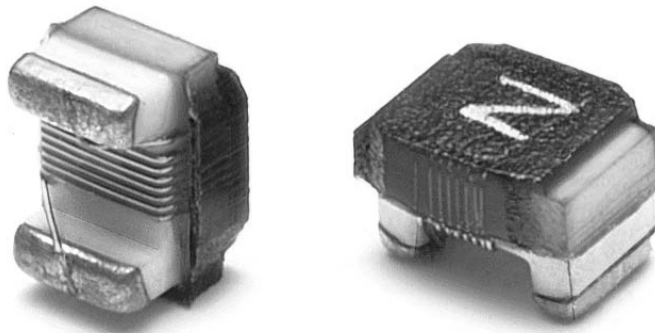


# *RF CHIP INDUCTORS*

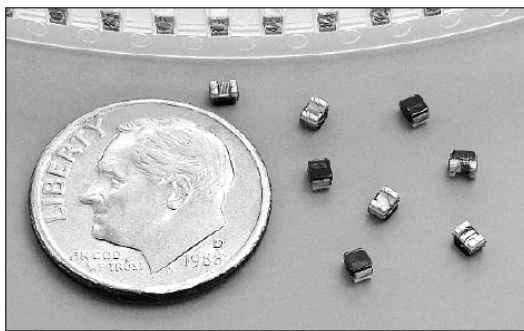
Wire Wound - 0603 Series









For More Information Please Visit: [Networking.PulseElectronics.com](http://Networking.PulseElectronics.com)

# WIRE WOUND RF CHIP INDUCTORS

## 0603CD SERIES



-  Wire wound ceramic core construction
-  High Q values
-  High self resonant frequency
-  Temperature Range  $-40^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$
-  Industry 0603 (1608) size and surface mount land pattern
-  100% Tin Solder Termination

Electrical Specifications @ 25°C - Operating Temperature Range  $-40^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$

Part Number Tolerance +/-2%	Part Number Tolerance +/-5%	Inductance <sup>1</sup> (nH)	Q <sup>2</sup> (MIN)	SRF <sup>3</sup> (MHz MIN)	Rdc <sup>4</sup> (Ω MAX)	I <sub>dc</sub> <sup>5</sup> (mA MAX)
N/A	PE-0603CD010JTT	1.7 @ 250MHz	16 @ 250MHz	>6000	0.050	700
N/A	PE-0603CD1N8JTT	1.8 @ 250MHz	16 @ 250MHz	>6000	0.045	700
N/A	PE-0603CD2N2JTT	2.2 @ 250MHz	18 @ 250MHz	>6000	0.011	700
PE-0603CD3N3GTT	PE-0603CD3N3JTT	3.3 @ 250MHz	35 @ 250MHz	>6000	0.045	700
PE-0603CD3N6GTT	PE-0603CD3N6JTT	3.6 @ 250MHz	20 @ 250MHz	>6000	0.070	700
PE-0603CD030GTT	PE-0603CD030JTT	3.9 @ 250MHz	20 @ 250MHz	>6000	0.080	700
PE-0603CD4N3GTT	PE-0603CD4N3JTT	4.3 @ 250MHz	20 @ 250MHz	>6000	0.102	700
PE-0603CD040GTT	PE-0603CD040JTT	4.55 @ 250MHz	20 @ 250MHz	5800	0.106	700
PE-0603CD4N7GTT	PE-0603CD4N7JTT	4.7 @ 250MHz	20 @ 250MHz	5800	0.116	700
PE-0603CD5N1GTT	PE-0603CD5N1JTT	5.1 @ 250MHz	20 @ 250MHz	2700	0.108	700
PE-0603CD5N6GTT	PE-0603CD5N6JTT	5.6 @ 250MHz	25 @ 250MHz	5500	0.108	700
PE-0603CD6N2GTT	PE-0603CD6N2JTT	6.2 @ 250MHz	25 @ 250MHz	5800	0.110	700
PE-0603CD060GTT	PE-0603CD060JTT	6.68 @ 250MHz	25 @ 250MHz	5800	0.110	700
PE-0603CD6N8GTT	PE-0603CD6N8JTT	6.8 @ 200MHz	27 @ 250MHz	5800	0.110	700
PE-0603CD7N5GTT	PE-0603CD7N5JTT	7.5 @ 250MHz	28 @ 250MHz	4800	0.150	700
PE-0603CD080GTT	PE-0603CD080JTT	8.2 @ 250MHz	30 @ 250MHz	4600	0.120	700
PE-0603CD8N7GTT	PE-0603CD8N7JTT	8.7 @ 250MHz	28 @ 250MHz	4600	0.109	700
PE-0603CD9N5GTT	PE-0603CD9N5JTT	9.5 @ 250MHz	28 @ 250MHz	5400	0.135	700
PE-0603CD100GTT	PE-0603CD100JTT	10.0 @ 250MHz	30 @ 250MHz	4800	0.130	700
PE-0603CD110GTT	PE-0603CD110JTT	11.0 @ 250MHz	30 @ 250MHz	4000	0.086	700
PE-0603CD120GTT	PE-0603CD120JTT	12.0 @ 250MHz	50 @ 250MHz	4000	0.130	700
PE-0603CD130GTT	PE-0603CD130JTT	13.0 @ 250MHz	45 @ 250MHz	3600	0.106	700
PE-0603CD150GTT	PE-0603CD150JTT	15.0 @ 250MHz	45 @ 250MHz	4000	0.170	700
PE-0603CD160GTT	PE-0603CD160JTT	16.0 @ 250MHz	45 @ 250MHz	3300	0.170	700
PE-0603CD180GTT	PE-0603CD180JTT	18.0 @ 250MHz	35 @ 250MHz	3100	0.170	700

