

DATA SHEET

PRODUCT **CHIP INDUCTORS**

SERIES WCA2012CP

PART NO. _____

DESCRIPTION _____

ISSUE DATE 2023/07/18

REVISION DATE 2023/07/18

REFERENCE NO. ENS000181200

RoHS COMPLIANCE ITEM

Disclaimer:

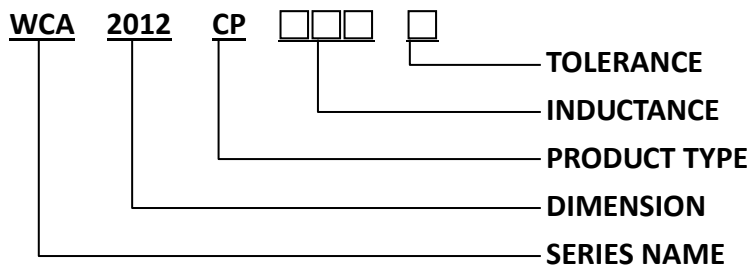
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CHIP INDUCTORS Engineering Specification

1. Scope

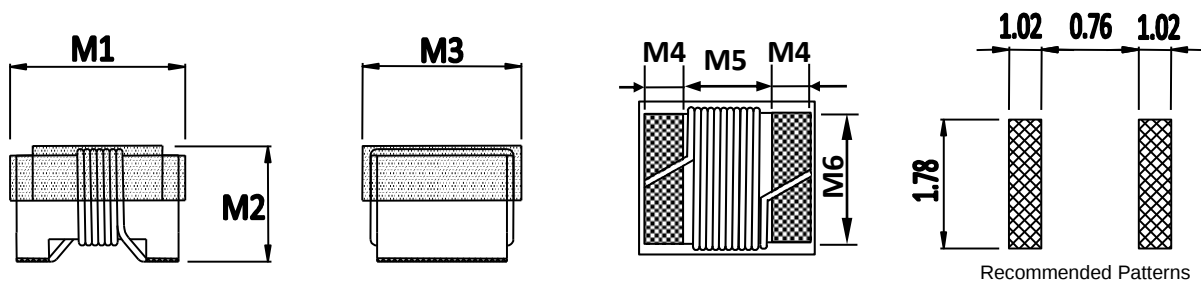
- Ceramic core wire wound construction.
- Excellent inductance accuracy.
- Inductance values from 2.2 to 1500 nH..
- Exceptional Q and high SRF special for high frequency applications..
- High reliability tests comply with AEC-Q200.

2. Explanation of Part Number



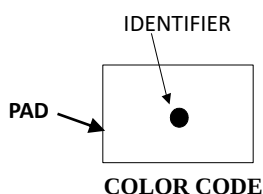
3. Shapes and Dimensions

. UNIT:mm



Series	M1	M2	M3	M4	M5	M6
WCA2012CP	2.29 MAX.	1.52 MAX.	1.73 MAX.	0.5±0.1	1.03±0.1	1.27±0.1

4. Marking



Marking Direction: PAD is on the left and right, the color code is centered.

