

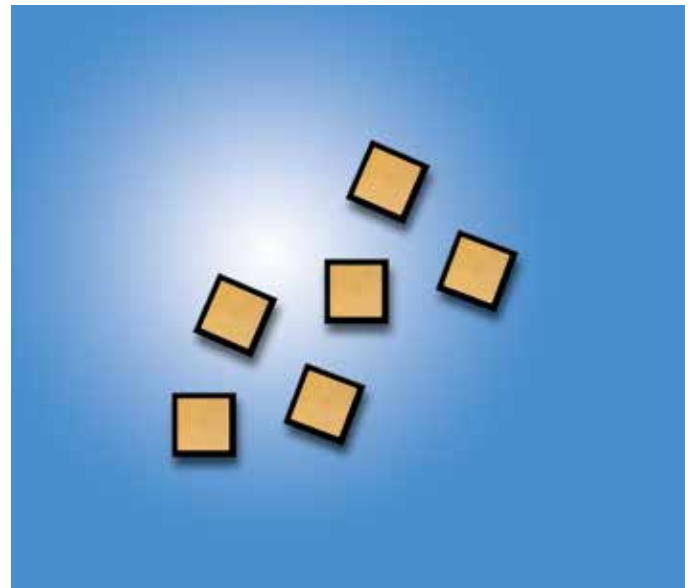
ATC // AVX MOS Single Layer Capacitors

Metal Oxide Semiconductor

ATC//AVX Thin Film Technologies offers semi-custom thin film Metal Oxide Semiconductor (MOS) Single Layer Capacitors suitable for RF/ microwave and millimeter-wave applications. The silicon oxide dielectric is fabricated with high temperature processing resulting in excellent uniformity and stability.

ATC//AVX Thin Film Technologies' unique processing and materials sets result in MOS capacitors with high Q, excellent temperature stability, high dielectric strength, high insulation resistance and low ESR. A wide range of termination metallizations are available to facilitate epoxy, solder die attach, thermosonic and ultrasonic bonding and gold or aluminum wire bonding. Custom applications and designs are welcome.

Consult factory for additional information.



Benefits

- Rectangular sizes up to several mm in length (100's mils)
- Square sizes from 254 μ m x 254 μ m (10 mils)
- Thicknesses from 50 to 250 μ m (5 to 10 mils)
- DC to GHz operation
- High Q
- High Insulation Resistance >1 G-ohm
- Low ESR designs <100 milliohms

Typical Electrical Specifications

Material	MOS (SiO ₂)
pF/mm ² Typical	85 @ 50V rated
TCC	±30 ppm/°C
Rated Voltage	≤200
Peak Voltage at +25°C	1.5 x Rated
DF	≤0.1%
Operating Temp. Range	-55°C to 125°C

Test Methods

Specification	Parameter	Method or Paragraph
MIL-STD-883	Bond Strength	2011.7
MIL-STD-883	Shear Strength	2019
MIL-STD-202	Thermal Shock	107
MIL-STD-202	Life	108
MIL-STD-202	Load Humidity (THB)	103 @ rated VDC



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Capacitance Range, Size, WVDC

Capacitance (pF)	Case Size* (mils/mm)	Rating (WVDC)	Capacitance (pF)	Case Size* (mils/mm)	Rating (WVDC)
1-2	10 / 0.25	200	125-250	40 / 1.02	50
2-4	10 / 0.25	100	250-400	40 / 1.02	25
4-10	10 / 0.25	50	100-150	50 / 1.27	100
10-15	20 / 0.51	100	150-300	50 / 1.27	50
15-40	20 / 0.51	50	300-600	50 / 1.27	25
40-80	20 / 0.51	25	200-350	60 / 1.52	100
30-40	30 / 0.70	100	350-650	60 / 1.52	50
40-80	30 / 0.70	50	650-800	60 / 1.52	25
80-160	30 / 0.70	25	400-500	70 / 1.78	100
100-125	40 / 1.02	100	500-800	70 / 1.78	50
*Size tolerance ± 1 mil (0.025 mm) Thickness range 5 to 10 mils (0.127 to 0.250 mm)			800-1000	70 / 1.78	25

How to Order

MS	20	3	S	100	M	3723	W
Series Code	Case Size	Working Voltage	Dielectric Code	Capacitance	Capacitance Tolerance	Termination Code	Packaging
MS - MOS	Square size in mils 10, 20, 30, 40 OS - special order please supply design	Z = 10 WVDC 3 = 25 WVDC 5 = 50 WVDC S - special order	S = SiO ₂ for MOS style	EIA capacitance code in pF First two digits = significant figures Third digit - number of zeros or after "R" significant figures.	J = $\pm 5\%$ K = $\pm 10\%$ M = $\pm 20\%$	1st position top layer 2nd position top bonding layer, 3rd position bottom bonding layer, 4th position Top layers: 37 = AuTaN 38 - AuTiW, 18 - AlTiW Bottom layers: 23 - CrAu 93 - TiWNiAu, 53 = CrNiAu OSOS - Special Order Please Supply Design	W = antistatic waffle pack T= tested whole wafer D - Tested wafer diced on tape