(Continued on next page)

# WIRE WOUND RF CHIP INDUCTORS

## 0603CD SERIES

Electrical Specifications @ 25°C - Operating Temperature Range -40°C to +125°C (continued)

Part Number <sup>6</sup> Tolerance +/-2%	Part Number <sup>6</sup> Tolerance +/-5%	Inductance <sup>1</sup> (nH)	Q <sup>2</sup> (MIN)	SRF <sup>3</sup> (MHz MIN)	Rdc <sup>4</sup> (Ω MAX)	I <sub>dc</sub> <sup>5</sup> (mA MAX)
PE-0603CD220GTT	PE-0603CD220JTT	22.0 @ 250MHz	35 @ 250MHz	3000	0.19	700
PE-0603CD270GTT	PE-0603CD270JTT	27.0 @ 250MHz	35 @ 250MHz	2800	0.22	600
PE-0603CD300GTT	PE-0603CD300JTT	30.0 @ 250MHz	37 @ 250MHz	2250	0.44	600
PE-0603CD330GTT	PE-0603CD330JTT	33.0 @ 250MHz	35 @ 250MHz	2300	0.22	600
PE-0603CD360GTT	PE-0603CD360JTT	36.0 @ 250MHz	37 @ 250MHz	2080	0.25	600
PE-0603CD390GTT	PE-0603CD390JTT	39.0 @ 250MHz	35 @ 250MHz	2200	0.25	600
PE-0603CD430GTT	PE-0603CD430JTT	43.0 @ 250MHz	35 @ 200MHz	2000	0.28	600
PE-0603CD470GTT	PE-0603CD470JTT	47.0 @ 250MHz	35 @ 100MHz	2000	0.28	600
PE-0603CD560GTT	PE-0603CD560JTT	56.0 @ 250MHz	35 @ 200MHz	1900	0.31	600
PE-0603CD680GTT	PE-0603CD680JTT	68.0 @ 250MHz	35 @ 200MHz	1700	0.34	600
PE-0603CD720GTT	PE-0603CD720JTT	72.0 @ 250MHz	34 @ 150MHz	1700	0.49	400
PE-0603CD820GTT	PE-0603CD820JTT	82.0 @ 250MHz	34 @ 150MHz	1700	0.54	400
PE-0603CD101GTT	PE-0603CD101JTT	98.5 @ 250MHz	34 @ 150MHz	1400	0.58	400
PE-0603CDR10GTT	PE-0603CDR10JTT	100 @ 250MHz	34 @ 150MHz	1400	0.58	400
PE-0603CD111GTT	PE-0603CD111JTT	110 @ 250MHz	33 @ 150MHz	1300	0.61	300
PE-0603CD121GTT	PE-0603CD121JTT	120 @ 250MHz	32 @ 150MHz	1300	0.65	300
PE-0603CD151GTT	PE-0603CD151JTT	150 @ 250MHz	28 @ 150MHz	990	0.92	280
PE-0603CD181GTT	PE-0603CD181JTT	180 @ 250MHz	25 @ 100MHz	990	1.25	240
PE-0603CD201GTT	PE-0603CD201JTT	200 @ 250MHz	25 @ 100MHz	900	1.98	240
PE-0603CD221GTT	PE-0603CD221JTT	220 @ 250MHz	25 @ 100MHz	900	1.90	200
PE-0603CD271GTT	PE-0603CD271JTT	270 @ 250MHz	24 @ 100MHz	860	2.30	170
PE-0603CD331GTT	PE-0603CD331JTT	330 @ 250MHz	22 @ 100MHz	500	2.30	150
PE-0603CD391GTT	PE-0603CD391JTT	390 @ 250MHz	20 @ 100MHz	350	2.90	130