Example: WCA2012CP2N8□

MARKING: RED

MARK COLOR CODE IN COMPOSITE ELECTRICAL SPECIFICATION

5. Electrical Specification

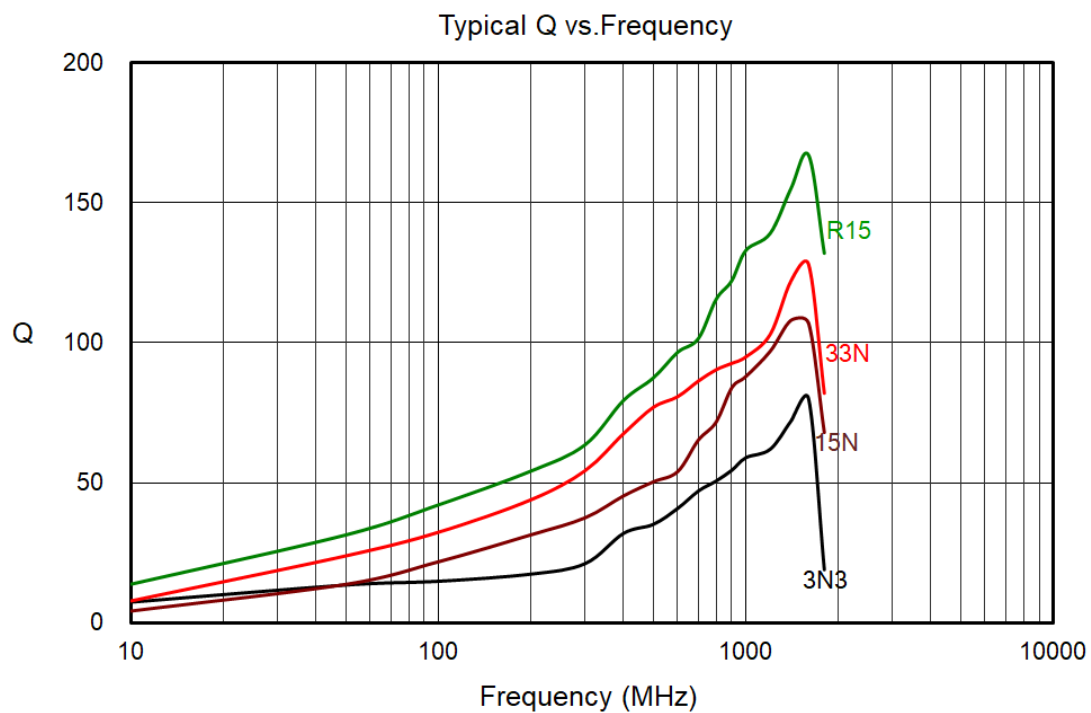
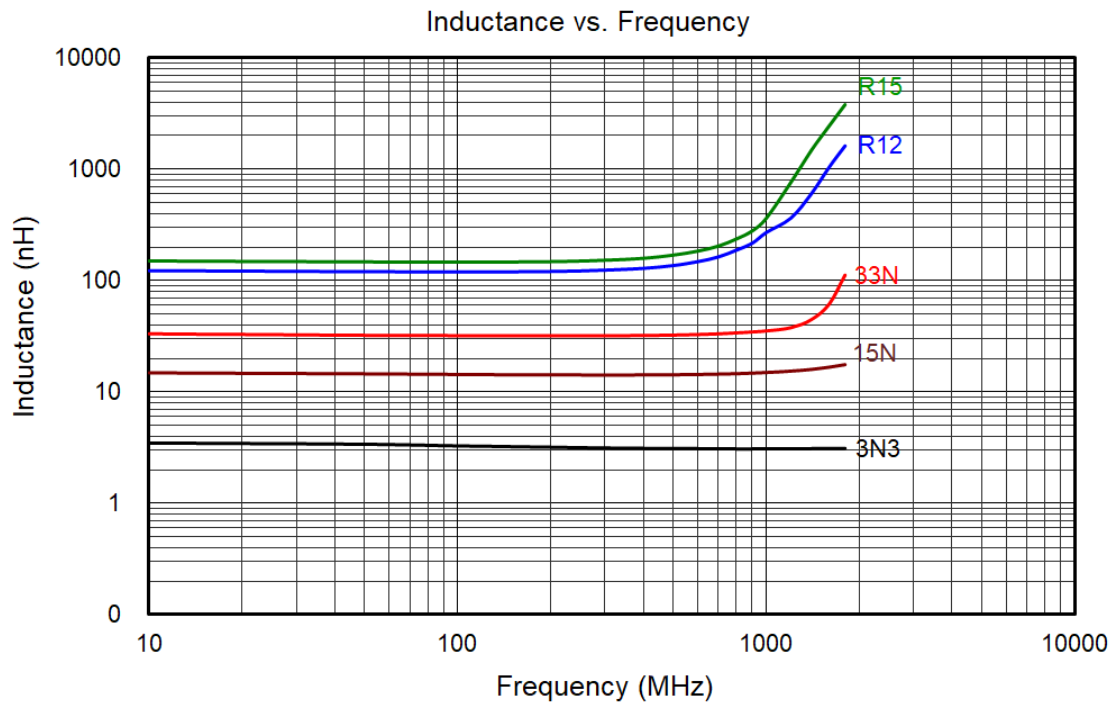
Part number	Inductance (nH)	Test Frequency (MHz)	Inductance Tolerance	Q MIN.	Test Frequency (MHz)	SRF (MHz) MIN.	DC Resistance (Ω) MAX.	Irms (mA)	COLOR CODE
WCA2012CP2N2□	2.2	250	K,J	35	1500	3000	0.08	600	WHITE
WCA2012CP2N7□	2.7	250	K,J	80	1500	7900	0.03	600	BROWN
WCA2012CP2N8□	2.8	250	K,J	80	1500	7900	0.06	800	RED
WCA2012CP2N9□	2.9	250	K,J	50	1500	4700	0.05	600	BLUE
WCA2012CP3N0□	3.0	250	K,J	65	1500	7900	0.06	800	VIOLET
WCA2012CP3N3□	3.3	250	K,J	50	1500	7900	0.08	600	BLACK
WCA2012CP5N6□	5.6	250	K,J	65	1000	5500	0.08	600	VILOET
WCA2012CP6N8□	6.8	250	K,J	50	1000	5500	0.11	600	BROWN
WCA2012CP7N5□	7.5	250	K,J	50	1000	5500	0.10	600	BLACK
WCA2012CP8N2□	8.2	250	K,J,G	50	1000	4700	0.12	600	RED
WCA2012CP8N7□	8.7	250	K,J,G	50	1000	4700	0.10	400	WHITE
WCA2012CP10N□	10	250	K,J,G	60	500	4200	0.10	600	RED
WCA2012CP12N□	12	250	K,J,G	50	500	4000	0.15	600	ORANGE
WCA2012CP15N□	15	250	K,J,G	50	500	3400	0.17	600	YELLOW
WCA2012CP18N□	18	250	K,J,G	50	500	3300	0.20	600	GREEN
WCA2012CP22N□	22	250	K,J,G	55	500	2600	0.22	500	BLUE
WCA2012CP24N□	24	250	K,J,G	50	500	2000	0.22	500	RED
WCA2012CP27N□	27	250	K,J,G	55	500	2500	0.25	500	VIOLET
WCA2012CP33N□	33	250	K,J,G	60	500	2050	0.27	500	GRAY
WCA2012CP36N□	36	250	K,J,G	55	500	1700	0.27	500	YELLOW
WCA2012CP39N□	39	250	K,J,G	60	500	2000	0.29	500	WHITE
