TECHNICAL DATA SHEET (XQ Series)



Product Description

Eulex ultra-high Q and ultra-low ESR XQ-series capacitors feature ultra-high Q, ultra-high self-resonance frequencies and ultra-low ESR. Manufactured with stable NPO & X8G dielectrics (±30ppm/°C). Pb-free terminations and copper electrodes.

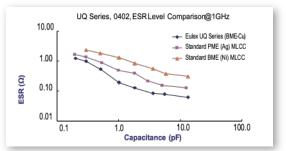
Features

- High Q
- Low ESR/ESL
- Ultra Stable Dielectric Characteristic ±30ppm/°C
- Capacitance (0.1 pF to 1000pF)
- Size 01005 to 1111
- Voltage up to 1500V
- RoHS Compliant

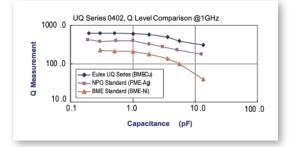
Applications

- Power Station
- Base Station
- UHF/Microwave
- Timing Circuits
- Mixers

Ultra-High Q



Ultra-Low ESR



Part Numbering

XQ	G	02	Ν	OR5	В	N	т
Series	Voltage Code	Case Code	Dielectric Type	* Capacitance	Tolerance	Termination	** Packaging
Ultra-High Q	A = 6.3VDC C = 10VDC E = 16VDC L = 25VDC G = 50VDC B = 100VDC R = 200VDC H = 250VDC S = 500VDC F = 1500VDC	01 = 01005 $02 = 0201$ $04 = 0402$ $05 = 0505$ $06 = 0603$ $08 = 0805$ $11 = 1111$	N = NP0 G = X8G	R05 = 0.05pF 0R2 = 0.20pF 1R0 = 1.0pF 2R7 = 2.7pF 270 = 27pF 271 = 270pF 102 = 1000pF	A = $\pm 0.05 pF$ B = $\pm 0.10 pF$ C = $\pm 0.25 pF$ D = $\pm 0.5 pF$ F = $\pm 1\%$ G = $\pm 2\%$ J = $\pm 5\%$	N = Cu/Ni/Sn	T = 7" reel R = 13" reel

* Below 10pF, R denotes a decimal point.

For 10pF and above, first 2 digits are significant values and 3rd digit indicates the number of zeros.

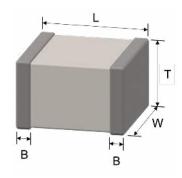
** 0505 and 1111 Case sizes shipped in plastic carrier tape. All other case sizes are shipped in paper carrier.

TECHNICAL DATA SHEET (XQ Series)

Ultra-High Q

Standard Dimensions

Case Size	Length (L)	Width (W)	Thickness (T)	End-Band (B)
EIA (metric)	inch (mm)	Inch (mm)	inch (mm)	inch (mm)
01	.016±.001	.008±.001	.008±.001	.004±.001
01005 (0402)	(0.40±0.02)	(0.20±0.02)	(0.20±.002)	(0.10±0.03)
02	.024±.001	0.012±.001	0.012±.001	.006±.002
0201 (0603)	(0.60±0.03)	(0.30±0.03)	(0.30±0.03)	(0.15±0.05)
04	.039±.002	.020±.002	.020±.002	.010+.002/004
0402 (1005)	(1.00±0.05)	(0.50±0.05)	(0.50±0.05)	(0.25+0.05/-0.10)
05	.055+.015/010	.055±.015	.045±.006	.010+.010/005
0505 (1414)	(1.40+0.38/-0.25)	(1.40±0.38)	(1.15±0.15)	(0.25+0.25/-0.13)
06	.063±.004	.031±.004	.031±.003	.016±.005
0603 (1608)	(1.60±0.10)	(0.80±0.10)	(0.80±0.07)	(0.40±0.15)
06 *	.063+.006/004	.031+.006/004	.020±.004	.016±.005
0603 (1608)	(1.60+0.15/-0.10)	(0.80+0.15/-0.10)	(0.50±0.10)	(0.40±0.15)
08	.079±.006	.049±.004	.024±.004	.020±.008
0805 (2012)	(2.00±0.15)	(1.25±0.10)	(0.60±0.10)	(0.50±0.20)
08 *	.079±.008	.049±.008	.033±.004	.020±.008
0805 (2012)	(2.00±0.20)	(1.25±0.20)	(0.85±0.10)	(0.50±0.20)
11	.110+.020/010	.110±.015	≤.070	.015±.010
1111 (2828)	(2.79+0.51/-0.25)	(2.79±0.38)	(≤1.78)	(0.38±0.25)



Dielectric Properties & Electrical Summary

Dielectric	NP0 (Class I)	X8G (Class I)
Size	01005, 0201, 0402, 0505, 0603, 0805, 1111	0603, 0805
Capacitance ₁	0.1pF to 1000pF	0.2pF to 82pF
Capacitance Tolerance	5pF <cap<10pf: (±0.1p<="" b="" th=""><th>B (±0.1pF), C (±0.25pF) F), C (±0.25pF), D (±0.5pF) 5), G (±2%), J (±5%)</th></cap<10pf:>	B (±0.1pF), C (±0.25pF) F), C (±0.25pF), D (±0.5pF) 5), G (±2%), J (±5%)
Rated Voltages (WVDC)	6.3V, 10V, 25V, 50V, 100V, 200V, 250V, 500V, 1500V	250V, 500V
Q. ₂	0402/100V~200V, 0603, 0805, 0	30pF:Q≥400+20C; Cap≥30pF:Q≥1000 505, 1111: Cap<30pF:Q≥800+20C; F:Q≥1400
Insulation Resistance	≥10GΩ @ 25°C or	⁻ ≥100GΩ @ 125°C
Operating Temperature	-55 to +125°C	-55 to +150°C
Capacitance Change (TC)	±30pj	om/°C
Dissipation Factor (DF)	0.10% Max	0.15% Max

1. Measured at 1.0 \pm 0.2Vrms, 1.0MHz \pm 10% for capacitance values \leq 1000pF and 1.0kHz \pm 10% for capacitance>1000pF

2. Measured at 25°C and between 30% to 70% relative humidity.

TECHNICAL DATA SHEET (XQ Series)

Available Capacitance Values

X8G Dielectric (0603 - 0805

	Case Size	0603	08	05	Tolerance
	Voltage	250	250	500	Tolerance
	0.2pF (0R2)		0	0	А, В
	0.3pF (0R3)	•	•	•	А, В
	0.4pF (0R4)	•	•	•	А, В
	0.5pF (0R5)	•	•	•	A, B, C
	0.6pF (0R6)	•	•	•	A, B, C
	0.7pF (0R7)	•	•	•	A, B, C
	0.8pF (0R8)	•	•	•	A, B, C
	0.9pF (0R9)	•	•	•	A, B, C
	1.0pF (1R0)	•	•	•	A, B, C
	1.1pF (1R1)	•	٠	•	A, B, C
	1.2pF (1R2)	•	•	•	A, B, C
	1.3pF (1R3)	•	•	•	A, B, C
	1.4pF (1R4)	•	۲	•	A, B, C
	1.5pF (1R5)	•	•	•	A, B, C
	1.6pF (1R6)	•	•	•	A, B, C
	1.7pF (1R7)	ě	ŏ	ŏ	A, B, C
	1.8pF (1R8)	ĕ	ŏ	ŏ	A, B, C
	1.9pF (1R9)	ŏ	ŏ	ŏ	A, B, C
	2.0pF (2R0)	ě	ŏ	ŏ	A, B, C
	2.1pF (2R1)	ŏ	ŏ	ŏ	A, B, C
	2.2pF (2R2)	ě	ŏ	ŏ	A, B, C
	2.3pF (2R3)	ě	ŏ	ŏ	A, B, C
	2.4pF (2R4)	ĕ	ŏ	ŏ	A, B, C
	2.5pF (2R5)	ě	ŏ	ŏ	A, B, C
	2.6pF (2R6)	ŏ	ŏ	ŏ	A, B, C
	2.7pF (2R7)	ě	ŏ	ŏ	A, B, C
	2.8pF (2R8)	Ŏ	ŏ	ŏ	A, B, C
e	2.9pF (2R9)	ě	ŏ	ŏ	A, B, C
Ĕ	3.0pF (3R0)	ě	ŏ	ě	A, B, C
Ë	3.1pF (3R1)	ě	ŏ	ŏ	A, B, C
ğ	3.2pF (3R2)	ě	ŏ	ŏ	A, B, C
Capa	3.3pF (3R3)	ě	ŏ	ŏ	A, B, C
	3.4pF (3R4)	•	Õ	•	A, B, C
	3.5pF (3R5)	ě	ŏ	ŏ	A, B, C
	3.6pF (3R6)	ě	ŏ	ŏ	A, B, C
	3.7pF (3R7)	ě	ŏ	ŏ	A, B, C
	3.8pF (3R8)	ě	ŏ	ŏ	A, B, C
	3.9pF (3R9)	ě	ŏ	ŏ	A, B, C
	4.0pF (4R0)	ŏ	ŏ	ŏ	A, B, C
	4.1pF (4R1)	ě	ŏ	ŏ	A, B, C
	4.2pF (4R2)	ě	ŏ	ŏ	A, B, C
	4.3pF (4R3)	ĕ	ŏ	ŏ	A, B, C
	4.4pF (4R4)	ě	ŏ	ŏ	A, B, C
	4.5pF (4R5)	ŏ	ŏ	ŏ	A, B, C
	4.6pF (4R6)	ě	ŏ	ŏ	A, B, C
	4.7pF (4R7)	ě	ŏ	ŏ	A, B, C
	4.8pF (4R8)	ĕ	ŏ	ŏ	A, B, C
	4.9pF (4R9)	ě	ŏ	ŏ	A, B, C
	5.0pF (5R0)	ŏ	Ť	ŏ	A, B, C A, B, C
	5.1pF (5R1)	ě	ŏ	ŏ	B, C, D
	5.2pF (5R2)	ĕ	÷	ŏ	B, C, D B, C, D
	5.3pF (5R3)	ě	÷	ŏ	B, C, D B, C, D
	5.4pF (5R4)	i	÷	ŏ	B, C, D B, C, D
		-		i	
	5.5pF (5R5) 5.6pF (5R6)	i		i	B, C, D
		÷	i	ŏ	B, C, D
	5.7pF (5R7)				B, C, D
	5.8pF (5R8)	•	÷		B, C, D
	5.9pF (5R9)				B, C, D
	6.0pF (6R0)	•		•	B, C, D

