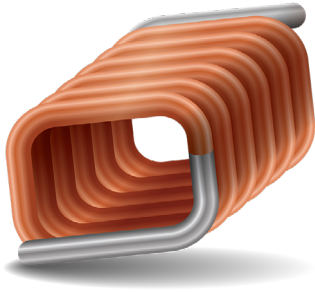


RF Inductors

AS Series – Square Air Core Inductors



GENERAL DESCRIPTION

Square Air Core RF Inductors, part of the wound air core inductor family, are ideal for RF circuits, broadband I/O filtering, frequency selection, or impedance matching. The unique square cross section of the air core inductor provides better performance, and offers manufacturing advantages over toroidal coils.

FEATURES

- Square cross section construction
- Available in 0806, 0807, and 0908 sizes
- 20 Inductance values ranging from 5.5nH to 27.3nH
- High Q
- High Current
- Excellent SRF

APPLICATIONS

- RF Applications
- RF Circuits
- Broadband I/O Filtering
- Impedance Matching

HOW TO ORDER

AS	06	05N5	J	T	R
Air Core Inductor (Square Cross Section)	Size 06 = 0806 07 = 0807 08 = 0908	Inductance 05N5 = 5.5nH 06N0 = 6.0nH 12N3 = 12.3nH	Tolerance G = 2% J = 5% K = 10%	Termination T = Sn/Ag over Cu (96.5% Sn, 3% Ag, 0.5% Cu)	Packaging R = 7 inch reel (2000 pieces per reel)



ELECTRICAL SPECIFICATIONS

Technical Data	All technical data related to an ambient temperature of +25°C
Inductance Range	5.5nH to 27.3nH
Inductance Tolerance	2%, 5%, 10%
Rated Current	2.7A, 2.9A, 4.4A
Operating Temperature	-40°C to +125°C
Termination	96.5% Tin/3% Silver over 0.5% Copper

ELECTRICAL SPECIFICATIONS

Part Number	Turns	Inductance (nH)	Tolerance (%)	Q min.	Test Freq. (MHz)	DCR max (mΩ)	SRF (GHz)	Ir max (A)
AS0605N5*TR	3	5.5	G, J, K	60	400	3.4	4.9	2.9
AS0606N0*TR	3	6	G, J, K	64	400	6.0	5.2	2.9
AS0608N9*TR	4	8.9	G, J, K	90	400	7.0	4.3	2.9
AS0612N3*TR	5	12.3	G, J, K	90	400	8.0	4.8	2.9
AS0615N7*TR	6	15.7	G, J, K	90	400	9.0	4.4	2.9
AS0619N4*TR	7	19.4	G, J, K	90	400	10.0	4	2.9
AS0706N9*TR	3	6.9	G, J, K	100	400	6.0	4.6	2.7
AS0710N2*TR	4	10.2	G, J, K	100	400	7.0	4	2.7
AS0711N2*TR	4	11.2	G, J, K	90	400	6.3	3.6	2.7
AS0713N7*TR	5	13.7	G, J, K	100	400	8.0	4.3	2.7
AS0717N0*TR	6	17	G, J, K	100	400	9.0	4	2.7
AS0722N0*TR	7	22	G, J, K	100	400	10.0	3.5	2.7
AS0808N1*TR	3	8.1	G, J, K	130	400	6.0	5.2	4.4
AS0812N1*TR	4	12.1	G, J, K	130	400	7.0	4.3	4.4
AS0814N7*TR	4	14.7	G, J, K	90	400	7.2	3	4.4
AS0816N6*TR	5	16.6	G, J, K	130	400	8.0	3.4	4.4
AS0821N5*TR	6	21.5	G, J, K	130	400	9.0	3.7	4.4
AS0823N0*TR	6	23	G, J, K	130	400	10.0	2.6	4.4
AS0825N0*TR	7	25	G, J, K	130	400	10	2.5	4.4
AS0827N3*TR	7	27.3	G, J, K	130	400	10	3.2	4.4