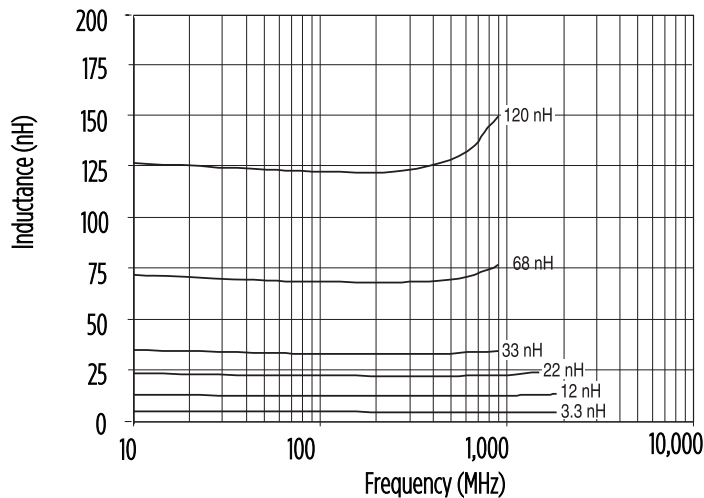
**Notes:**

1. Inductance measured using a HP4286A RF Impedance Analyzer. (Please note that inductance information is not stamped on part, because of the extremely small size).
2. Q measured using a HP4291A RF Impedance Analyzer with a HP16193A Test Fixture.
3. SRF measured using a HP8753C Network Analyzer.
4. RDC measured using a Valhalla Scientific model 4100 ATC Digital Ohmmeter.
5. Based on a 15°C maximum temperature rise.
6. Check ordered tolerance band carefully:  
To order a +/-2% tolerance band the ordering code ends with "GTT" while any +/-5% tolerance band ends with "JTT".

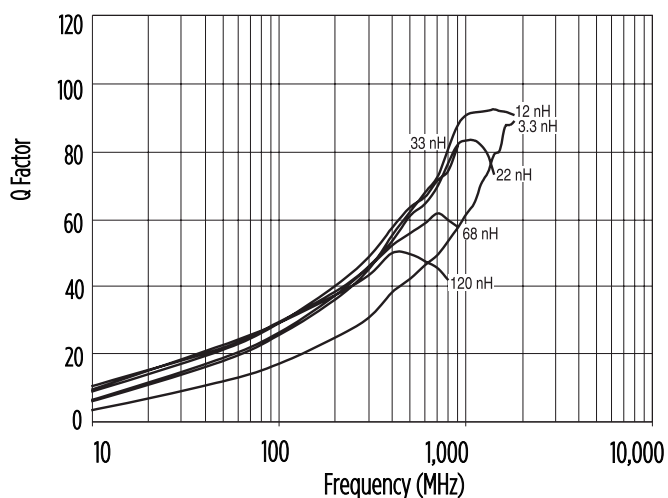
# WIRE WOUND RF CHIP INDUCTORS

## 0603CD SERIES

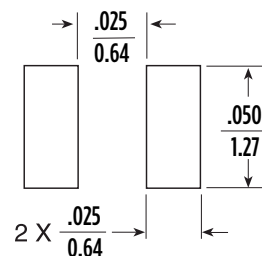
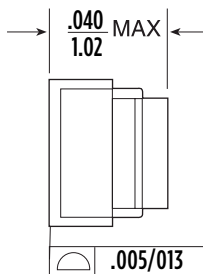
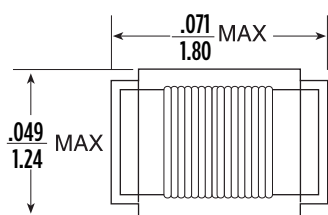
Typical Inductance vs Frequency



