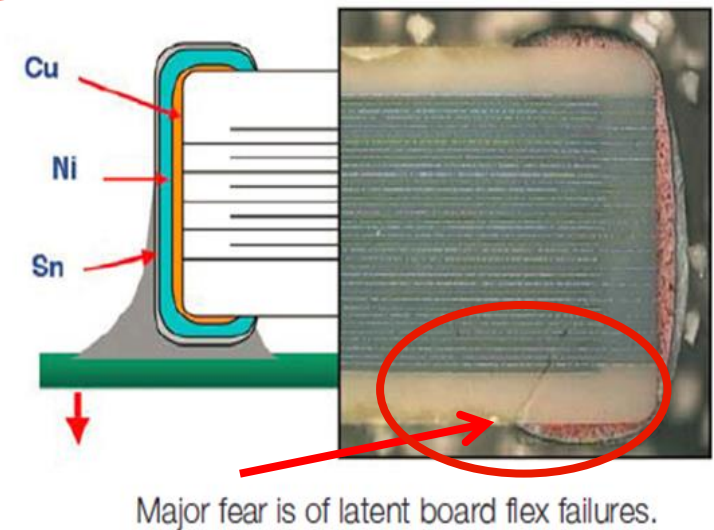
With Flexitem®



VS

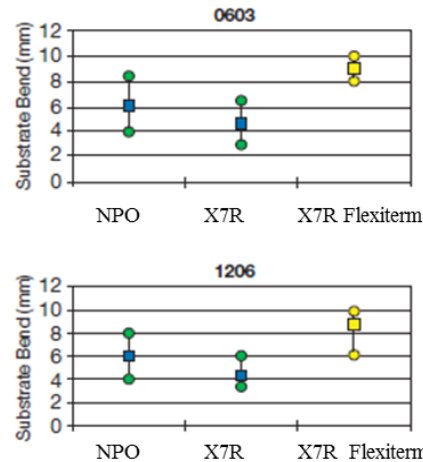


Without Flexitem®

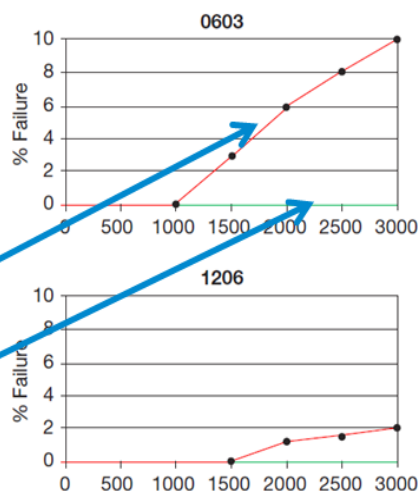


BENEFITS OF FLEXITERM[®]

USED IN THE 3009041 RANGE



BEYOND 1000 CYCLES: TEMPERATURE CYCLE TEST RESULTS

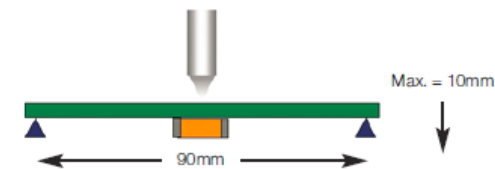


MLCC **with out** Flexitem[®]

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

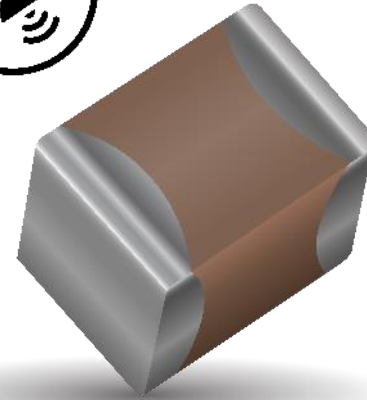
FEATURES

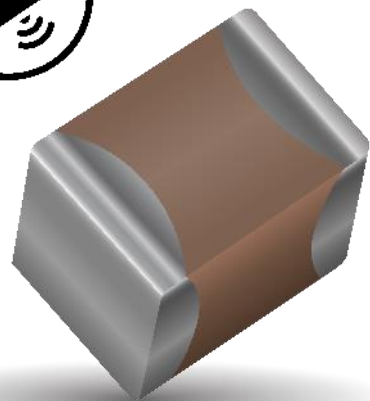
AVX is the first and only company to be awarded the S311-P838 specifications for its Space BME X7R technology.