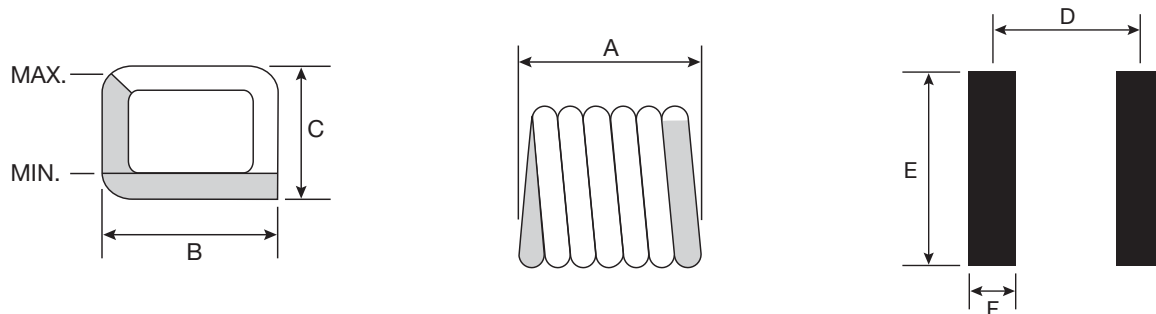
Note: 1. *Tolerance: G=±2%, J=±5%, K=±10%
2. Inductance & Q measured on the HP4291B. With HP16193A test fixture.
3. SRF measured using the HP8753E

4. Operating Temperature range: -40°C to +125°C
5. Electrical Specifications at 25°C
6. MSL: Level 1

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PHYSICAL DIMENSIONS



mm (inches)

Part Number	A	B	C	D	E	F
AS0605N5*TR	1.346±0.102 (0.053±0.004)	1.829±0.254 (0.072±0.01)	1.397±0.102 (0.055±0.004)	0.962 (0.038)	2.60 (0.102)	0.51 (0.020)
AS0606N0*TR	1.295±0.102 (0.051±0.004)	1.829±0.254 (0.072±0.01)	1.397±0.102 (0.055±0.004)	0.99 (0.390)	2.60 (0.102)	0.51 (0.020)
AS0608N9*TR	1.626±0.152 (0.640±0.006)	1.829±0.254 (0.072±0.01)	1.397±0.102 (0.055±0.004)	1.27 (0.050)	2.60 (0.102)	0.51 (0.020)
AS0612N3*TR	1.930±0.152 (0.076±0.006)	1.829±0.254 (0.072±0.01)	1.397±0.102 (0.055±0.004)	1.63 (0.064)	2.60 (0.102)	0.51 (0.020)
AS0615N7*TR	2.286±0.152 (0.09±0.006)	1.829±0.254 (0.072±0.01)	1.397±0.102 (0.055±0.004)	1.96 (0.070)	2.60 (0.102)	0.51 (0.020)
AS0619N4*TR	2.591±0.152 (0.102±0.006)	1.829±0.254 (0.072±0.01)	1.397±0.102 (0.055±0.004)	2.29 (0.090)	2.60 (0.102)	0.51 (0.020)
AS0706N9*TR	1.295±0.102 (0.051±0.004)	1.829±0.254 (0.072±0.01)	1.524±0.254 (0.060±0.010)	1.02 (0.040)	2.60 (0.102)	0.51 (0.020)
AS0710N2*TR	1.626±0.152 (0.064±0.006)	1.829±0.254 (0.072±0.01)	1.524±0.254 (0.060±0.010)	1.32 (0.052)	2.60 (0.102)	0.51 (0.020)
AS0711N2*TR	1.549±0.152 (0.061±0.006)	1.829±0.254 (0.072±0.01)	1.524±0.254 (0.060±0.010)	1.24 (0.049)	2.60 (0.102)	0.51 (0.020)
AS0713N7*TR	1.930±0.152 (0.076±0.006)	1.829±0.254 (0.072±0.01)	1.524±0.254 (0.060±0.010)	1.57 (0.062)	2.60 (0.102)	0.51 (0.020)
AS0717N0*TR	2.286±0.152 (0.09±0.006)	1.829±0.254 (0.072±0.01)	1.524±0.254 (0.060±0.010)	1.93 (0.076)	2.60 (0.102)	0.51 (0.020)
AS0722N0*TR	2.591±0.152 (0.102±0.006)	1.829±0.254 (0.072±0.01)	1.524±0.254 (0.060±0.010)	2.29 (0.090)	2.60 (0.102)	0.51 (0.020)
AS0808N1*TR	1.473±0.152 (0.058±0.006)	2.134±0.152 (0.084±0.006)	1.829±0.152 (0.072±0.006)	1.12 (0.044)	2.80 (0.110)	0.64 (0.025)
AS0812N0*TR	1.854±0.152 (0.073±0.006)	2.134±0.152 (0.084±0.006)	1.829±0.152 (0.072±0.006)	1.45 (0.570)	2.80 (0.110)	0.64 (0.025)
AS0814N7*TR	1.549±0.152 (0.061±0.006)	2.134±0.152 (0.084±0.006)	1.829±0.152 (0.072±0.006)	1.24 (0.049)	2.80 (0.110)	0.64 (0.025)
AS0816N6*TR	2.210±0.152 (0.087±0.006)	2.134±0.152 (0.084±0.006)	1.829±0.152 (0.072±0.006)	1.83 (0.072)	2.80 (0.110)	0.64 (0.025)
AS0821N5*TR	2.565±0.152 (0.101±0.006)	2.134±0.152 (0.084±0.006)	1.829±0.152 (0.072±0.006)	2.18 (0.086)	2.80 (0.110)	0.64 (0.025)
AS0823N0*TR	2.235±0.152 (0.088±0.006)	2.134±0.152 (0.084±0.006)	1.829±0.152 (0.072±0.006)	1.90 (0.075)	2.80 (0.110)	0.64 (0.025)
AS0825N0*TR	2.972±0.152 (0.117±0.006)	2.134±0.152 (0.084±0.006)	1.829±0.152 (0.072±0.006)	2.57 (0.101)	2.80 (0.110)	0.64 (0.025)
AS0827N3*TR	2.972±0.152 (0.117±0.006)	2.134±0.152 (0.084±0.006)	1.829±0.152 (0.072±0.006)	2.57 (0.101)	2.80 (0.110)	0.64 (0.025)