Voltage 250 250 500 6.1pF (6R1) B, C, D 6.3pF (6R2) B, C, D 6.3pF (6R3) B, C, D 6.4pF (6R4) B, C, D 7.4pF (7R1) B, C, D 7.3pF (7R3) B, C, D 7.3pF (7R3) B, C, D 7.3pF (7R4) B, C, D 7.3pF (7R8) B, C, D 7.3pF (7R8) B, C, D 7.3pF (7R8) B, C, D 8.3pF (8R3) B, C, D 8.3pF (8R4) B, C, D 8.3pF (8R4) <t< th=""><th></th><th>Case Size</th><th>0603</th><th>08</th><th>05</th><th>-</th></t<>		Case Size	0603	08	05	-
6.2pF (6R2) • <td< th=""><th></th><th>Voltage</th><th>250</th><th>250</th><th>500</th><th>Tolerance</th></td<>		Voltage	250	250	500	Tolerance
6.3pF (6R3) 6.4pF (6R4) 6.4pF (6R4) 6.5pF (6R5) 6.6pF (6R6) 6.6pF (6R6) 6.6pF (6R8) 6.8pF (6R8) 6.8pF (6R8) 7.0pF (7R1) 7.1pF (7R1) 7.1pF (7R1) 7.1pF (7R1) 7.3pF (7R3) 7.3pF (7R3) 7.3pF (7R3) 7.3pF (7R3) 7.3pF (7R4) 7.		6.1pF (6R1)	•	٠	•	B, C, D
6.4pF (6R4) 6.5pF (6R5) 6.5pF (6R7) 6.5pF (6R7) 6.5pF (6R8) 6.5pF (6R8) 6.5pF (6R9) 6.5pF (6R9) 6.5pF (7R0) 6.5pF (7R0) 6.5pF (7R0) 7.1pF (7R1) 6.5pF (7R1) 7.1pF (7R2) 7.1pF (7R2) 7.1pF (7R2) 7.1pF (7R2) 7.1pF (7R3) 7.1pF (7R4) 7.		6.2pF (6R2)	•	•	•	B, C, D
6.SpF (6R5) ● ● ● B, C, D 6.SpF (6R6) ● ● ● B, C, D 6.SpF (6R9) ● ● ● B, C, D 6.SpF (6R9) ● ● B, C, D 7.OpF (7R0) ● ● ● B, C, D 7.1pF (7R1) ● ● ● B, C, D 7.3pF (7R3) ● ● B, C, D 7.3pF (7R8) ● ● B, C, D 7.3pF (7R8) ● ● B, C, D 7.3pF (7R8) ● ● B, C, D 8.3pF (8R1) ● ● B, C, D 8.3pF (8R1) ● ● B, C, D 8.3pF (8R4) ● ● B, C, D 8.3pF (8R7) ● ● B, C, D 8.4pF (8R41) ● ● B, C, D			-	٠	-	B, C, D
6.6pF (6R6) 6.7pF (6R7) 6.8pF (6R8) 7.0pF (7R0) 6.9pF (7R1) 7.0pF (7R1) 7.2pF (7R3) 7.3pF (7R3) 7.3pF (7R3) 7.3pF (7R3) 7.3pF (7R5) 7.3pF (7R5) 7.3pF (7R5) 7.3pF (7R5) 7.3pF (7R6) 7.3pF (7R6) 7.3pF (7R7) 7.3pF (7R7) 7.3pF (7R7) 7.3pF (7R8) 7.3pF (7R9) 7.		6.4pF (6R4)	•	•	•	B, C, D
6.7pF (6R7) 6.8pF (6R8) 6.9pF (6R9) 7.0pF (7R0) 7.0pF (7R1) 7.2pF (7R2) 7.3pF (7R3) 7.3pF (7R3) 7.3pF (7R3) 7.3pF (7R5) 7.3p				_		
6.8pF (6R8) ● ● ● B, C, D 7.0pF (7R0) ● ● B, C, D 7.1pF (7R1) ● ● B, C, D 7.2pF (7R2) ● ● B, C, D 7.3pF (7R3) ● ● B, C, D 7.3pF (7R3) ● ● B, C, D 7.3pF (7R4) ● ● B, C, D 7.5pF (7R5) ● ● B, C, D 7.5pF (7R6) ● ● B, C, D 7.5pF (7R6) ● ● B, C, D 7.3pF (7R9) ● ● B, C, D 8.0pF (7R9) ● ● B, C, D 8.0pF (8R1) ● ● B, C, D 8.3pF (8R3) ● ● B, C, D 8.3pF (8R3) ● ● B, C, D 8.3pF (8R8) ● ● B, C, D 9.3pF (9R1) ● ● B, C, D 9.3pF (9R3) ● ● B, C, D 9.3pF (9R3) ● ● B, C, D 9.3pF (9R8) ●						
6.9pF (6R9) ● <t< td=""><td></td><td></td><td>-</td><td>-</td><td></td><td></td></t<>			-	-		
7.0pF (7R0) • <td< td=""><td></td><td></td><td>-</td><td>_</td><td>-</td><td></td></td<>			-	_	-	
7.1pF (7R1) B, C, D 7.2pF (7R2) B, C, D 7.3pF (7R3) B, C, D 7.3pF (7R3) B, C, D 7.3pF (7R3) B, C, D 7.5pF (7R5) B, C, D 7.5pF (7R3) B, C, D 7.3pF (7R3) B, C, D 7.3pF (7R3) B, C, D 7.3pF (7R1) B, C, D 8.0pf (8R0) B, C, D B, C, D 8.3pF (8R3) B, C, D B, C, D 8.3pF (8R3) B, C, D B, C, D 9.3pF (9R1) B, C, D 9.3pF (9R3) B, C, D B, C, D 9.3pF (9R3) B, C, D B, C, D 9.3pF (9R3) B, C, D B, C, D				_	-	
7.2pF (7R2) B, C, D 7.3pF (7R3) B, C, D 7.3pF (7R3) B, C, D 7.5pF (7R6) B, C, D 7.5pF (7R6) B, C, D 7.5pF (7R7) B, C, D 7.3pF (7R9) B, C, D 7.3pF (7R9) B, C, D 8.0pF (8R0) B, C, D B, C, D 8.1pF (8R1) B, C, D 8.3pF (8R3) B, C, D 8.3pF (8R4) B, C, D B, C, D 8.3pF (8R8) B, C, D B, C, D 9.3pF (9R1) B, C, D B, C, D 9.3pF (9R3) B, C, D B, C, D 9.3pF (9R8) B, C, D B, C, D 9.3pF (9R8) B, C, D 9.3pF (9R8)					-	
7.3pF (7R3) • <td< td=""><td></td><td></td><td>-</td><td></td><td></td><td></td></td<>			-			
7.4pF (7R4) • <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td></td<>						
7.SpF (7R5) B, C, D 7.SpF (7R6) B, C, D 7.8pF (7R7) B, C, D 7.8pF (7R9) B, C, D 7.8pF (7R9) B, C, D 7.8pF (7R9) B, C, D 8.0pF (8R0) B, C, D 8.1pF (8R1) B, C, D 8.3pF (8R3) B, C, D 8.3pF (8R3) B, C, D 8.4pF (8R4) B, C, D 8.4pF (8R4) B, C, D 8.4pF (8R4) B, C, D B, C, D 9.1pF (9R1) B, C, D B, C, D 9.1pF (9R1) B, C, D B, C, D 9.1pF (9R3) B, C, D B, C, D 9.3pF (9R3) B, C, D B, C, D 9.4pF (9R4)			-	-	-	
7.6pF (7R6)			-	-		
7.7pF (7R7) • <td< td=""><td></td><td></td><td></td><td>_</td><td></td><td></td></td<>				_		
7.8pF (7R8) • <td< td=""><td></td><td></td><td></td><td>_</td><td></td><td></td></td<>				_		
7.9pF (7R9) • <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td></td<>						
8.0pF (8R0) ● <t< td=""><td></td><td></td><td>-</td><td>-</td><td>-</td><td></td></t<>			-	-	-	
8.1pF (8R1) B, C, D 8.2pF (8R2) B, C, D 8.3pF (8R3) B, C, D 8.4pF (8R3) B, C, D 8.4pF (8R4) B, C, D 8.4pF (8R4) B, C, D 8.5pF (8R5) B, C, D 8.5pF (8R5) B, C, D 8.5pF (8R5) B, C, D 9.8.5pF (8R8) B, C, D 9.1pF (9R1) B, C, D 9.3pF (9R3) B, C, D 9.3pF (9R3) B, C, D 9.4pF (9R4) B, C, D 9.5pF (9R5) B, C, D				_		
8.2pF (8R2) ● ● B, C, D 8.3pF (8R3) ● ● B, C, D 8.4pF (8R4) ● ● B, C, D 8.5pF (8R5) ● ● B, C, D 8.5pF (8R5) ● ● B, C, D 8.5pF (8R7) ● ● B, C, D 8.5pF (8R7) ● ● B, C, D 9.8pF (9R8) ● ● B, C, D 9.0pF (9R0) ● ● B, C, D 9.1pF (9R1) ● ● B, C, D 9.2pF (9R3) ● ● B, C, D 9.3pF (9R4) ● ● B, C, D 9.3pF (9R8) ● ● B, C, D 9.3pF (9R9) ● ●				_	-	
8.3pF (8R3) ● ● B, C, D 8.4pF (8R4) ● ● B, C, D 8.5pF (8R5) ● ● B, C, D 8.5pF (8R5) ● ● B, C, D 8.5pF (8R7) ● ● B, C, D 8.5pF (8R7) ● ● B, C, D 8.5pF (8R8) ● ● B, C, D 9.7pF (8R7) ● ● B, C, D 9.0pf (9R0) ● ● B, C, D 9.2pF (9R1) ● ● B, C, D 9.2pF (9R1) ● ● B, C, D 9.2pF (9R1) ● ● B, C, D 9.2pF (9R2) ● ● B, C, D 9.2pF (9R3) ● ● B, C, D 9.5pF (9R6) ● ● B, C, D 9.5pF (9R8) ● ● B, C, D 9.3pF (9R8) ● ● B, C, D 10pF (100) ● ● F, G, J 11pF (120) ● ● F, G, J 12pF (120) ● ● <td< td=""><td></td><td></td><td>-</td><td>_</td><td>-</td><td></td></td<>			-	_	-	
8.4pF (8R4) ● ● ● B, C, D 8.5pF (8R5) ● ● ● B, C, D 8.5pF (8R7) ● ● B, C, D 8.7pF (8R7) ● ● B, C, D 8.7pF (8R7) ● ● B, C, D 8.7pF (8R7) ● ● B, C, D 9.7pF (9R1) ● ● B, C, D 9.0pF (9R0) ● ● B, C, D 9.2pF (9R2) ● ● B, C, D 9.3pF (9R3) ● ● B, C, D 9.4pF (9R4) ● ● B, C, D 9.5pF (9R5) ● ● B, C, D 9.5pF (9R5) ● ● B, C, D 9.5pF (9R8) ● ● B, C, D 9.3pF (9R3) ● ● B, C, D 9.3pF (9R8) ● ● B, C, D 9.3pF (9R8) ● ● B, C, D 10pF (100) ● ● F, G, J 11pF (120) ● ● F, G, J 12pF (120) <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td></td<>						
8.SpF (8R5) • <td< td=""><td></td><td></td><td></td><td>_</td><td>-</td><td></td></td<>				_	-	
8.6pF (8R6) • • • 8, c, D 8.7pF (8R7) • • • 8, c, D 9 8.8pF (8R8) • • 8, c, D 9 9.0pF (9R0) • • 8, c, D 9 9.1pF (9R1) • • 8, c, D 9.3pF (9R2) • • 8, c, D 9.3pF (9R3) • • 8, c, D 9.3pF (9R3) • • 8, c, D 9.4pF (9R4) • • 8, c, D 9.5pF (9R5) • • 8, c, D 9.5pF (9R5) • • 8, c, D 9.5pF (9R5) • • 8, c, D 9.7pF (9R7) • • 8, c, D 9.7pF (9R7) • • 8, c, D 9.4pF (9R4) • • 8, c, D			-			