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 Flexitem® termination which protection against board flexure.





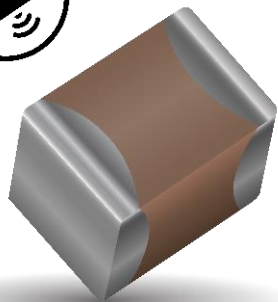
NASA G311-P838

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																				
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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

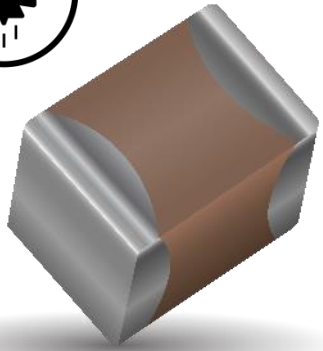
Voltage
1 = 25Vdc
2 = 50Vdc
3 = 100Vdc
6 = 16Vdc

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.

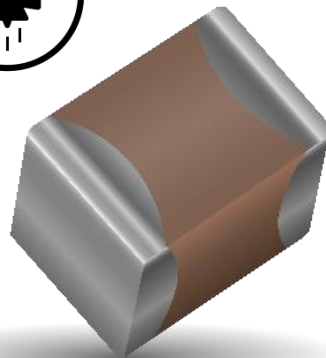
The Mil Prf 32535 qualification uses the same technology as the E.S.A and NASA product groups. It has been expanded to include the 0402 and 2220 case sizes.

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 325353

QPL APPROVED

CUSTOMERS:

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

MIL PRF 32535 X7R APPROVED RANGE

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																					
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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:

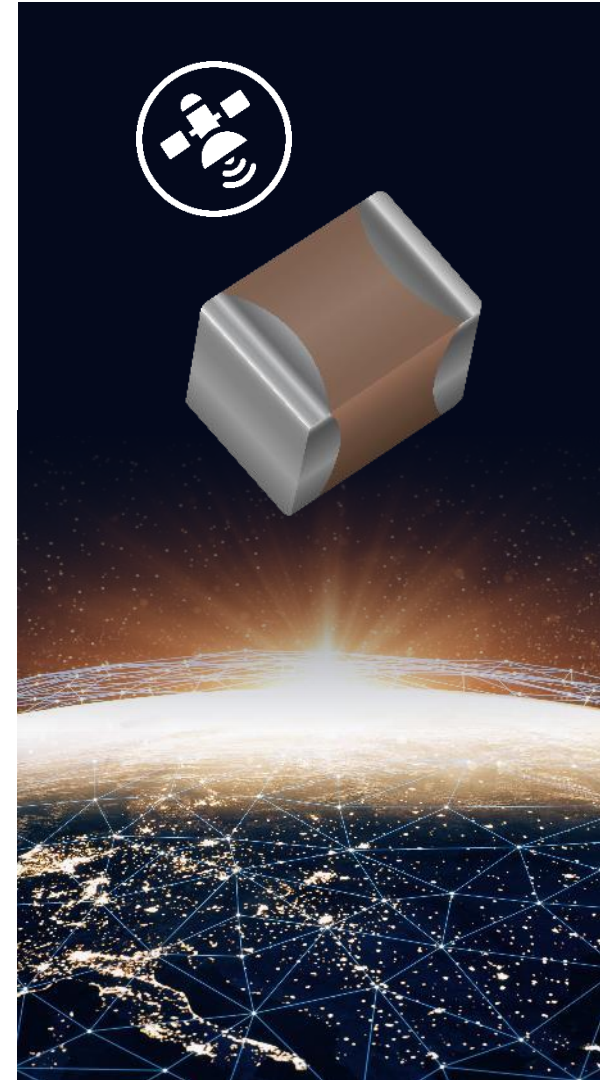
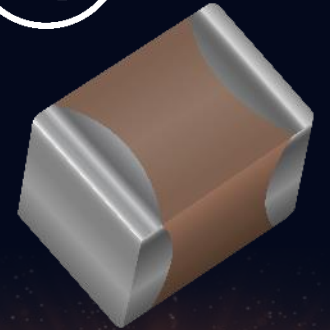
Improved CV efficiency delivering optimized PCB usage by downsizing MLCC sizes plus a reduction in the number of capacitors purchased → weight savings.