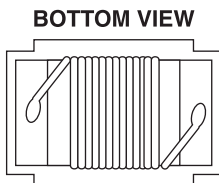
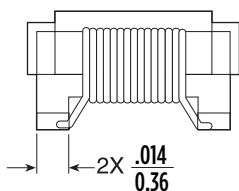
Typical Q vs Frequency



### Mechanical



SUGGESTED PAD LAYOUT



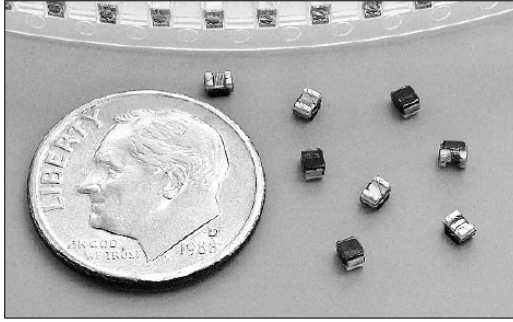
Dimensions:  $\frac{\text{Inches}}{\text{mm}}$







Unless otherwise specified,  
all tolerances are  $\pm \frac{.010}{0,25}$

Weight .....0.008 grams

# WIRE WOUND RF CHIP INDUCTORS

## 0603FT SERIES



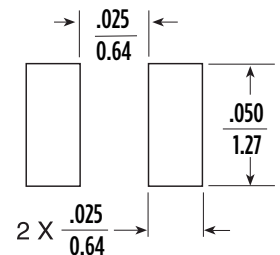
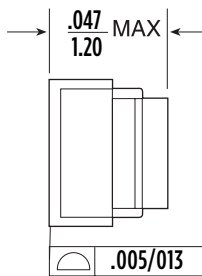
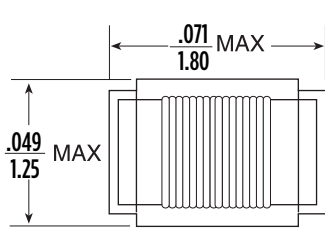
-  Wire wound ferrite core construction
-  High Impedance Values for suppression
-  High self resonant frequency
-  Temperature Range -40°C to +125°C
-  Industry standard 0603 (1608) size and surface mount land pattern
-  100% Tin Solder Termination

### Electrical Specifications @ 25°C - Operating Temperature Range -40°C to +125°C

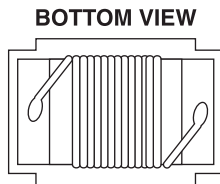
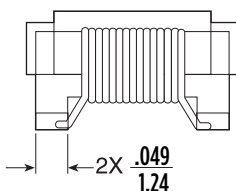
Part Number <sup>6</sup> Tolerance +/-10%	Inductance <sup>1</sup> ( $\mu$ H)	Typical Impedance	SRF <sup>3</sup> (MHz MIN)	Rdc <sup>4</sup> ( $\Omega$ MAX)	Idc <sup>5</sup> (mA MAX)
PE-0603FT470KTT	0.047 @ 7.9MHz	20 @ 100MHz	1370	0.11	850
PE-0603FT101KTT	0.100 @ 7.9MHz	50 @ 100MHz	1370	0.11	850
PE-0603FT221KTT	0.220 @ 7.9MHz	100 @ 100MHz	850	0.20	650
PE-0603FT471KTT	0.470 @ 7.9MHz	300 @ 100MHz	670	0.37	470
PE-0603FT681KTT	0.680 @ 7.9MHz	800 @ 100MHz	520	0.77	310
PE-0603FT102KTT	1.00 @ 7.9MHz	1000 @ 100MHz	410	0.94	280
PE-0603FT272KTT	2.70 @ 7.9MHz	600 @ 25MHz	70	1.60	210
PE-0603FT682KTT	6.80 @ 7.9MHz	1000 @ 25MHz	40	4.00	130
PE-0603FT822KTT	8.20 @ 2.5MHz	600 @ 25MHz	40	4.50	110
PE-0603FT103KTT	10.0 @ 2.5MHz	800 @ 10MHz	30	5.00	100
PE-0603FT153KTT	15.0 @ 2.5MHz	1000 @ 10MHz	20	9.50	90
PE-0603FT223KTT	22.0 @ 2.5MHz	2500 @ 10MHz	20	11.40	70

- Notes:**
- Inductance measured using a HP4286A RF Impedance Analyzer. (Please note that inductance information is not stamped on part, because of the extremely small size).
  - Q measured using a HP4291A RF Impedance Analyzer with a HPI6193A Test Fixture.
  - SRF measured using a HP8753C Network Analyzer.
  - RDC measured using a Valhalla Scientific model 4100 ATC Digital Ohmter.
  - Based on a 15°C maximum temperature rise.