8.7pF (8R7) • • • 8, C, D 9 8.8pF (8R8) • • • 8, C, D 9 9.0pF (9R9) • • 8, C, D 8, C, D 9.0pF (9R1) • • 8, C, D 8, C, D 9.1pF (9R1) • • 8, C, D 9, C, D 9.2pF (9R2) • • 8, C, D 9, C, D 9.3pF (9R3) • • 8, C, D 9, C, D 9.4pF (9R4) • • 8, C, D 9, S, C, D 9.4pF (9R4) • • 8, C, D 9, S, C, D 9.4pF (9R8) • • 8, C, D 9, S, C, D 9.3pF (9R3) • • 8, C, D 9, S, C, D 9.3pF (9R3) • • 8, C, D 9, S, C, D 9.3pF (9R3) • • 8, C, D 9, S, C, D 9.3pF (9R3) • • 8, C, D 9, C, D 9.4pF (9R5) • • 8, C, D 9, C, D 9.4pF (9R3) • • 8, C, D 9				•	•	
g 8.8pF (8R8) ● ● B, C, D g 9.0pF (9R0) ● ● B, C, D g 9.0pF (9R1) ● ● B, C, D g 9.2pF (9R2) ● ● B, C, D g 9.2pF (9R2) ● ● B, C, D g 9.2pF (9R3) ● ● B, C, D g 9.4pF (9R4) ● ● B, C, D g 9.4pF (9R4) ● ● B, C, D g 9.5pF (9R5) ● ● B, C, D g 9.5pF (9R5) ● ● B, C, D g 9.5pF (9R6) ● ● B, C, D g 9.5pF (9R6) ● ● B, C, D g 9.5pF (9R6) ● ● B, C, D g 9.6pF (9R6) ● ● B, C, D g 9.6pF (9R6) ● ● B, C, D g 9.6pF (9R6) ● ● F, G, J 10pF (100) ● ● F, G, J		8.7pF (8R7)	•	•	•	
Ē B - 0, 0, F (9R) B C B B C B B	8	8.8pF (8R8)	•	•	٠	
g 9.1pF (9R1) B, C, D 9.2pF (9R2) B, C, D 9.3pF (9R3) B, C, D 9.4pF (9R4) B, C, D 9.4pF (9R4) B, C, D 9.4pF (9R4) B, C, D 9.5pF (9R5) B, C, D 9.7pF (9R7) B, C, D 9.3pF (9R8) B, C, D 9.3pF (9R3) B, C, D 9.4pF (9R4) F, G, J 11pF (100) F, G, J 13pF (130) F, G, J 20pF (200) F, G, J 20pF (200) </td <td>ä</td> <td>8.9pF (8R9)</td> <td>•</td> <td>•</td> <td>•</td> <td></td>	ä	8.9pF (8R9)	•	•	•	
9.3pF (9R3) 6 8 6, c, D 9.4pF (9R4) 6 8 6, c, D 9.5pF (9R5) 6 8 6 8, c, D 9.7pF (9R7) 6 8 6 7, D 9.7pF (9R7) 6 8 7, C, D 9.7pF (100) 6 7, C, J 11pF (110) 6 7, C, J 12pF (120) 7 7, C, J 13pF (130) 7 7, C, J 15pF (150) 7 7, C, J 15pF (120) 7 7, C, J 12pF (200) 7 7, C, J 22pF (220) 7 7, C, J 24pF (240) 7 7, C, J 33pF (300) 7 7, C, J 35pF (360) 7 7, C, J 35pF (430) 7 7, C, J 5	Ŀ;	9.0pF (9R0)	•	•	•	B, C, D
9.3pF (9R3) 6 8 6, c, D 9.4pF (9R4) 6 8 6, c, D 9.5pF (9R5) 6 8 6 8, c, D 9.7pF (9R7) 6 8 6 7, D 9.7pF (9R7) 6 8 7, C, D 9.7pF (100) 6 7, C, J 11pF (110) 6 7, C, J 12pF (120) 7 7, C, J 13pF (130) 7 7, C, J 15pF (150) 7 7, C, J 15pF (120) 7 7, C, J 12pF (200) 7 7, C, J 22pF (220) 7 7, C, J 24pF (240) 7 7, C, J 33pF (300) 7 7, C, J 35pF (360) 7 7, C, J 35pF (430) 7 7, C, J 5	đ	9.1pF (9R1)	•	٠	•	B, C, D
9.4pF (9R4) 9.5pF (9R5) 9.5pF (9R5) 9.7pF (9R7) 9.7pF (9R7) 9.8pF (9R8) 9.8pF (9R8) 9.8pF (9R8) 9.8pF (9R8) 9.8pF (9R9) 9.9pF (9R9) 9.	Ű	9.2pF (9R2)	•	•	•	
9.5pF (9R5) ● ● B, C, D 9.5pF (9R6) ● ● B, C, D 9.7pF (9R7) ● ● B, C, D 9.8pF (9R8) ● ● B, C, D 9.8pF (9R9) ● ● B, C, D 9.3pF (9R9) ● ● B, C, D 10pF (100) ● ● F, G, J 11pF (110) ● ● F, G, J 13pF (130) ● ● F, G, J 15pF (150) ● ● F, G, J 16pF (160) ● ● F, G, J 20pF (200) ● ● F, G, J 22pF (220) ● ● F, G, J 24pF (240) ● ● F, G, J 30pF (300) ● F, G, J 33pF (330) 33pF (330) ● ● F, G, J 35pF (390) ● ● F, G, J 35pF (470) ● ● F, G, J			-			
9.6pF (9R6) ● ● ● B, C, D 9.7pF (9R7) ● ● ● B, C, D 9.8pF (9R8) ● ● ● B, C, D 9.9pF (9R9) ● ● B, C, D 10pF (100) ● ● F, G, J 11pF (110) ● ● F, G, J 12pF (120) ● ● F, G, J 13pF (130) ● ● F, G, J 15pF (150) ● ● F, G, J 12pF (120) ● ● F, G, J 12pF (160) ● ● F, G, J 12pF (200) ● ● F, G, J 20pF (200) ● ● F, G, J 22pF (220) ● ● ● F, G, J 24pF (240) ● ● F, G, J 30pF (300) ● F, G, J 33pF (330) ● ● F, G, J 33pF (330) ● ● F, G, J 39pF (390) ● ● F, G, J 33pF (330) ● ● F, G, J <		9.4pF (9R4)	•	•	•	
9.7pF (9R7) ● ● B, C, D 9.8pF (9R8) ● ● B, C, D 9.3pF (9R9) ● ● B, C, D 10pF (100) ● ● F, G, J 11pF (110) ● ● F, G, J 13pF (130) ● ● F, G, J 15pF (150) ● ● F, G, J 18pF (180) ● ● F, G, J 20pF (200) ● ● F, G, J 22pF (220) ● ● ● 22pF (200) ● ● F, G, J 230pF (300) ● ● F, G, J 33pF (330) ● ● F, G, J 34pF (440) ● ● F, G, J 34pF (340) ● ● F, G, J 34pF (340) ● ● F, G, J 34pF (430) ● ● F, G, J 34pF (440) ● ● F, G, J 34pF (440) ● ● F, G, J 34pF (440) ● ● F, G, J <			-	_	-	
9.8pF (9R8) • <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td></td<>						
9.9pF (9R9) • <td< td=""><td></td><td></td><td>-</td><td></td><td></td><td></td></td<>			-			
10pf (100) • • • F, G, J 11pF (110) • • • • F, G, J 12pf (120) • • • • F, G, J 13pF (130) • • • • F, G, J 13pF (130) • • • • F, G, J 15pF (160) • • • • F, G, J 20pf (200) • • • • F, G, J 22pf (220) • • • F, G, J 22pf (200) • • • F, G, J 27pf (270) • • • F, G, J 30pF (300) • • F, G, J 30pF (300) 33pf (330) • • F, G, J 33pF (340) • F, G, J 33pf (340) • • F, G, J 33pF (340) • F, G, J 39pF (390) • • F, G, J 43pf (470) • F, G, J			-	_		
11pF (110) • • • F, G, J 12pF (120) • • • • F, G, J 13pf (130) • • • • F, G, J 15pF (150) • • • • F, G, J 15pF (160) • • • • F, G, J 18pF (180) • • • • F, G, J 20pF (200) • • • • F, G, J 22pf (220) • • • F, G, J 24pF (240) • • • F, G, J 30pF (300) • • F, G, J 33pF (330) • • F, G, J 39pF (360) • • F, G, J 39pF (390) • • F, G, J 43pf (430) • • F, G, J			-	-		
12pF (120) • • • F, G, J 13pF (130) • • • • F, G, J 15pF (150) • • • • F, G, J 16pF (160) • • • • F, G, J 18pF (180) • • • • F, G, J 20pF (200) • • • • • • 22pF (220) •						
13pF (130) • • F, G, J 15pF (150) • • • F, G, J 16pF (160) • • • F, G, J 18pF (180) • • • F, G, J 20pF (200) • • • F, G, J 22pF (220) • • • F, G, J 24pF (240) • • • F, G, J 30pF (300) • • F, G, J 33pF (300) 36pF (360) • • F, G, J 39pF (390) 43pF (430) • • F, G, J 43pF (430) • • F, G, J 43pF (470) • • F, G, J			-		-	
15pF (150) •						
16pF (160) • • • F, G, J 18pF (180) • • • • F, G, J 20pF (200) • • • • F, G, J 22pF (220) • • • F, G, J 24pF (240) • • F, G, J 27pF (270) • • • F, G, J 30pF (300) • • • F, G, J 33pf (360) • • F, G, J 39pF (390) • • F, G, J 43pf (430) • • F, G, J 47pf (470) • • F, G, J				-	-	
18pF (180) •						
20pf (200) • • • F, G, J 22pf (220) • • • • F, G, J 24pf (240) • • • • F, G, J 27pf (270) • • • • • • • 30pf (300) •				_		
22pF (220) • • • F, G, J 24pF (240) • • • F, G, J 27pF (270) • • • • • 30pf (300) •					-	
24pF (240) F, G, J 27pF (270) F, G, J 30pF (300) F, G, J 33pF (330) F, G, J 36pF (360) F, G, J 39pF (390) F, G, J 39pF (340) F, G, J 43pF (430) F, G, J 47pF (470) F, G, J			-	_	ě	
27pF (270) •			-	_	•	
30pf (300) F, G, J 33pf (330) F, G, J 36pf (360) F, G, J 39pf (390) F, G, J 43pf (430) F, G, J 43pf (430) F, G, J 47pf (470) F, G, J						
33pf (330) F, G, J 36pf (360) F, G, J 39pf (390) F, G, J 43pf (430) F, G, J 47pf (470) F, G, J				-		
36pF (360) • • F, G, J 39pF (390) • • • F, G, J 43pF (430) • • • F, G, J 47pF (470) • • • •			-	-		
39pF (390) • F, G, J 43pF (430) • F, G, J 47pF (470) • F, G, J						
43pF (430) • F, G, J 47pF (470) • F, G, J			-			
47pF (470) F, G, J			•			
			-	•		
56pF (560) 🛛 🔍 F, G, J				•		
68pF (680) • F, G, J				_		
82pF (820) 🛛 F, G, J				•		