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

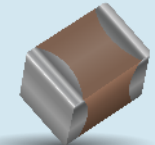
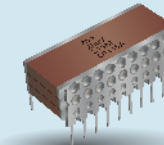
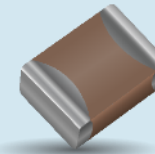
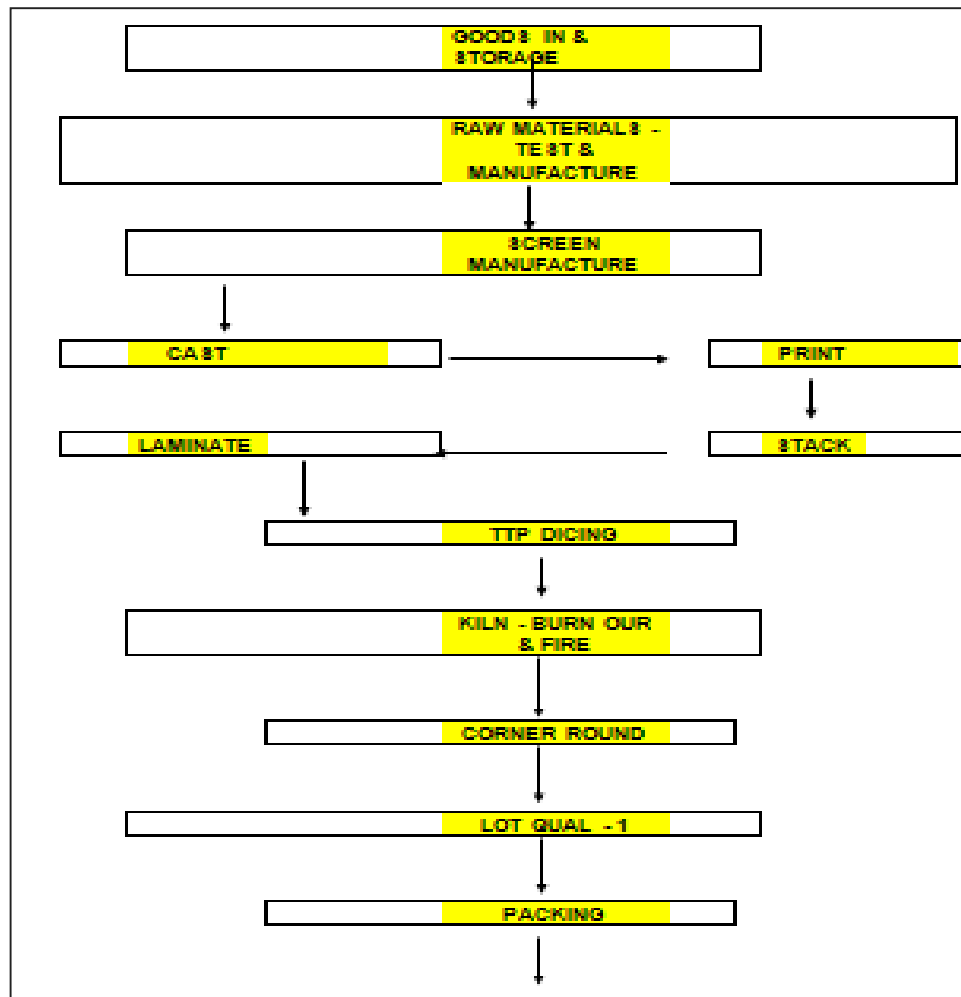
Products can be used in all the traditional X7R applications.