### Mechanical



**SUGGESTED PAD LAYOUT**



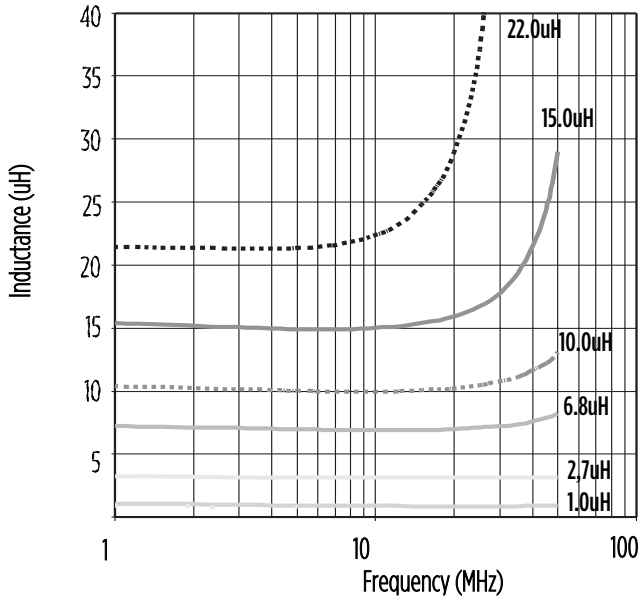
Weight .....0.008 grams

**Dimensions:** Inches  
mm

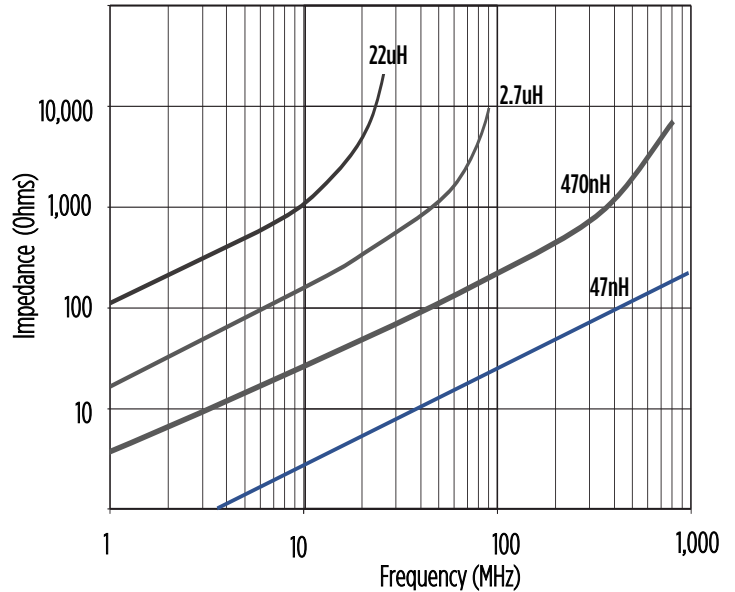
Unless otherwise specified,  
all tolerances are  $\pm \frac{.010}{0,25}$