CONTINUED - X8G Dielectric (0603 - 0805)

	Case Size	010	005	Tolerance
2	Voltage	16	25	
SI	0.2pF (0R2)	٠	•	А, В
SI	0.3pF (0R3)	٠	•	А, В
\Box	0.4pF (0R4)	٠	•	А, В
) 	0.5pF (0R5)		•	A, B, C
NPO Dielectric (0100	0.6pF (0R6)	٠	٠	A, B, C
	0.7pF (0R7)	٠	•	A, B, C
U U	0.75pF (R75)	•	•	A, B, C
	0.8pF (0R8)	•	•	A, B, C
H	0.9pF (0R9)	•	•	A, B, C
	1.0pF (1R0)	•	•	A, B, C
	1.2pF (1R2)	٠	•	A, B, C
Ð	1.5pF (1R5)	•	•	A, B, C
	1.8pF (1R8)	•	•	A, B, C
	2.0pF (2R0)	•	•	A, B, C
0	2.2pF (2R2)	•	•	A, B, C
Ā	2 2.7pF (2R7)	٠	•	A, B, C
=	🚆 3.0pF (3R0)	٠	•	A, B, C
	2.3pF (3R3) 3.9pF (3R9)	٠	•	A, B, C
	🐻 3.9pF (3R9)	•	•	A, B, C
	4.0pF (4R0)	٠	•	A, B, C
	4.7pF (4R7)	٠	٠	A, B, C
	5.0pF (5R0)	•	•	A, B, C
	5.6pF (5R6)	٠	•	B, C, D
	6.0pF (6R0)	•	•	B, C, D
	6.8pF (6R8)	٠		B, C, D
	7.0pF (7R0)	•		B, C, D
	8.0pF (8R0)	٠		B, C, D
	8.2pF (8R2)	٠		B, C, D
	9.0pF (9R0)	•		B, C, D
	10pF (100)	•	•	C ,D, G
	12pF (120)	•	•	J
	15pF (150)	•	•	J
	20pF (200)	٠	•	J
	22pF (220)	•	•	J

Ultra-High Q



TECHNICAL DATA SHEET (XQ Series)



