

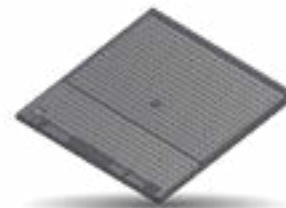
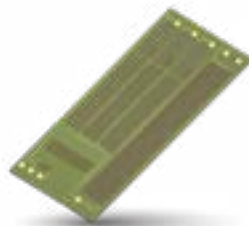
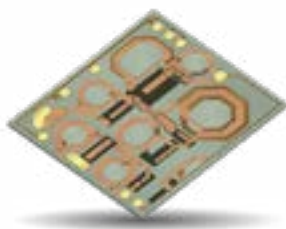


WIRE BOND CAPACITORS, RESISTORS, AND INTEGRATED PASSIVE COMPONENTS

| FOR CHIP & WIRE ASSEMBLY |



CAPACITOR ARRAYS, RESISTOR ARRAYS & INTERPOSERS



FEATURES

- Integrate capacitors, inductors, and resistors in a miniature package
- Fully custom design evaluated upon request
- Create a system in package with an KYOCERA AVX interposer as a submount

CONDUCTOR OPTIONS & THICKNESSES

Conductor	Thickness
Al	150-40kÅ
Au	500-20kÅ
Au plated	0.5-20µm
Cu	2k-25kÅ
Cu Plated	0.5-100µm
Ni(V)	500-10kÅ
Pd	500-5kÅ
Pt	1K-4kÅ (2500Å Typical)
TaN	300-1.5kÅ
TiW	300-2kÅ (500Å Typical)

SUBSTRATE OPTIONS & FEATURES

Substrate	Thickness	Note
P-Si Boron Doped	4-25mil	15 Ω-cm
N++ Si Arsenic Doped	4-25mil	0.002 Ω-cm
Boro-silicate Glass	4-25mil	10 ¹³ Ω-cm
Alumina Nitride	10-60mil	Lapped or polished
Alumina	4-50mil	Lapped or polished
Fused Silica	4-25mil	10 ¹⁴ Ω-cm

PASSIVE ELEMENT FEATURES

Passive Element	Resistors		Capacitors	Inductors
Material	TaN	SiCr	SiON	Cu
Sheet Resistance or Specific Capacitance	10 – 100Ω/sqr	700 – 1400Ω/sqr	100 pf/sqmm	N/A
Typical Ranges	1Ω – 1MΩ	47 – 20MΩ	1 – 500pF	0.5 – 20nH
Breakdown Conditions				
Minimum Tolerance	±0.1%	±0.1%	≥0.5% trimmed ±4% untrimmed	±5%
Performance Note: TCR in ppm/°C	TCR ±150 ±100 ±50 ±25	TCR ±150 ±100 ±50 ±25	K 6.1 TCC 60	Q≤80

WIRE BOND CAPACITORS

SINGLE LAYER CAPACITORS & ARRAYS



GD, GH, GB SERIES, & ARRAYS

MARKETS & APPLICATIONS

- Hybrid Circuits
- Military Communications Equipment
- Decoupling wide band noise in high frequency systems
- DC Blocking close to semiconductor ICs
- MMICs
- RFICs
- Optical communications
- Instrumentation
- Test Equipment



FEATURES & ADVANTAGES

- GD Series: Highest dielectric constant of 60,000
- GH Series: Dielectric constant from 14 to 30,000
- GB Series: Bordered SLCs with dielectrics 14 to 30,000
- Miniature Sizes – 0.010x0.010” to 0.10x0.10”
- Gold Terminations
- Wire Bondable
- High dielectric constant for high capacitance values in miniature sizes

DIELECTRICS

SERIES	DIELECTRIC	DIELECTRIC CONSTANT	TEMPERATURE COEFFICIENT
GD	Ultra-Maxi	60,000	+/- 15%
GH/GB	Maxi+	30,000	+/- 15%
GH/GB	Maxi	20,000	+/- 15%
GH/GB	X7S	2,500 - 18,000	+/- 22%
GH/GB	X7R	1,100 - 4,200	+/- 15%
GH/GB	Temperature Compensating	200	±7.5% (non-linear)
		420	-2000±500 ppm/°C
		650	-4700±1500 ppm/°C
GH/GB	NP0	14 - 60	0±30 ppm/°C

Minimum size: 0.009 x 0.009 in. (0.229 x 0.229 mm)
Maximum size: Specified by the customer
Nominal Thickness: 0.0045 to 0.007 in. (0.114mm to 0.178mm)

MILITARY SPECIFICATIONS

MIL REFERENCE	PARAMETER	METHOD OR PARAGRAPH
MIL-STD-883	Bond Strength	2011.7
MIL-STD-883	Shear Strength	2019
MIL-PRF-49464	Thermal Shock	4.8.3
MIL-PRF-49464	Voltage Conditioning	4.8.3
MIL-PRF-49464	Temperature Coefficient	4.8.10
MIL-STD-202	Low Voltage Humidity	103 A
MIL-STD-202	Life Test	108