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

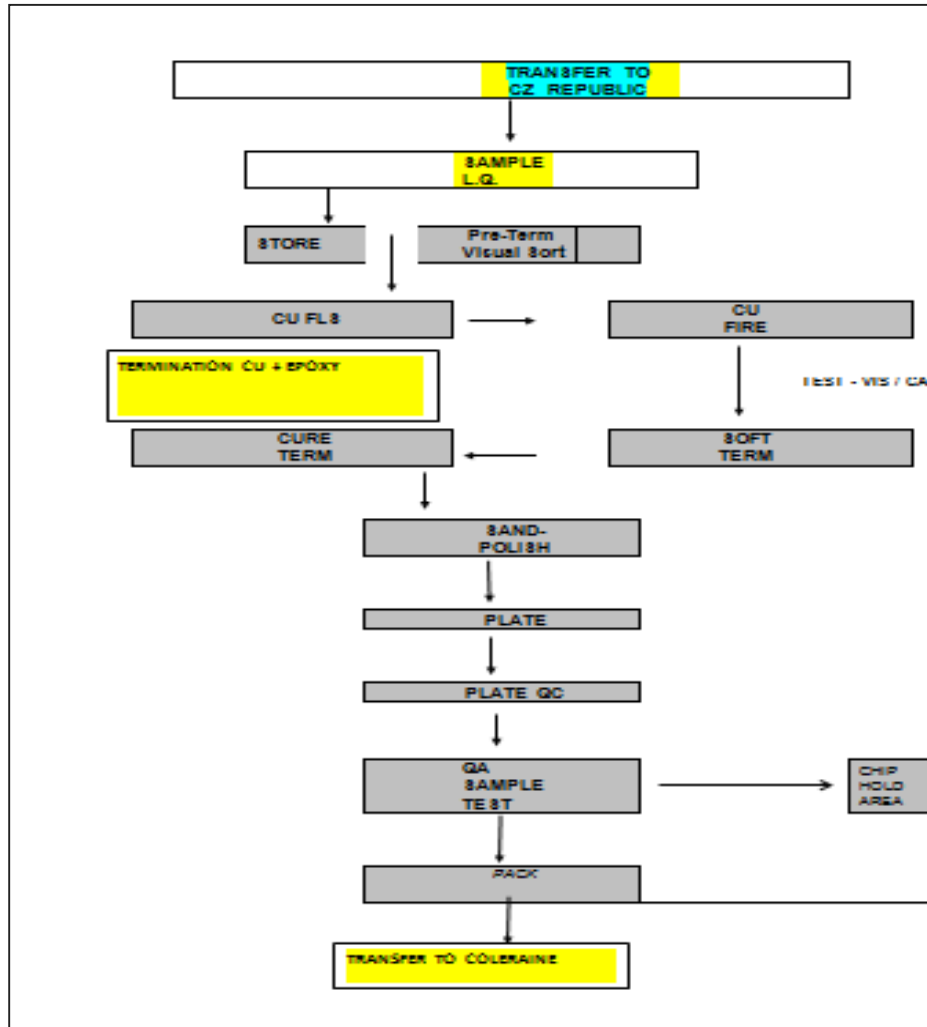
Tape Casting with Ceramic
Tape Ceramic Printing
Tape Printed Layer Stacking
Pad Lamination
Pad Cutting into Single Caps

3. Burn Out of Organics

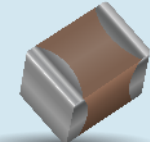
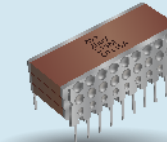
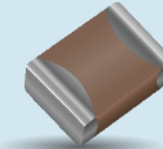
4. Sinter (N2 atm)

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)