Ultra-High Q

				0201								0505																
	$\left(- \right)$		6.3 10		50	100	25	50	100	200	50	100	250				_	50	100	250	500	50	100	200	250	500	1500	
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2.4pr (2A) 2.4pr	0	0.5pF (0R5)	• •	•	۲	۲	٠	۲	۲	۲	۲	•	۲	۲	۲	۲	•	•	•	•	•							A, B, C
2.4pr (2A) 2.4pr			••	•	•	•	•	•	•	•	•	•	•	_	•	•	•	•	•	•	•							
2.4pr (2A) 2.4pr			••	•		•		•	•	•	•	•	•	•	•	•	•	•	•	•	•							
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2.4pr (2A) 2.4pr	.9	1.2pF (1R2)	• •	•	٠	•	•	٠	٠	•	٠	•	٠	٠	٠	٠	•	•	•	•	•	•	٠	•	٠	•	•	A, B, C
2.4pr (2A) 2.4pr			••	•	•	•	-	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
2.4pr (2A) 2.4pr	Ū			•	•	•	-	•	•	•	•	•	•	-	•	•	•	-	•	-	-		•		•		•	
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2.4pr (2A) 2.4pr	<u> </u>				ŏ		i	ě	ŏ	ž	i		ě		ŏ	ě	ě	ŏ	ě	ě	ě	•	-	-	•	-	•	
2.4pr (2A) 2.4pr	<u>.</u>		• •	ŏ	ŏ	ŏ	ĕ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ĕ	ĕ	-	•	•	•	•	•	•	
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2.4pr (2A) 2.4pr	0	2.0pF (2R0)	• •	•	۲	۲	•	٠	۲	۲	۲	•	۲	۲	۲	۲	•	•	•	•	•	•	۲	•	٠	•	•	A, B, C
2.4pr (2A) 2.4pr			••	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-	_		-	_	-		
2467 (2Ni) 2.67 (2	Z		•••														•	•				•	•	•	•	•	•	
2.5pt (286) 2.5pt																					-							
2.66f (2R6) • <td< td=""><td></td><td></td><td></td><td>ŏ</td><td>ŏ</td><td>ŏ</td><td>i</td><td>ŏ</td><td>ŏ</td><td>ŏ</td><td>ě</td><td>ŏ</td><td>ě</td><td>ě</td><td>ŏ</td><td>ŏ</td><td>ě</td><td>ŏ</td><td>ě</td><td>ŏ</td><td>-</td><td>•</td><td>-</td><td>-</td><td>•</td><td>-</td><td>•</td><td></td></td<>				ŏ	ŏ	ŏ	i	ŏ	ŏ	ŏ	ě	ŏ	ě	ě	ŏ	ŏ	ě	ŏ	ě	ŏ	-	•	-	-	•	-	•	
2.7pf (287) 2.7pf (287) 3.0pf (280) 3.0pf (380) 3.0pf))	ŏ	ŏ	ŏ	-	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ								
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3.0p ⁴ (3R1) 0 <		2.8pF (2R8)	• •	•	•	•	•	•	•	•	۲	•	•	•	•	•	•	•	•	•								A, B, C
3.1pf (at) 9			• •	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-	_	-		_			
3.3pf (3R) 3.3pf (3R) 3.3pf (3R) 3.3pf (3R) 4			••	•	•	•	-	•	•	•	•	•	•		•	•	•	•	•	•	-	•	•	•	•	•	•	
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3.7pr (arr)		3.4pF (3R4)	• •	ĕ	ŏ	ŏ	ĕ	ŏ	ē	ŏ	ŏ	ĕ	ě	ŏ	ŏ	ŏ	ĕ	ě	ě	ě	ě	-	-	-	-	-	-	
3.7pr (arr)		3.5pF (3R5)	• •	٠	٠	۲	۲	۲	۲	۲	۲	٠	۲	۲	۲	۲	٠	٠	۲	•	•							
3.8pr (3R8) 3.9pr (3R8) 3.9pr (4R4) 4.0pr (4R1) 0		🖥 3.6pF (3R6)	• •	•	۲	۲	٠	۲	۲	•	۲	•	۲	۲	۲	۲	•	•	•	•	•	•	۲	•	۲	•	•	A, B, C
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4.0pr (4R0) • <td< td=""><td></td><td></td><td>••</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td></td><td>-</td><td>-</td><td></td><td></td><td>•</td><td></td></td<>			••	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		-	-			•	
4.1pr (4R1) • <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td>-</td><td>-</td><td>-</td><td>-</td><td></td><td>-</td><td></td></td<>																			-			-	-	-	-		-	
4.2pf (4R2) • <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>ě</td><td></td><td></td><td></td><td></td><td></td><td></td><td>ž</td><td>ě</td><td>ž</td><td>ž</td><td>ž</td><td>ž</td><td>-</td><td>•</td><td>-</td><td>•</td><td>•</td><td>-</td><td>•</td><td></td></td<>								ě							ž	ě	ž	ž	ž	ž	-	•	-	•	•	-	•	
4.3pf (4R3) 4.4pf (4R4) 4.4pf (4R4) 4.5pf (4R5) 4.5pf (4R5) 4.5pf (4R7) 4.5pf (4R7) 4.5pf (4R7) 4.5pf (4R7) 4.5pf (4R7) 4.5pf (4R8) 4.5pf (5R1) 5.1pf (5R1) 5.1pf (5R1) 5.1pf (5R1) 5.1pf (5R1) 5.2pf (5R2) 4.5pf (4R8) 4.5pf (5R4) 5.5pf (5R6) 5.5pf (5R6) 5.5pf (5R6) 5.5pf (5R6) 5.5pf (5R8) 5.5pf (5R8) 5.5pf (5R8)			• •	ŏ	ŏ	ŏ	ĕ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	-							
4.5pf (4R5) 4.6pf (4R6) 4.6pf (4R6) 4.7pf (4R7) 4.6pf (4R6) 4.7pf (4R7) 4.8pf (4R8) 4.9pf (4R9) 5.0pf (SR1) 5.0pf (SR1) 5.0pf (SR2) 5.3pf (SR3) 4.9ph (4R9)			• •	•	•	٠	٠	•	•	•	٠	•	٠	٠	٠	٠	٠	•	٠	•	•	•	٠	•	•	•	•	
4.6pf (4R6) 4.7pf (4R7) 4.8pf (4R8) 4.9pf (4R8) 5.1pf (5R1) 5.3pf (5R1) 5.3pf (5R4) 4.9			• •	•	•	•	•	•	۲	•	•	•	٠	٠	٠	•	•	•	•	•	•							
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4.9pf (4R9) 5.0pf (SR0) 5.1pf (SR1) 6.1pf (GR1)								-	-			-			-	-	-	-	-	-	-							
S.OpF (SR0) S.1pf (SR1) S.1pf (SR1) S.2pF (SR2) S.3pf (SR3) S.4pF (SR4) S.2pF (SR3) S.4pF (SR4)			• •	ŏ	ŏ	ē	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ě	ě	ě	ě	ŏ							
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5.4pf (SR4) 5.5pf (SR5) 5.6pf (SR6) 5.6pf (SR6) 5.7pf (SR7) 6.3pf (R81)				-	-	•	-	-	-	•	-	-	٠	-	-	-	•	-	-	-	-							
5.5pf (SR) 5.6pf (SR) 5.6pf (SR) 5.7pf (SR) 5.7pf (SR) 5.7pf (SR) 6.7pf (SR) 6.1pf (GR) 6.2pf (GR) 6.3pf (GR) 6.3pf (GR)							-		-			-	-	_	-		-	-										
5.6pf (SR6) 5.7pf (SR7) 5.8pf (SR8) 5.9pf (SR8) 5.9pf (SR8) 5.9pf (SR8) 6.0pf (6R0) 6.1pf (6R1) 6.2pf (6R2) 6.2pf (6R2) 6.3pf (6R3) 6.4pf (6R4) 6.3pf (6R3) 6.4pf (6R4) 6.3pf (6R3) 6.3pf (6R3) 6.3pf (6R3) 6.3pf (6R3) 6.3pf (6R3) 6.3pf (6R4)					-	-	-	-	-		-	-	-	_	-	-	-		-			-						
5.7pf (SR7) 5.8pf (SR8) 5.9pf (SR9) 6.0pf (GR0) 6.1pf (GR1) 6.2pf (GR2) 6.3pf (GR2)				-	-	-	-	-	ě		-	-	-	_	-	ě	-	-	-	-			•	•	•	•		
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6.1pF (6R1) 6.2pF (6R2) 6.3pF (6R3) 6.4pF (6R4) 6.5pF (6R5) 6.5pF (6R6) 6.5pF (6R7) 6.5pF (6R8)		5.9pF (5R9)				_		-					-			•	•	_		-								B, C, D
6.2pF (6R2) 6.3pF (6R3) 6.4pF (6R4) 6.5pF (6R6) 6.5pF (6R6) 6.7pF (6R7) 6.8pF (6R8) 6.8pF (6R8) 6.8pF (6R8) 6.8pF (6R8)					-	-	-	-					-	_	-	-	-	-	-	-	-	٠	•	•	•	٠	•	
6.3pF (6R3) 6.4pF (6R4) 6.3pF (6R3) 6.4pF (6R4) 6.3pF (6R5) 6.4pF (6R4) 6.3pF (6R6) 6.4pF (6R4) 6.3pF (6R8) 6.4pF (6R4) 6.4pF (6R4) 6.3pF (6R8) 6.4pF (6R4) 6.4pF (6R4) 6.4pF (6R4) 6.4pF (6R4) 6.4pF (6R4) 6.4pF (6R4)				-	-	-	-	-	-	•	-	-	-		-	-	-	-	-	-		_						
6.4pF (6R4) 6.5pF (6R5) 6.6pF (6R6) 6.7pF (6R7) 6.8pF (6R8)					_		-	-				-				-	-											
6.5pF (6R5) • <td< td=""><td></td><td></td><td></td><td>-</td><td>-</td><td>_</td><td>-</td><td>-</td><td></td><td></td><td></td><td>-</td><td>-</td><td>-</td><td></td><td>-</td><td>-</td><td>-</td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td></td<>				-	-	_	-	-				-	-	-		-	-	-				-						
6.6pF (6R6) • <td< td=""><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td>ŏ</td><td>ŏ</td><td></td><td>-</td><td></td><td></td><td>-</td><td>ě</td><td>ě</td><td></td><td>ĕ</td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>					-				ŏ	ŏ		-			-	ě	ě		ĕ	-								
6.7pF (6R7) • <td< td=""><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td>-</td><td>٠</td><td>٠</td><td></td><td></td><td></td><td>_</td><td>-</td><td>٠</td><td>٠</td><td></td><td>٠</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>				-				-	٠	٠				_	-	٠	٠		٠									
			• •								۲			٠		•		•			•							B, C, D
6.9pr (6t9)				-	-	-		-	-	-	-	-	-		-	-						٠	٠	•	•	•	•	
		6.9pF (6R9)			•	•	•	•			•		•	•	•	•		•	•	•	•							B, C, D