# WIRE WOUND RF CHIP INDUCTORS 0603FT SERIES

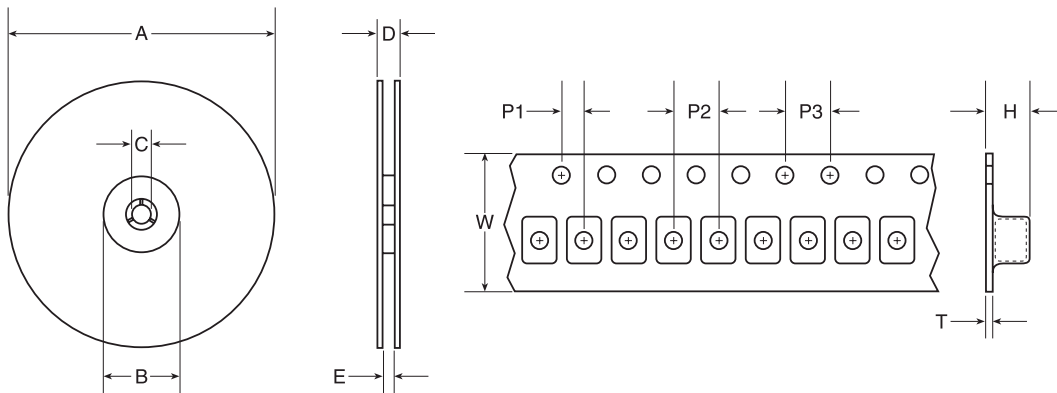
### Typical Inductance vs Frequency



### Typical Impedance vs Frequency



### Tape and Reel Specifications



Packing Moisture Level = MSL 1 - Storage Temperature - 40°C to +125°C

Series	Parts per Reel	Reels Dimensions (mm)					Tape Dimensions (mm)					
		A	B	C	D	E	W	P1	P2	P3	H	T
0603CD	2000	178	50	13	14.4	8.4	8	2	4	4	2.1	0.3
0603FT												

**Notes:** P1, P2 and P3 are same for all chip inductor series. Keeping the same dimensions for guide hole and pocket pitch (P1), pocket pitch (P2), guide hold pitch (P3) and tape width (8mm) for all series, enables the packaging machine to maintain the same settings while changing models. The only difference between the series are the parts per reel which contributes to a different length of tapes/reel per model.

# WIRE WOUND RF CHIP INDUCTORS

## PERFORMANCE TESTING

### Electrical Testing

<b>Storage and Operating Temperature Range:</b> -40°C to +125°C	Inductors are subjected to the extremes for 48 hours. Then tested at 25°C	There shall be no deformation or change in appearance Inductance shall not change by more than 35% Q values shall not change by more than 310%
<b>Thermal:</b> -40°C to +85°C	Inductors are subjected to 30 cycles for 30 minutes at each extreme. Then tested at 25°C	
<b>Moisture Resistance 240 Hours at 70°C</b>	Inductors are subjected to 10 cycles of 24 hours at 90 to 95% relative humidity Then tested at 24°C	
<b>Operating Life</b>	Inductors are subjected to 1000 hours at 85°C with 85% Relative Humidity with the rated current applied	

### Mechanical Testing

<b>Temperature Range:</b>	Inductors are subjected to the following: Use a solder pot at 260°C, with RMA Flux. Each termination is immersed in 63Sn/37Pb molten solder for 4 to 6 seconds.	There shall be no deformation or change in appearance Inductance shall not change by more than 35% Q values shall not change by more than 310%																												
<b>Recommended Solder Heat Resistance Profile</b>	<table border="1"> <caption>Recommended Solder Heat Resistance Profile Data</caption> <thead> <tr> <th>Time (Second)</th> <th>Temperature (C°)</th> </tr> </thead> <tbody> <tr><td>0</td><td>25</td></tr> <tr><td>25</td><td>35</td></tr> <tr><td>50</td><td>50</td></tr> <tr><td>75</td><td>75</td></tr> <tr><td>100</td><td>125</td></tr> <tr><td>125</td><td>150</td></tr> <tr><td>150</td><td>175</td></tr> <tr><td>175</td><td>185</td></tr> <tr><td>200</td><td>225</td></tr> <tr><td>225</td><td>250</td></tr> <tr><td>250</td><td>200</td></tr> <tr><td>275</td><td>175</td></tr> <tr><td>300</td><td>150</td></tr> </tbody> </table>		Time (Second)	Temperature (C°)	0	25	25	35	50	50	75	75	100	125	125	150	150	175	175	185	200	225	225	250	250	200	275	175	300	150
Time (Second)	Temperature (C°)																													
0	25																													
25	35																													
50	50																													
75	75																													
100	125																													
125	150																													
150	175																													
175	185																													
200	225																													
225	250																													
250	200																													
275	175																													
300	150																													

### Physical Specifications

<b>Vibration (Random)</b>	Samplers are subjected to random vibrations as per NAVMAT P9492	There shall be no deformation or change in appearance Inductance shall not change by more than 35% Q values shall not change by more than 310%
<b>Mechanical Shock</b>	Inductors are subjected to one half sine wave pulse (8700 g's for 0.3ms) in each directional axis for a total of 18 shocks	
<b>Moisture Resistance</b>	Reflow Inductors on to test pads using 63Sn/37Pb solder paste (IR Reflow profile = 200°C for 30 seconds or peak 235°C for 20 seconds)	The inductors shall withstand a minimum force of 1000 g's in any direction using a dynamometer force guage