RF Inductors

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RELIABILITY PERFORMANCE

RELIABILITY EXPERIMENT FOR ELECTRICAL

Test Item	Accept Criteria	Test Condition	Standard Source
Humidity Test	1. Change from an initial value L: within $\pm 5\%$ 2. no visible damage.	$+40^{\circ}\text{C} \pm 2^{\circ}\text{C}$, humidity of $90\% \pm 5\%$ (total 96 hours).	MIL-STD-202G Method 103B Test Condition B
High Temperature Test	1. Change from an initial value L: within $\pm 5\%$ 2. no visible damage.	1. Temperature: $+125^{\circ}\text{C} \pm 2^{\circ}\text{C}$. 2. Test time: 48 ± 2 hrs.	IEC 68-2 Test Condition B
Low Temperature Test	1. Change from an initial value L: within $\pm 5\%$ 2. no visible damage.	1. Temperature: $-25^{\circ}\text{C} \pm 2^{\circ}\text{C}$. 2. Test time: 48 ± 2 hrs.	IEC 68-2 Test Condition A
Thermal Shock	1. Change from an initial value L: within $\pm 5\%$ 2. no visible damage.	$+125^{\circ}\text{C} \pm 5^{\circ}\text{C}$ (30 minutes) $\sim$ $-55^{\circ}\text{C} \pm 5^{\circ}\text{C}$ (30 minutes), temperature switch time: 5 minutes (total 50 cycles) Wind speeds 10m/sec .	Reference MIL-STD-202G Method 107G Test Condition A-2
Life Test	1. Change from an initial value L: within $\pm 5\%$ 2. no visible damage.	$+70^{\circ}\text{C} \pm 5^{\circ}\text{C}$ (250Hours).	Reference MIL-STD-202G Method 108A Test Condition B

RELIABILITY EXPERIMENT FOR PHYSICAL

Test Item	Accept Criteria	Test Condition	Standard Source
Vibration Test	1. Change from an initial value L: within $\pm 5\%$ 2. no visible damage.	10-55-10HZ, amplitude: 1.5mm, direction: X, Y, Z axes, each axis 2 hours (total 6 hours).	MIL-STD-202G Method 201A
Soldering Heat Resistance Test	1. no visible damage.	IR/convection reflow: Peak Temp $255^{\circ}\text{C} \sim 260^{\circ}\text{C}$ for 3~5 Sec. in air, Through 2 Cycle. Temperature Ramp: $+1 \sim 4^{\circ}\text{C/sec}$; Above 217°C , must keep 90 s - 120 s.	Reference: MIL-STD-202G Method 210F Test Condition K (Reflow)
Solder Ability Test	1. Lead must have 95% above coverage.	Soak in 245°C solder pot of 3~5 Sec.	Reference: J-STD-002D