TECHNICAL DATA SHEET (XQ Series)

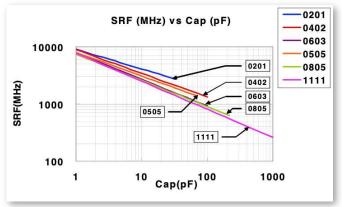


	Case Size			0201					02			0505				03			08						111			Tolerance
$\overline{\mathbf{H}}$	Voltage	6.3	10	25	50	100	25	50	100	200	50	100	250	25	50	100	250	50	100	250	500	50	100	200	250	500	1500	Code
-	7.0pF (7R0)								-						-			•		-	•	•	•	•	•	•	•	B, C, D
-	7.1pF (7R1)							-										•	-	•	•							B, C, D
-	7.2pF (7R2) 7.3pF (7R3)														ž	ž	ž			ž								B, C, D B, C, D
	7.4pF (7R4)	ŏ	ě	ě	ě	ě	ě	ě	ě		Ť	ě	ě	ě	ž	ě	Ĭ	ě	-	Ĭ	ĕ							B, C, D
Ц	7.5pF (7R5)	Ť	ŏ	ě	ě	ŏ	ŏ	ŏ	ŏ	ě	ŏ	ŏ	ě	ŏ	ŏ	ě	ě	ŏ	ŏ	ě	ŏ							B, C, D
<u> </u>	7.6pF (7R6)	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ě	ě	ŏ	ŏ	ĕ	ě							B, C, D
) S	7.7pF (7R7)	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•							B, C, D
	7.8pF (7R8)	•	•	•	•	•	٠	•	٠	•	٠	•	•	•	•	•	•	•	•	•	•							B, C, D
S	7.9pF (7R9)	•	•	•	•	•	٠	•	٠	•	•	•	•	•	•	•	•	•	٠	•	•							B, C, D
\leq	8.0pF (8R0)	•	•	•	•	•	•	•	۲	•	•	•	•	•	•	•	•	•	•	•	•	•	•	۲	•	•	•	B, C, D
	8.1pF (8R1)	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•							B, C, D
.9	8.2pF (8R2)	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	B, C, D
	8.3pF (8R3)	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•							B, C, D
5	8.4pF (8R4)		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•							B, C, D
Ū	8.5pF (8R5)					•		•	•		•	•		•		•		•		•	•							B, C, D
	8.6pF (8R6)	H								-			-		-	-	-		-		•							B, C, D
. <u> </u>	8.7pF (8R7)	H						-	-	-					-	-	-		-		•							B, C, D
NPO Dielectric (0201 to 11	8.8pF (8R8) 8.9pF (8R9)	H	-	-		-			-	-		-	-		-			ě	-									B, C, D B, C, D
	9.0pF (9R0)	Ť	ě	ě	ě	ě	ě	ě	ě	ě	ě	ě	ě	ě	ě	ě	ě	ě	ě	ě	ĕ							B, C, D B, C, D
ď	9.1pF (9R1)	ŏ	ŏ	ě	ě	ě	ŏ	ŏ	ĕ	ě	ě	ě	ě	ě	ě	ě	ě	ě	ě	ĕ	ŏ							B, C, D
-	9.2pF (9R2)	ŏ	ē	•	•	ě	ě	•	•	•	ě	•	•	ě	•	ě	•	ě		•	ě							B, C, D
	9.3pF (9R3)	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ĕ	ě	ŏ	ŏ	ŏ	ě							B, C, D
- I	9.4pF (9R4)	Ō	•	۲	۲	•	•	•	•	•	•	•	۲	•	•	•	•	•	•	•	•							B, C, D
	9.5pF (9R5)	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•							B, C, D
CONTINUED	9.6pF (9R6)	•	•	•	•	•	٠	•	•	•	•	•	•	•	•	•	•	•	•	•	•							B, C, D
5	9.7pF (9R7)	•	•	•	•	٠	•	۲	۲	•	•	۲	•	•	•	•	•	•	٠	•	•							B, C, D
\leq	9.8pF (9R8)	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•							B, C, D
\leq	පු 9.9pF (9R9)	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•							B, C, D
	9.9pF (9R9) 10pF (100) 11pF (110) 12pF (120) 13pF (130)	•	•	•	•	•	٠	•	٠	•	•	•	•	•	•	•	•	•	•	•	•	•	•	٠	•	•	•	F, G, J
2	5 11pF (110)		•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		-	_	_	-	-	F, G, J
0	12pF (120)	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	F, G, J
S	- 10bi (100)										•			•		•	•	•			•		-					F, G, J
	15pF (150)			-			•								-			-				•	•	•	•	•	•	F, G, J
	16pF (160) 18pF (180)						:														•	•	•	•	•	•	•	F, G, J
	20pF (200)						i									ž					ĕ	•	-	•	•	•	•	F, G, J F, G, J
	22pF (220)	ŏ		ě	-		ĕ	ě	ě			ě		i	-	Ĭ	•	ě	-	ě	ĕ	•	•	•	•	•	•	F, G, J
	24pF (240)	Ť	ŏ	ě			ě	ě	ŏ	ě	ŏ	ě	ě	ě	ě	ě	ě	ŏ	ŏ	ě	ě	•	-	-	-	-	-	F, G, J
	27pF (270)	ŏ	ŏ	ĕ			ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	•	•	•	•	•	•	F, G, J
	30pF (300)	ŏ	ŏ	ŏ			ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ŏ	ě	ě	ŏ	ŏ	ŏ	ŏ	-	-	-	-	-	-	F, G, J
	33pF (330)	ŏ	۲	۲			ŏ	•	•	•	•	•	۲	•	•	•	•	•	•	•	•	•	•	•	•	•	•	F, G, J
	36pF (360)						۲	٠	٠		٠	٠	۲	٠	٠	٠	•	•	•	۲	•							F, G, J
	39pF (390)						۲	۲	۲		۲	۲	۲	۲				•	۲	•	•	•	۲	۲	۲	•	•	F, G, J
	43pF (430)						۲	٠	٠		۲	۲	٠	•	•	•	•	•	•	•	•							F, G, J
	47pF (470)						۲	٠	٠		•	٠	•	•	•	•	•	•	•	•	•	•	•	۲	٠	•	•	F, G, J
	56pF (560)						•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	F, G, J
	68pF (680)						•	•			•	•	•	•	•	•	•	•	•	•	٠	•	•	•	•	•	•	F, G, J
	82pF (820)						•	•			•	•	•	•		•	•	•	•	•		•	•		•	•	•	F, G, J
	100pF (101)						•	•			•	•	•	•	•	•	•	•		•		•			•	•	•	F, G, J
	120pF (121)	-													-													F, G, J
	150pF (151)													•	•			•	•	•		•	-	-	•	•		F, G, J
	180pF (181)													•					•			•			_	•		F, G, J F, G, J
	220pF (221) 270pF (271)	_													•			-	•	•		•	•	÷	•	•	•	F, G, J F, G, J
	330pF (271)																					ĕ	ĕ		ĕ		i	F, G, J F, G, J
	390pF (391)																					ĕ	ŏ	ĕ	-		ĕ	F, G, J
	470pF (471)																					ĕ	ŏ		ŏ		ĕ	F, G, J
	560pF (561)																					ŏ				ŏ	ě	F, G, J
	680pF (681)																					ŏ	Ŏ		ŏ		ě	F, G, J
	820pF (821)																					•	•	_	۲		•	F, G, J
	1000pF (102)																					٠	•		٠		•	F, G, J
															_													

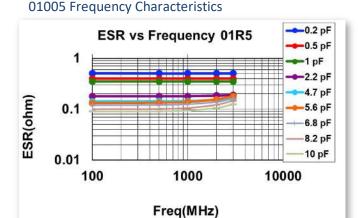
TECHNICAL DATA SHEET (XQ Series)