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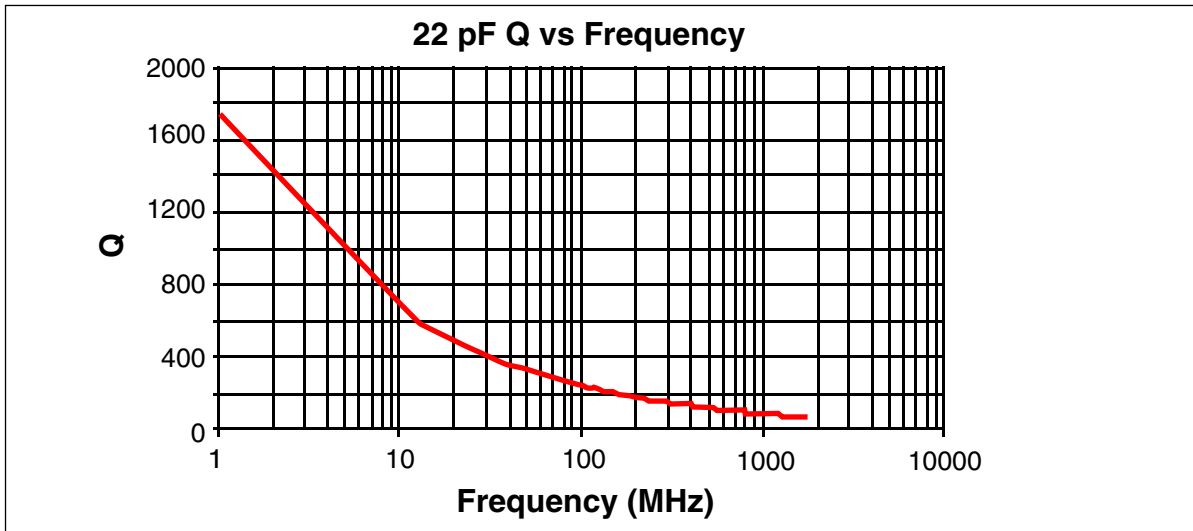
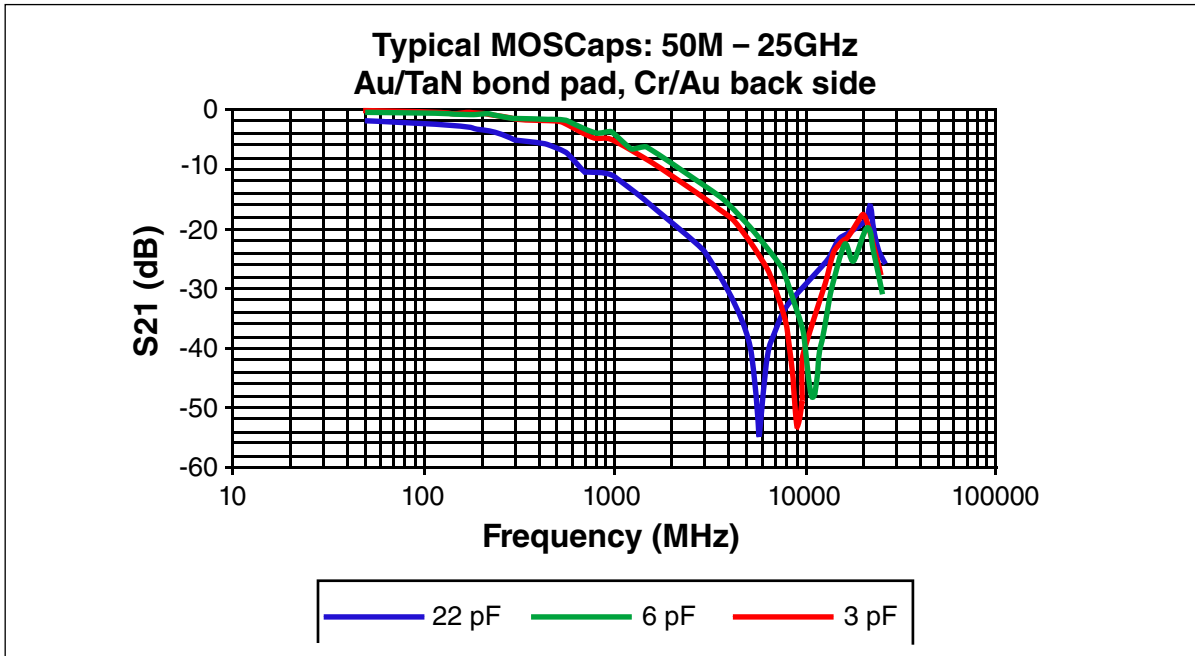
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Standard Wafers Offered and Thickness

N+ (Arsenic doped); 0.001-0.005 Ohm-cm resistivity; $\geq 100\mu\text{m}$ thick

N++ (Phosphorous doped); .001 to .0015 Ohm-cm resistivity; $\geq 100\mu\text{m}$ thick

Example S21 and Q Versus Frequency



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ATC # 001-1088 Rev. B; 9/18



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