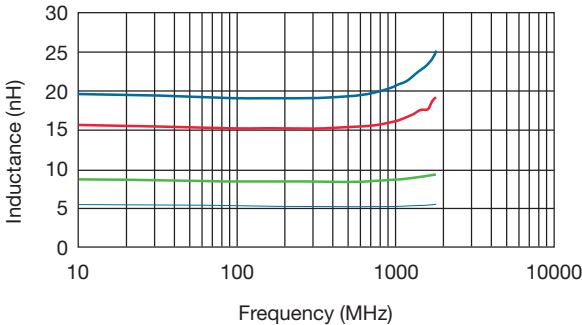
RF Inductors
AS Series – Square Air Core Inductors



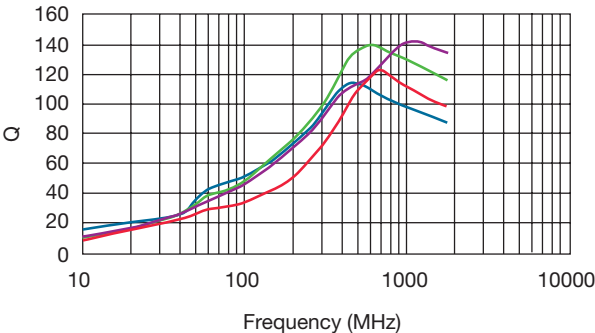
PERFORMANCE SPECIFICATIONS

AS06

Inductance vs. Frequency

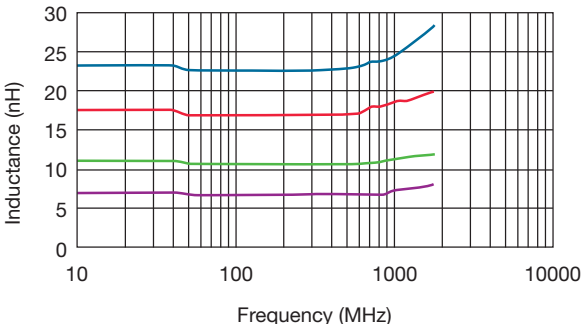


Typical Q vs. Frequency

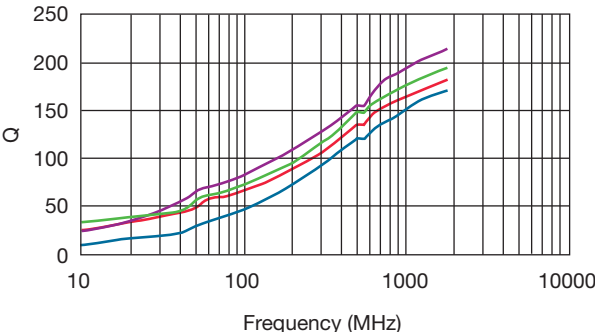


AS07

Inductance vs. Frequency

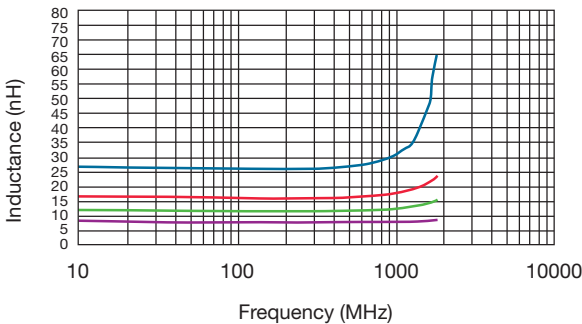


Typical Q vs. Frequency

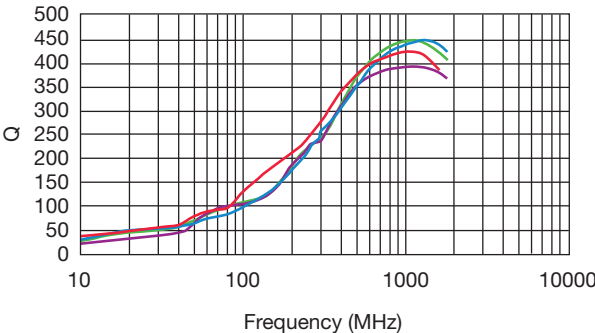


AS08

Inductance vs. Frequency



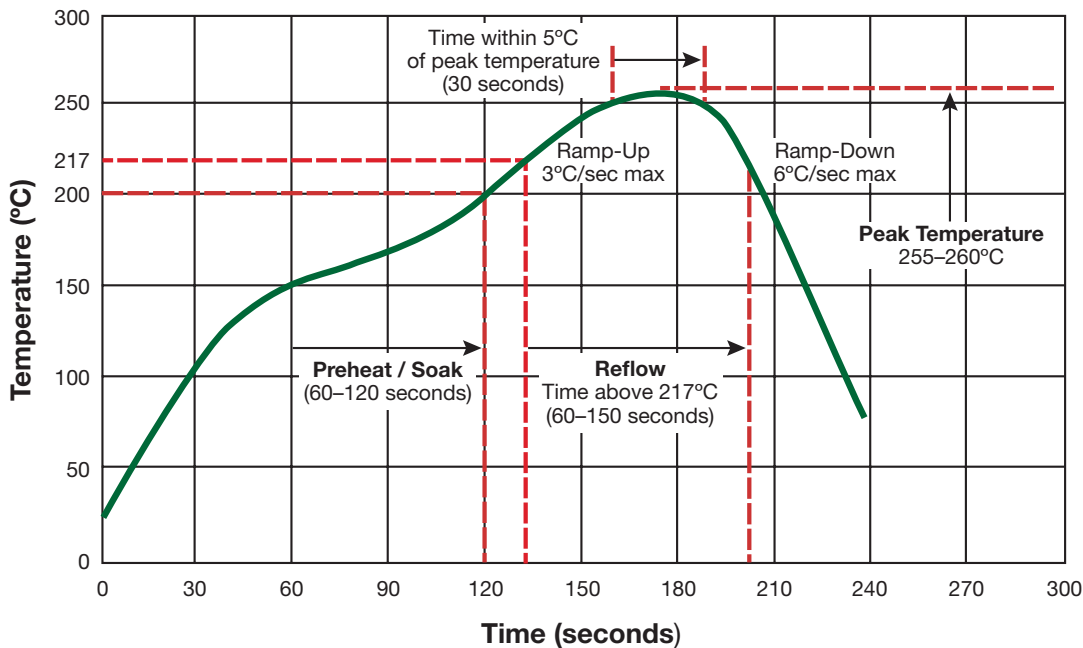