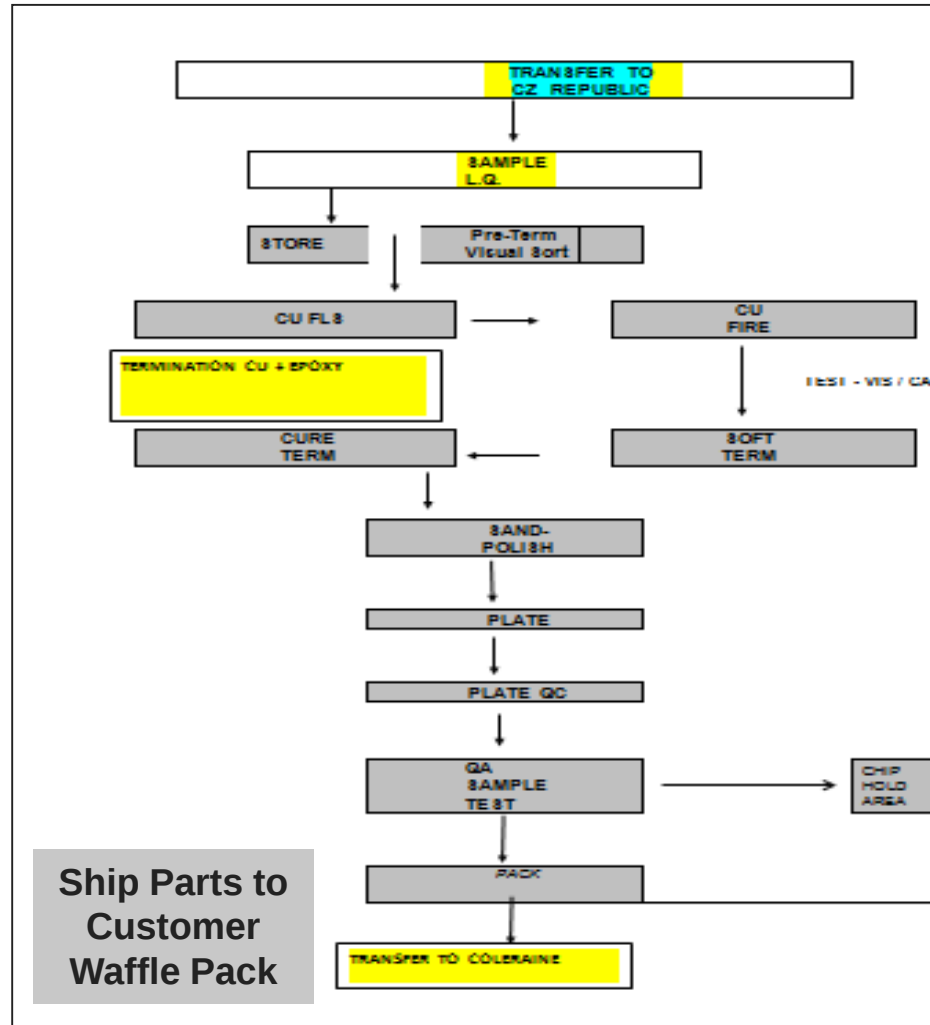
Epoxy Term Application

Epoxy (Term Cure)

Electroplate with Ni and Sn/Pb

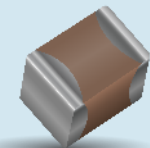
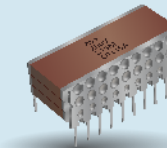
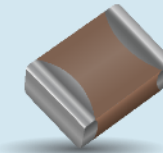
Electrical Test and Reliability Sample Test