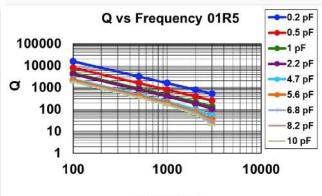


Frequency Characteristics

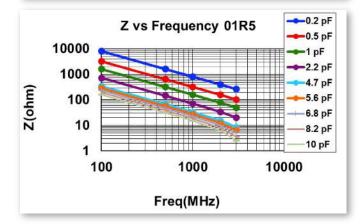


SRF vs Cap (0201 thru 111)





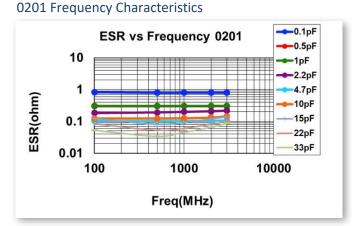
Freq(MHz)



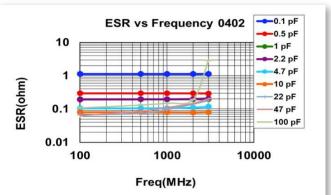
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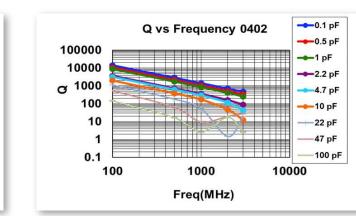


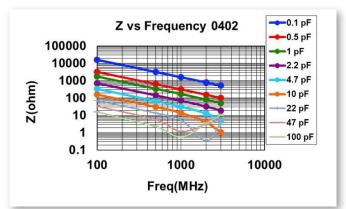
Frequency Characteristics

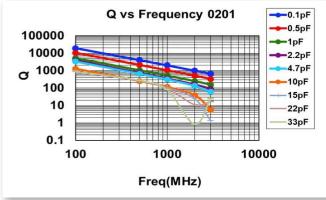


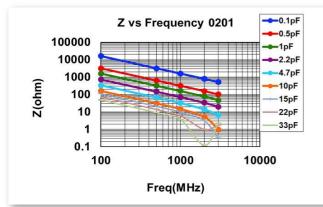
0402 Frequency Characteristics







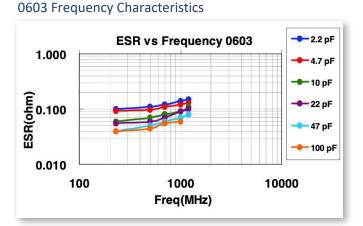




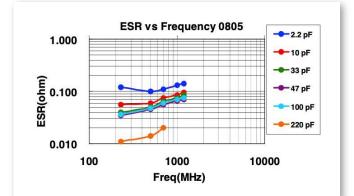
TECHNICAL DATA SHEET (XQ Series)

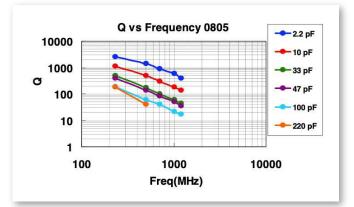


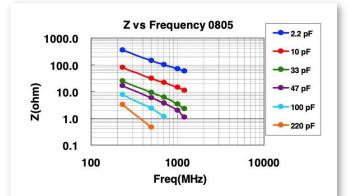
Frequency Characteristics

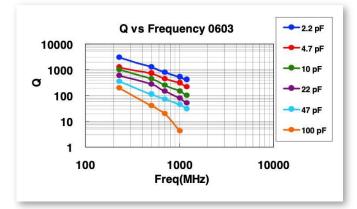


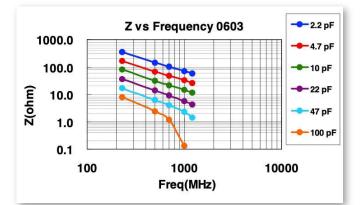
0805 Frequency Characteristics







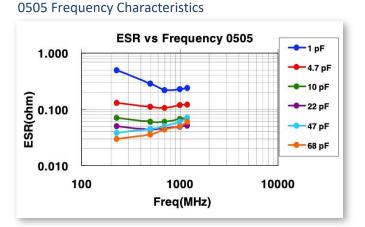




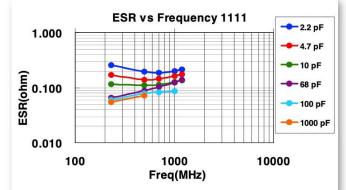
TECHNICAL DATA SHEET (XQ Series)

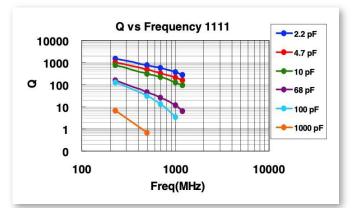


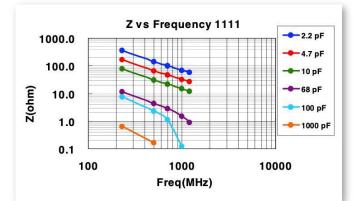
Frequency Characteristics

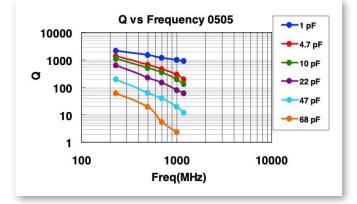


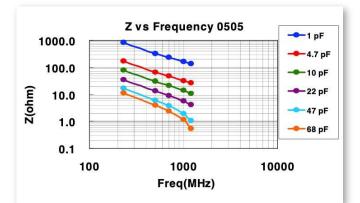
1111 Frequency Characteristics











TECHNICAL DATA SHEET (XQ Series)



Ultra-High Q

XQ – Series Test Conditions

No.	ltem	Test Condition	Requirements
1	Visual & Dimensions	Suitable optical or mechanical measurement system	 No major defects Conforms to individual specification sheet
2	Capacitance	 For capacitance ≤ 1000pF: 1.0±0.2Vrms, 1.0MHz±10% 	 Shall not exceed specified capacitance plus allowed tolerance
3	Q / DF	 For capacitance values >1000pF: 1.0±0.2Vrms, 1.0kHz±10% Measured at room temperature 	 01005, 0201, 0402/25V to 50V: Cap<30pF, Q≥400+20C; Cap≥30pF, Q≥1000 0402/100V~200V, 0603, 0805, 0505, 1111: Cap<30pF:Q≥800+20C;Cap≥30pF:Q≥1400
4	Dielectric Strength	 Applied voltage: ≤100V : 250% of rated voltage. (RF02: 300% rated voltage.) 200V ~ 300V : 200% rated voltage. 500V ~ 999V : 150% rated voltage. 1000V ~ 3000V : 120% rated voltage. Duration: 1 to 5 sec. Charge & discharge current <50mA. 	 No evidence of damage or arc-over during test.
5	Insulation Resistance	 Time rated voltage applied ≤100V → max. 120 sec. ≥200V → max 60 sec. (Max 500V) Test at room temperature 	• $\geq 10G\Omega$ or RxC $\geq 100\Omega$ -F whichever is smaller
6	Temperature Coefficient	 No electrical load Allow temperature to equilibrate prior to measure 	 Capacitance change: within ±30ppm/°C; → NP0: -55~125°C at 25°C → X8G: -55~150°C at 25°C
7	Termination Adhesion Strength	 Applied Force 01005: 1N; 0201: 2N; 0402 to 0603: 5N; >0603: 10N Test time: 10±1 sec. 	 No major damage or removal of termination
8	Vibration Resistance	 Vibration frequency: 10~55 Hz/min. Total amplitude: 1.5mm Test time: 6 hrs. (Two hrs each in three mutually perpendicular directions.) Cap./DF(Q) Measurement to be made after de-aging at 150°C for 1hr then set for 24±2 hrs at room temp 	 No major damage Capacitance change, Q and DF to meet initial specification
9	Solderability	 Solder temperature: 235±5°C Dipping time: 2±0.5 sec. 	 95% min. coverage of all metalized area.
10	Bend Test	 Force applied to middle of substrate at a rate of approx. 1mm/s until 1mm deflection achieved, pressure maintained for 5±1 sec. 	 No major damage Capacitance change before and after test within ±5.0% or ±0.5pF (whichever is larger).
11	Resistance to Soldering Heat	 Solder temperature: 260±5°C Dipping time: 10±1 sec Preheating: 120-150°C for 1 min before immersion Cap. / DF(Q) / I.R. Measurement to be made after deaging at 150°C for 1hr then 24hr age at RT 	 No major damage Capacitance change: within ±2.5% or ±0.25pF whichever is larger. Q/D.F., I.R. and dielectric strength meet initial spec 25% max. leaching on each edge.

