Chip Inductors – Product Specifications

	Item	Specification	Test Method/Condition
Environmental	Temperature Coefficient of Inductance (TCL)	Ceramic core: +25 to +125 ppm/°C typical over –40°C to +125°C at frequency specified in product table. Ferrite core: 1008 size: +100 to +350 ppm/°C typical over –40°C to +85°C at frequency specified in product table. 1812 size: +200 to +700 ppm/°C typical over –40°C to +85°C at frequency specified in product table.	The inductor shall be placed in an LC oscillator circuit. The inductor will be the only portion of the circuit in the environmental chamber. ΔL will be indicated by Δf and calculated using the equation below. $TCL = \frac{f_1^2 - f_2^2}{f_1^2 (T_1 - T_2)} (1 \times 10^6)$
	Static Humidity	1. Inductance shall not change more than ±5%. 2. Q shall not change more than ±10%.	Inductors shall be subjected to 95 ±5% R.H. at 50°C ±2°C for 100 hours. Inductors are to be tested after having air dried for two hours.
	High Temperature Storage	1. There shall be no case deformation or change in appearance. 2. Inductance shall not change more than ±5%. 3. Q shall not change more than ±10%.	Inductors shall be subjected to +125°C ±2°C for 48 ±2 hours. Inductors are to be tested after 1 hour at room temperature.
	Thermal Shock		Inductors shall be subjected, 10 times, to the following temperature cycle. 1. –40°C for 30 minutes. 2. +125°C for 30 minutes. Inductors are to be tested after 1 hour at room temperature.
	Low Temperature Storage		Inductor shall be subjected to –40°C ±2°C for 48 ±2 hours. Inductors are to be tested after 1 hour at room temperature.
Life	High Temperature Load Life	Inductors shall not have a shorted or open winding.	Inductors shall be stored at 110°C for 1000 hours with rated current applied. Inductor shall be tested at start of test, at 500 hours, and 1000 hours. Inductors are to be tested after 1 hour at room temperature.
	Moisture Resistance		Inductors shall be subjected to ten 24 hour cycles at 25°C to 65°C at 80 to 95% R.H., per MIL-STD202 Method 106. During any one of the first nine cycles, inductors are to be removed from the chamber and exposed for 3 hours to –10°C. Inductors are to be tested after 2 hours at room temperature.

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	Item	Specification	Test Method/Condition
General	Operating Temperature Range	Ceramic core –40°C to +125°C Ferrite core –40°C to +85°C	
	Coefficient of Expansion	6.7 ppm/° C (typical)	
	Insulation Resistance	1000 megohms minimum.	100V DC between inductor terminals and center case.
	Dielectric Withstanding Voltage	No evidence of voltage breakdown.	500V AC between inductor terminals and center of case for a maximum of 1 minute.
	Flammability	IEC 695-2-2	Withstands needle-flame test.
Other	Solderability	The metalized area must have 90% min. solder coverage.	Dip pads in flux (Alpha 100 or equiv.) and dip in solder pot (63Sn/37Pb solder) at 232°C ±5°C for five seconds.
	Resistance to Soldering Heat	1. There shall be no case deformation or change in appearance. 2. Inductance shall not change more than ±5%. 3. Q shall not change more than ±10%.	Inductors shall be reflowed onto a P.C. board using 63Sn/37Pb solder paste. Solder process shall be 230°C for 20 ±2 seconds and 260°C for 5 ±2 seconds.
	Random Vibration		Inductors shall be randomly vibrated per NAVMAT P9492 profile. Samples shall be subjected to .04G/Hz for a minimum of 15 minutes per axis, for each of three axes.
	Mechanical Shock		Test per MIL-STD 202 method 213 test condition A. Test mounted samples 3 axes, 6 times, totalling 18 shocks. (50G's, 11ms, half - sine).
	Component Adhesion (push test)	1 lb. - 0402 2 lbs. - 0603 4 lbs. - All others	The device shall be reflow soldered (232°C ±5°C for 10 seconds) to a tinned copper substrate. A dynometer force gauge shall be applied to the side of the component. The device must withstand the minimum force indicated at left without a failure of the termination to board attachment.
	Resistance to Solvent	There shall be no case deformation, change in appearance, or obliteration of marking.	Inductors shall withstand 6 minutes of alcohol.

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