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	Phase 3	ON HAND	ITEM	Phase 2	ON HAND	ITEM	Phase 1
04021C332KH8ECR - M32535		24	04021C332KHCEAR - M32535		2314	04021C332KHUEAR - M32535	
04021C472KH2EBR - M32535		1025	04025C682KHCEAR - M32535		3375	04021C472KHUEAR - M32535	
04025C682KH2EBR - M32535		113	04021C682KHCEAR - M32535		273	04025C153KHUEAR - M32535	
0402YC103KE2DNR - ESCC		26	04023C123KHCEAR - M32535		1815	06035C222JEUDGR - ESCC	
04025C103KH8EER - M32535		200	04025C153KHCEAR - M32535		2973	06031C222KHUEAR - M32535	
04025C273KH8ECR - M32535		34	06031C222KHCEAR - M32535		13611	06031C272JEUDGR - ESCC	
06035C562KH8FCR - NASA		306	06035C273JECDGR - ESCC		2407	06033C332KEUDGR - ESCC	
06035C562KH8FDR - NASA		71	06035C273KECDG7 - ESCC		3969	06031C332JEUDGR - ESCC	
06031C562JH8FCR - NASA		90	06035C393JECDGR - ESCC		8698	06031C392JEUDGR - ESCC	
06035C682JE2DUR - ESCC		30	06035C473JHCFAR - NASA		2021	06031C472JEUDGR - ESCC	
06033C822KE8DOR - ESCC		125	06035C563KHCEAR - M32535		8507	06033C562JEUDGR - ESCC	
06035C103JH8FCR - NASA		352	06033C104JECDGR - ESCC		372	06031C562JHUFAR - NASA	
06035C103KE2DNR - ESCC		38	06033C104JHCFAR - NASA		8919	06033C682JEUDGR - ESCC	
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	
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

Contacts

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SELECT MENU

The screenshot shows the AVX website's navigation menu. The 'Design-In' option is highlighted in blue. The menu structure is as follows:

- Admin
 - My Account
 - Customer Manager
 - Customer Projects
 - Customer Contacts
 - User Admin
- App Management
 - Drawing-Search
- Products
 - Pricing
 - Search by Part
 - Generic Search
 - Part Attribute Search
- Orders
 - Search Orders
 - Search Shipments
- Quotations
 - Search Quotes
 - Set RFQ Pref
 - RFQ Coord Manager
 - Samples App
 - Design-In (highlighted)
 - Design-In
 - Design-In Approval
 - Design-In Approval - NEW

The 'Design-In' option is highlighted in blue. The 'Design-In' option is highlighted in blue.

Contacts

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

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

Generic Search

Search String

M32535

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

Generic Search

Search String

3009

Search

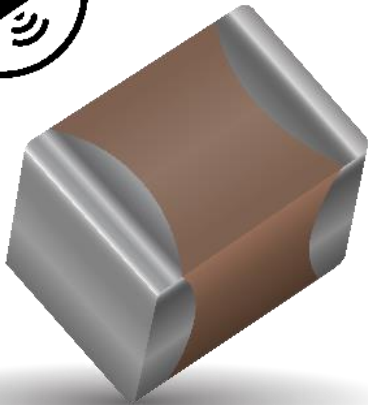
Part Number	AVX Spec	Location	Pack Qty	Lead Time	Qty Available	Info
300904101333KA	*****	Europe	1	09.Nov.2020	142	Price
300904102103JA	*****	Europe	1	09.Nov.2020	56	Price
300904102103JC	*****	Europe	1	09.Nov.2020	26	Price
300904102103JX	*****	Europe	1	09.Nov.2020	9	Price
300904102103KC	*****	Europe	1	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