SAMPLE KITS

SAMPLE KIT PN	SERIES	PARTS INCLUDED
KITSLCK60KSAMPL	GD Series Dielectric Constant = 60,000	GD1030301ZAW, GD1530601ZAW, GD2030102ZAW, GD3030202ZAW
KITSLCK20KSAMPL	GH Series Dielectric Constant = 20,000	GH0158101MA6N, GH0258221MA6N, GH0258471MA6N, GH0358102MA6N, GH0458182MA6N
KITSLCK30KSAMPL	GH Series Dielectric Constant = 30,000	GH0159331MA6N, GH0259751MA6N, GH0359152MA6N, GH0459302MA6N, GH0559602MA6N
KITSLCZDIESAMPL	GH Series X7S Dielectric	GH015Z101MA6N, GH025Z221MA6N, GH035Z471MA6N, GH045Z102MA6N

WIRE BOND CAPACITORS

TRANSMISSION LINE MIM CAPACITORS



(METAL-INSULATOR-METAL)

MARKETS & APPLICATIONS

- DC Blocking at UHF
- High Frequency Link
- RF Microwave applications

FEATURES & ADVANTAGES

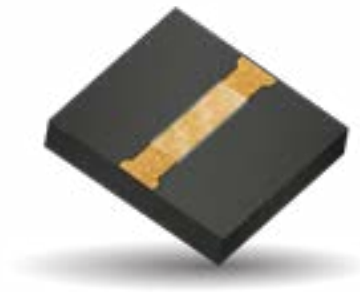
- HFSS Design Unique for every device
- Gold Wirebondable
- Copper Conductor Design for improved Circuit Conductivity
- Designs Optimized for RF/Performance
- ROHS Compliant

SUBSTRATE MATERIALS

- Alumina (Al₂O₃)
- Quartz

GENERAL CHARACTERISTICS

Characteristic	Design Dependent
Capacitor Range	0.3 - 50 Pf
Tolerance	±20%
Backing	Gold Metalization
Termination Type	Gold Wire Bond



AVAILABLE PART NUMBERS

Part Number	Substrate	Length (mils)	Width (mils)	Thickness (mils)	Cap Value (pF)*
MV0304CA150MABW	Alumina	30	40	10	15
MV0402CA150MAAW	Alumina	40	20	5	15
MV0802CA150MAAW	Alumina	80	20	5	15
MV0804CA1R0MABW	Alumina	80	40	10	1
MV0804CA150MABW	Alumina	80	40	10	15
MV3204CA150MABW	Alumina	120	40	10	15
MV0404CA150MABW	Alumina	40	40	10	15
MV0505CA150MQAW	Quartz	50	50	5	15

*Capable Capacitance Value Ranging From: 0.3-50 (pF)
 Most Common Capacitance Values Requested are 1, 5, and 15 (pF)

TEST METHODS

Specification		Limit
MIL-STD-883-2011.8	BOND STRENGTH	> 3 gm min. w/0.001" Au Wire
MIL-STD-883-2019.10	SHEAR STRENGTH	Size Dependent See Procedure
MIL-STD-202-108	LIFE	1000 hrs @ 125°C

WIRE BOND CAPACITORS

MOS CAPACITORS



MS SERIES

MARKETS & APPLICATIONS

- Hybrid Circuits
- MMICs
- RFICs
- Aerospace
- Bias Networks
- Test & Measurement Equipment
- GaN, SiCr & other transistor packages
- TOSA & ROSA Optical Sub-assemblies



MIL TEST METHODS

MIL REFERENCE	PARAMETER	METHOD OR PARAGRAPH
MIL-STD-883	Bond Strength	2011.7
MIL-STD-883	Shear Strength	2019
MIL-PRF-49464	Thermal Shock	107
MIL-STD-202	Life Test	108
MIL-STD-202	Load Humidity (THB)	103 at rated VDC

FEATURES & ADVANTAGES

- Small Size: 0.010 to 0.070 inches square
- Capacitance: 1.0 to 1000pF
- High Q
- Frequency range: DC to 20GHz

WIRE BOND RESISTORS

WBR SERIES

MARKETS & APPLICATIONS

- Military/Defense
- Hybrid Designs
- Multi-Chip Module (MCM)
- Instrumentation
- High Reliability Microelectronics
- RF/Microwave Communications



FEATURES & ADVANTAGES

- Small Size 0202
- Resistance from 1Ω to 10MΩ
- Extremely Tight Tolerance (0.1% - 5%)
- 250 mW Power Rating
- Ultra High Stability
- High Reliability
- Top Contact
- Isolated Bottom
- Unique Value Marking



WWW.KYOCERA-AVX.COM



ABOUT KYOCERA AVX

KYOCERA AVX is a worldwide leading supplier of passive electronic components, connectors, passive and active antennas, sensors and control units. KYOCERA AVX offers a wide range of components manufactured to the highest quality and reliability standards.

Our products include ceramic, solid electrolytic and film capacitors, pulse supercapacitors, varistors, thermistors, filters, inductors, diodes, antennas, connectors, sensors and control units. Our worldwide manufacturing capability includes facilities located in seventeen countries on four continents, allowing us to continue meeting customer needs on a global basis.

KYOCERA AVX is committed to supporting the needs of its customers for applications today and in the future. Together with continuous quality improvement process, KYOCERA AVX components provide reliable solutions for consumer application needs.

As a technology leader, KYOCERA AVX will continue to add to its product portfolio on a regular basis. Details of new devices being offered and their specifications will be shown on the KYOCERA AVX website: WWW.KYOCERA-AVX.COM.

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