TECHNICAL DATA SHEET (XQ Series)



Ultra-High Q

CONTINUED XQ - Series Test Conditions

No.	ltem	Test Condition	Requirements
12	Temperature Cycle	 Conduct 5-cycles: Min operating temp: +0/-3°C for 30±3mins Room temp for 2-3mins Max operating temp: +0/-3°C for 30±3mins Room Temp for 2-3 mins Cap. / DF(Q) / I.R. Measurement to be made after de-aging at 150°C for 1hr then 24±2hr age at RT 	 No major defects Cap change: within ±2.5% or ±0.25pF whichever is larger. Q/D.F., I.R. and dielectric strength: To meet initial requirements.
13	Humidity (Steady State)	 Test temp.: 40±2°C Humidity: 90~95% RH Test time: 500+24/-0hrs. Cap. / DF(Q) / I.R. Measurement to be made after de-aging at 150°C for 1hr then 24±2hr age at RT 	 No major damage Cap change: within ±5.0% or ±0.5pF whichever is larger. Q/D.F. value: Cap≥30pF, Q≥350; 10pF≤Cap<30pF, Q≥275+2.5C Cap<10pF; Q≥200+10C I.R. ≥1GΩ
14	Humidity (Under Load)	 Test temp.: 40±2°C Humidity: 90~95%RH Test time: 500+24/-0 hrs. Applied voltage: rated voltage (MAX. 500V) Cap. / DF(Q) / I.R. Measurement to be made after de-aging at 150°C for 1hr then 24±2hr age at RT 	 No major damage Cap change: within ±7.5% or ±0.75pF whichever is larger. Q/D.F. value: Cap≥30pF, Q≥200; Cap<30pF, Q≥100+10/3C I.R.: ≥500MΩ.
15	High Temperature Load	 Test temp.: NP0: 125±3°C X8G: 150±3°C Applied voltage: (1) 10V≦Ur<500V: 200% rated voltage. (2) ≦6.3V or 500V: 150% rated voltage. (3) Ur≧630V: 120% rated voltage. Test time: 1000+24/-0 hrs. Cap. / DF(Q) / I.R. Measurement to be made after de-aging at 150°C for 1hr then 24±2hr age at RT 	 No major damage Cap change: within ±3.0% or ±0.3pF whichever is larger. Q/D.F. value: Cap≥30pF, Q≥350; 10pF≤Cap<30pF, Q≥275+2.5C Cap<10pF; Q≥200+10C I.R. ≥1GΩ
16	ESR	The ESR should be measured at room temperature and texted at 1 010 1 Clus	0.2pF≤Cap≤1pF:< 700mΩ/pF 0.1pF≤Cap≤1pF:< 350mΩ/pF
		and tested at 1.0±0.1 GHz.	1pF <cap≤2pf:< 600mω<="" td=""></cap≤2pf:<>
			S 2pF <cap≤5pf:< 1pf<cap≤5pf:<="" 300mω<="" 500mω="" s="" td=""></cap≤5pf:<>
			5pF <cap≤10pf:< 300mω<br="">5pF<cap≤22pf:< 250mω<="" td=""></cap≤22pf:<></cap≤10pf:<>
			10pF <cap≤22pf:< 350mω<="" td=""></cap≤22pf:<>
			0.1pF≤Cap≤1pF:< 350mΩ/pF 0.1pF≤Cap≤1pF:< 1500mΩ
			$\begin{cases} 1pF$
			5pF <cap≤100pf:<250mω< td=""> 10pF<cap≤220pf:<200mω< td=""> 0.4pF<cap≤10pf:<2100mq< td=""> 0.2pF<cap≤1pf:<2100mq< td=""></cap≤1pf:<2100mq<></cap≤10pf:<2100mq<></cap≤220pf:<200mω<></cap≤100pf:<250mω<>
			0.4pF≤Cap<1.0pF:<1500mΩ 0.3pF≤Cap≤1pF:<1500mΩ 0.10pF≤Cap<10pF:<250mΩ 0.2pF <cap≤1pf:<250mω< td=""></cap≤1pf:<250mω<>
			$10pF \le Cap \le 10pF: < 200m\Omega$ $10pF \le Cap \le 10pF: < 200m\Omega$ $Cap > 10pF: < 200m\Omega$
		 The ESR should be measured at room temperature and tested at 500±50 MHz. 	0201, 22pF≤Cap≤33pF: < 300mΩ 1111, 100pF <cap≤1000pf: 150mω<="" <="" th=""></cap≤1000pf:>

"Room Temperature" or "RT" equivalent to 15 to 35°C, Relative humidity: 25 to 75%, Atmospheric pressure: 86 to 106kPa.

TECHNICAL DATA SHEET (XQ Series)



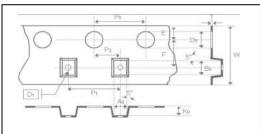
Ultra-High Q

Packaging Dimensions & Part Count

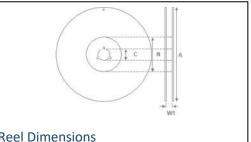
SIZE	01005	0201	0402	0505	0603	0805	1111
A ₀	0.25 ±0.05	0.40 ±0.10	0.70 ±0.20	<1.90	1.05 ±0.30	1.50 ±0.20	<3.05
B ₀	0.45 ±0.05	0.70 ±0.10	1.20 ±0.20	<1.90	1.80 ±0.30	2.30 ±0.20	<3.80
т	≤ 0.50	≤ 0.55	≤ 0.80	0.23 ±0.10	≤ 1.20	≤ 1.20	0.23 ±0.10
Ko	N/A	N/A	N/A	<1.50	N/A	N/A	< 2.50
w	8.00	8.00	8.00	8.00	8.00	8.00	8.00
	±0.30	±0.30	±0.30	±0.30	±0.30	±0.30	±0.30
Po	4.00	4.00	4.00	4.00	4.00	4.00	4.00
	±0.10	±0.10	±0.10	±0.10	±0.10	±0.10	±0.10
10xP ₀	40.00	40.00	40.00	40.00	40.00	40.00	40.00
	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1
P1	2.00	2.00	2.00	4.00	4.00	4.00	4.00
	±0.05	±0.05	±0.05	±0.10	±0.10	±0.10	±0.10
P ₂	2.00	2.00	2.00	2.00	2.00	2.00	2.00
	±0.05	±0.05	±0.05	±0.05	±0.05	±0.05	±0.05
Do	1.50	1.50	1.50	1.50	1.50	1.50	1.50
	+0.1/-0	+0.1/-0	+0.1/-0	+0.1/-0	+0.1/-0	+0.1/-0	+0.1/-0
D ₁	N/A	N/A	N/A	1.00 ±0.10	N/A	N/A	1.00 ±0.10
E	1.75	1.75	1.75	1.75	1.75	1.75	1.75
	±0.10	±0.10	±0.10	±0.10	±0.10	±0.10	±0.10
F	3.30	3.30	3.30	3.30	3.30	3.30	3.30
	±0.05	±0.05	±0.05	±0.05	±0.05	±0.05	±0.05

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Paper Tape Dimensions



Plastic Tape Dimensions



Reel	Dimer	sions

Reel Size	01001, 0201, 0402, 0505, 0603, 0805, 1111			
	7" Reel	13" Reel		
С	13.0±0.5	13.0±0.5		
W1	10.0±1.5	10.0±1.5		
Α	178.0±2.0	330.0±2.0		
Ν	60.0+1.0/-0.0	50.0 min		

Size	Thickness (mm)	Туре	7" Reel	13" Reel
01005	0.20±0.02	Paper	20,000	-
0201	0.30±0.03		15,000	70,000
0402	0.50±0.05		10,000	50,000
0603	0.80±0.07		4,000	15,000
	0.50±0.10		4,000	-
0805	0.60±0.10		4,000	15,000
	0.85±0.10		4,000	15,000
0505	1.15±0.15	Plastic	3,000	-
1111	≤ 1.78		2,000	-

TECHNICAL DATA SHEET (XQ Series)



Storage & Handling Conditions

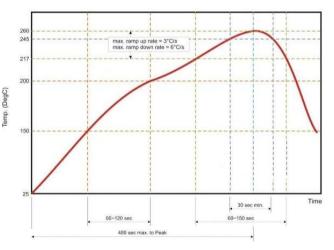
- Parts should be stored in their original packing where possible. Temperature should be between 5°C and 40 C.
 Relative humidity maintained between 20% to 70%
- Do not store in the presence of salts, hydrogen sulfide, sulfur dioxide, chloride gas, ammonia or other acid and alkali.
- It is recommended that the product be used within one year of receipt. Check solderability in case shelf-life extension is needed.

Soldering Conditions

Termination material is suitable for Pb-free soldering and high-Pb containing solder. Reflow and Wave solder profiles for SAC305 alloy are suggest below. The use of N₂ may be required to aide in solderability especially for higher temperature solder compositions. Case sizes \leq 0402, 0505 and, 1111 should only be attached using reflow soldering.

Vapour phase soldering can expose parts to similar stresses to those experienced during wave reflow and similar pre-heat and cool down conditions should be considered.

Hand soldering and re-work using a soldering iron can expose the capacitors to very high temperature deltas increasing the risk to cracking of the ceramic body. If use of soldering iron can not be avoided, a fine tip iron not exceeding 30 watts should be used. Parts should be pre-heated carefully and the soldering iron tip must NOT touch the capacitor.



Recommended **reflow** profile for SAC305 (Sn/Ag/Cu alloy) solder pastes.



Recommended **wave** profile for SAC305 (Sn/Ag/Cu alloy) solder pastes.