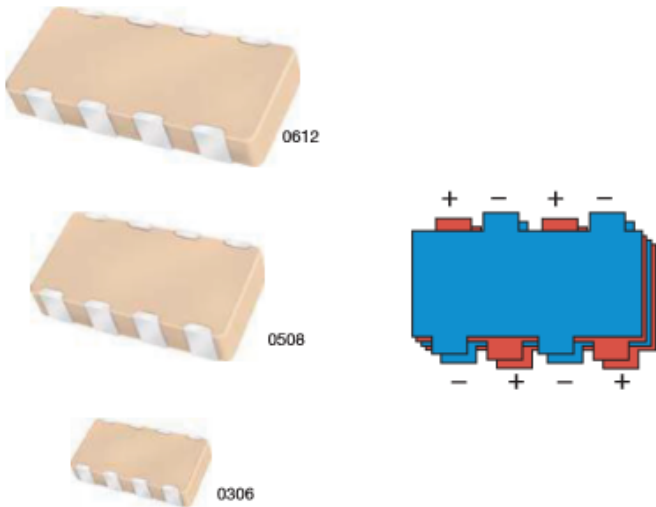
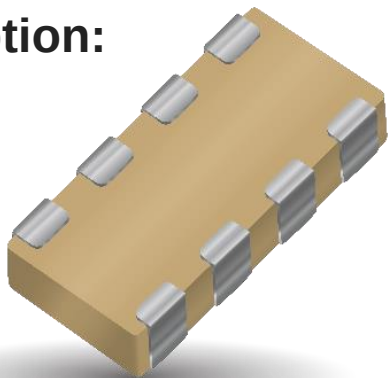
IDC typical small sizes 0306 or 0508, 0612 larger

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

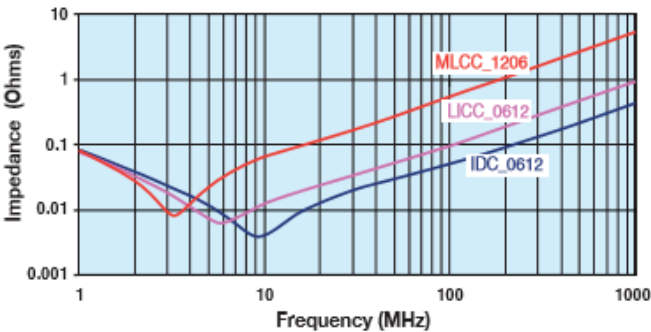
Available in Sn/Pb finish for Space and military applications

LOW INDUCTANCE MLCC CAPACITORS FOR HIGH SPEED MICRO-PROCESSOR CIRCUITS

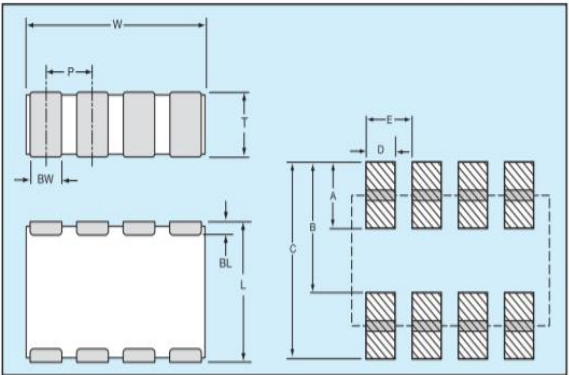
Product Description:



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	0.82 ± 0.10	0.25 ± 0.10	0.20 ± 0.10	0.40 ± 0.05
	(0.063 ± 0.008)	(0.032 ± 0.006)	(0.010 ± 0.004)	(0.008 ± 0.004)	(0.015 ± 0.002)
0508	2.03 ± 0.20	1.27 ± 0.20	0.30 ± 0.10	0.25 ± 0.15	0.50 ± 0.05
	(0.080 ± 0.008)	(0.050 ± 0.008)	(0.012 ± 0.004)	(0.010 ± 0.006)	(0.020 ± 0.002)
0612	3.20 ± 0.20	1.60 ± 0.20	0.50 ± 0.10	0.25 ± 0.15	0.80 ± 0.10
	(0.126 ± 0.008)	(0.063 ± 0.008)	(0.020 ± 0.004)	(0.010 ± 0.006)	(0.031 ± 0.004)

PAD LAYOUT
DIMENSIONS

SIZE	A	B	C	D	E
0306	0.38	0.89	1.27	0.20	0.40
	(0.015)	(0.035)	(0.050)	(0.008)	(0.015)
0508	0.64	1.27	1.91	0.28	0.50
	(0.025)	(0.050)	(0.075)	(0.011)	(0.020)
0612	0.89	1.65	2.54	0.45	0.80
	(0.035)	(0.065)	(0.101)	(0.018)	(0.031)

LOW INDUCTANCE MLCC CAPACITORS FOR HIGH SPEED MICRO-PROCESSOR CIRCUITS

IDC Product Qualification Plan Hi Rel

0306

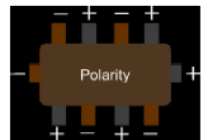
PERFORMANCE SPECIFICATION SHEET

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.