Typical Q vs. Frequency



RF Inductors
AS Series – Square Air Core Inductors

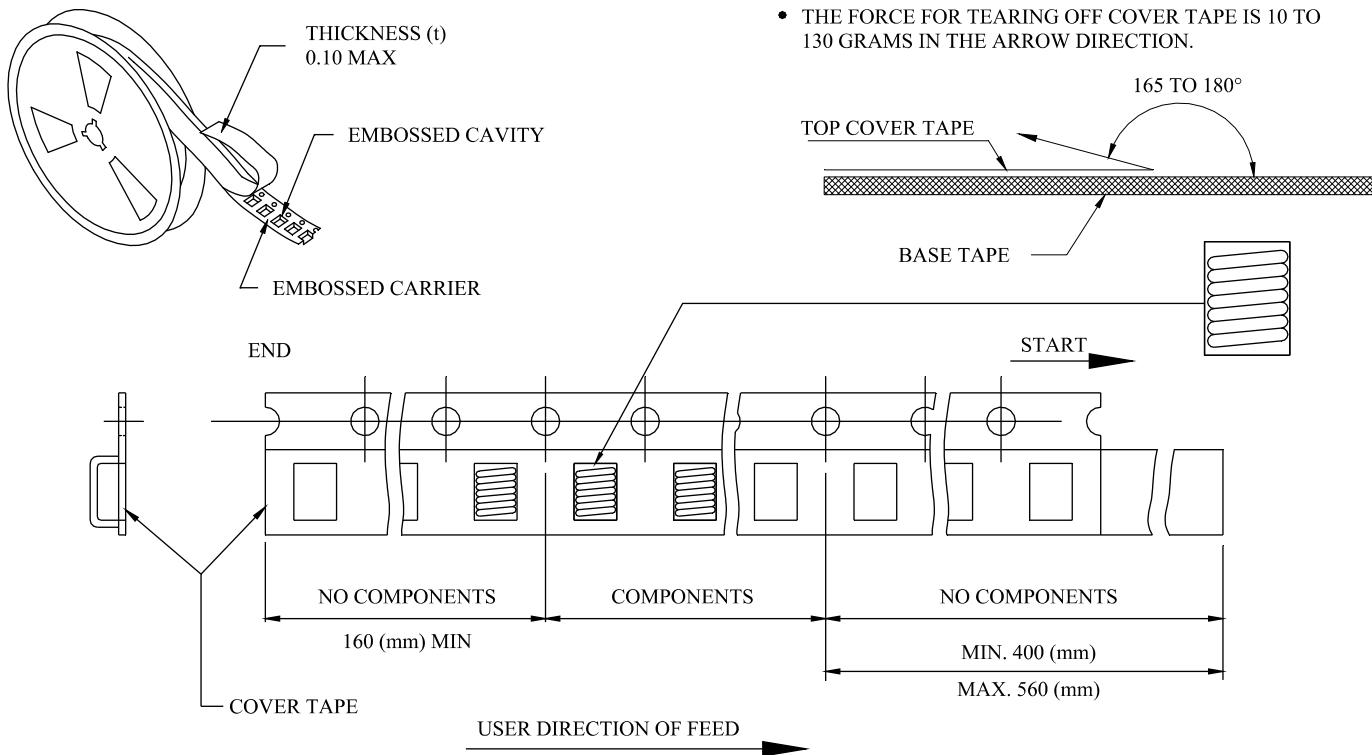


TYPICAL ROHS REFLOW PROFILE



Test Condition	Standard Source
IR/convection reflow: Peak Temp 255°C ~260°C for 3~5 sec. in air, through 3 Cycle. Temperature Ramp: +1~4°C/sec.; Above 217°C, must keep 90 s -120 s.	Reference MIL-STD 202G Method 210F Test Condition K (Reflow)

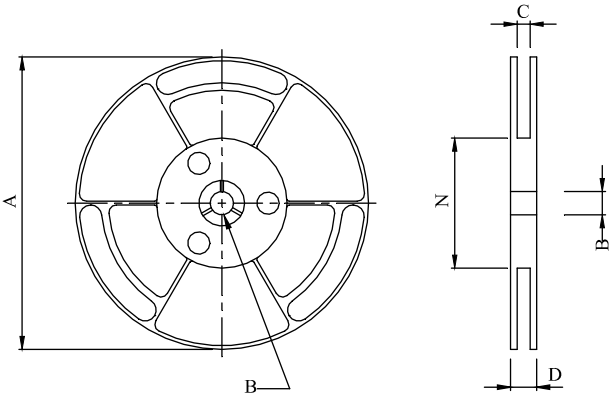
PACKAGING SPECIFICATIONS



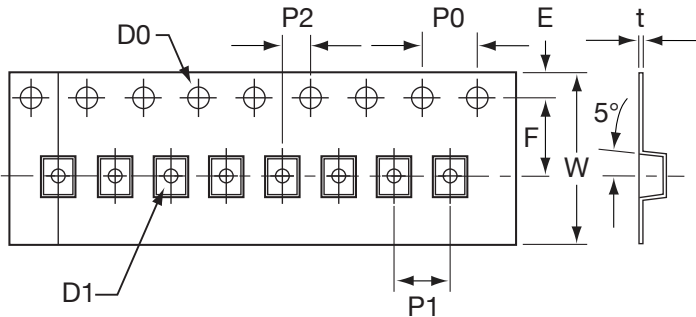
RF Inductors
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CARRIER TAPE REELS



DIMENSIONS OF CARRIER TAPE



mm (inches)															
ITEM	A	B	C	G	N	T	W	E	F	P1	P2	P0	D0	D1	t
DIM.	178 (7.008)	25 (0.984)	15 (0.591)	12.5 (0.492)	75 (2.953)	16.4 (0.646)	12.0 (0.472)	1.75 (0.069)	5.50 (0.217)	4.00 (0.157)	2.0 (0.079)	4.0 (0.157)	1.5 (0.059)	1.0 (0.039)	0.23 (0.009)
TOL.	±2.0 (0.079)	±1.0 (0.039)	±0.5 (0.020)	+1.5 (0.059)	±2.0 (0.079)	+1.5 (0.059)	±0.2 (0.008)	±0.1 (0.004)	±0.1 (0.004)	±0.1 (0.004)	±0.1 (0.004)	±0.1 (0.004)	+0.1 (0.004)	±0.1 (0.004)	±0.05 (0.020)