X7S



4V - 1uF

TABLE I. Style IDC 0306 capacitor characteristics.

Part or Identifying Number (PIN) 1/	Capacitance (pF)	Capacitance tolerance	VT/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

0508

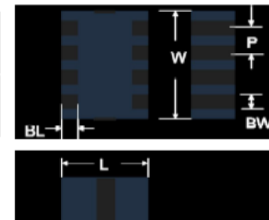
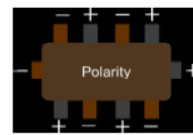
PERFORMANCE SPECIFICATION SHEET

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.

X7R



6.3V - 0.47uF
4V - 1uF

Part or Identifying Number (PIN) 1/	Capacitance (pF)	Capacitance tolerance	VT/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

0508 -
Thin

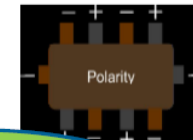
PERFORMANCE SPECIFICATION SHEET

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.

X7R &
X7S

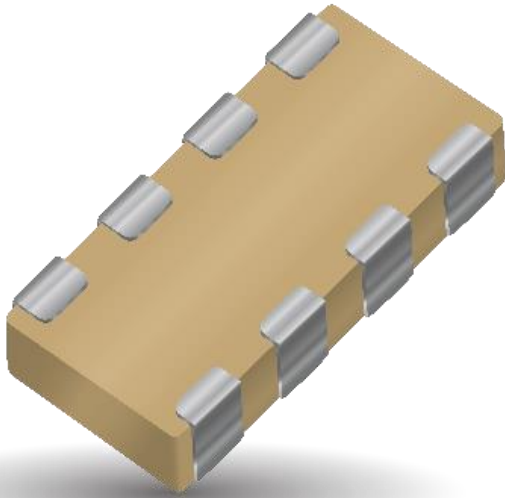


4V 0.47uF X7R
4V 2.2uF X7S

TABLE I. Style IDC Thin 0508 capacitor characteristics.

Part or Identifying Number (PIN) 1/	Capacitance (pF)	Capacitance tolerance	VT/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

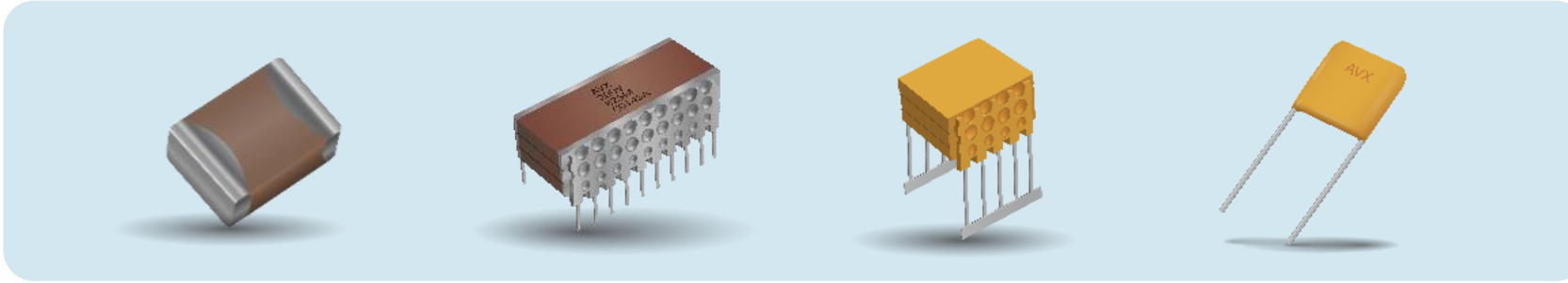
- Samples on 4000hr testing
- Tests to complete Dec 2020

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.



WWW.AVX.COM