WCA2012CP43N□	43	200	K,J,G	60	500	1650	0.34	500	YELLOW
WCA2012CP47N□	47	200	K,J,G	60	500	1650	0.31	500	BLACK
WCA2012CP56N□	56	200	K,J,G	60	500	1550	0.34	500	BROWN
WCA2012CP68N□	68	200	K,J,G	60	500	1450	0.38	500	RED
WCA2012CP82N□	82	150	K,J,G	65	500	1300	0.42	400	ORANGE
WCA2012CP91N□	91	150	K,J,G	65	500	1200	0.48	400	BLUE
WCA2012CPR10□	100	150	K,J,G	65	500	1200	0.46	400	YELLOW
WCA2012CPR11□	110	150	K,J,G	50	500	1000	0.48	400	VIOLET
WCA2012CPR12□	120	150	K,J,G	50	250	1100	0.51	400	GREEN
WCA2012CPR15□	150	100	K,J,G	50	250	920	0.56	400	BLUE
WCA2012CPR18□	180	100	K,J,G	50	250	870	0.64	400	VIOLET
WCA2012CPR20□	200	100	K,J,G	50	250	860	0.68	400	RED
WCA2012CPR22□	220	100	K,J,G	50	250	850	0.70	400	GRAY
WCA2012CPR24□	240	100	K,J,G	44	250	690	1.00	350	BLACK
WCA2012CPR25□	250	100	K,J,G	50	250	680	1.00	350	YELLOW
WCA2012CPR27□	270	100	K,J,G	48	250	650	1.00	350	WHITE
WCA2012CPR30□	300	100	K,J,G	48	250	620	1.20	310	GRAY
WCA2012CPR33□	330	100	K,J,G	48	250	600	1.40	300	BLACK
WCA2012CPR36□	360	100	K,J,G	35	250	460	0.90	300	ORANGE
WCA2012CPR39□	390	100	K,J,G	48	250	560	1.50	290	BROWN
WCA2012CPR43□	430	100	K,J,G	33	100	430	1.70	190	WHITE
WCA2012CPR47□	470	50	K,J	33	100	380	1.70	250	VIOLET
WCA2012CPR56□	560	25	K,J	23	50	340	1.90	230	ORANGE
WCA2012CPR62□	620	25	K,J	23	50	200	2.00	190	ORANGE
WCA2012CPR68□	680	25	K,J,G	23	50	188	2.20	190	GREEN
WCA2012CPR82□	820	25	K,J	23	50	215	2.35	180	BROWN
WCA2012CPR91□	910	25	K,J	24	50	250	2.30	170	RED
WCA2012CP1R0□	1000	25	K,J	23	50	100	2.70	170	BLACK
WCA2012CP1R5□	1500	7.9	J	16	25	100	2.50	170	BLACK

NOTE:

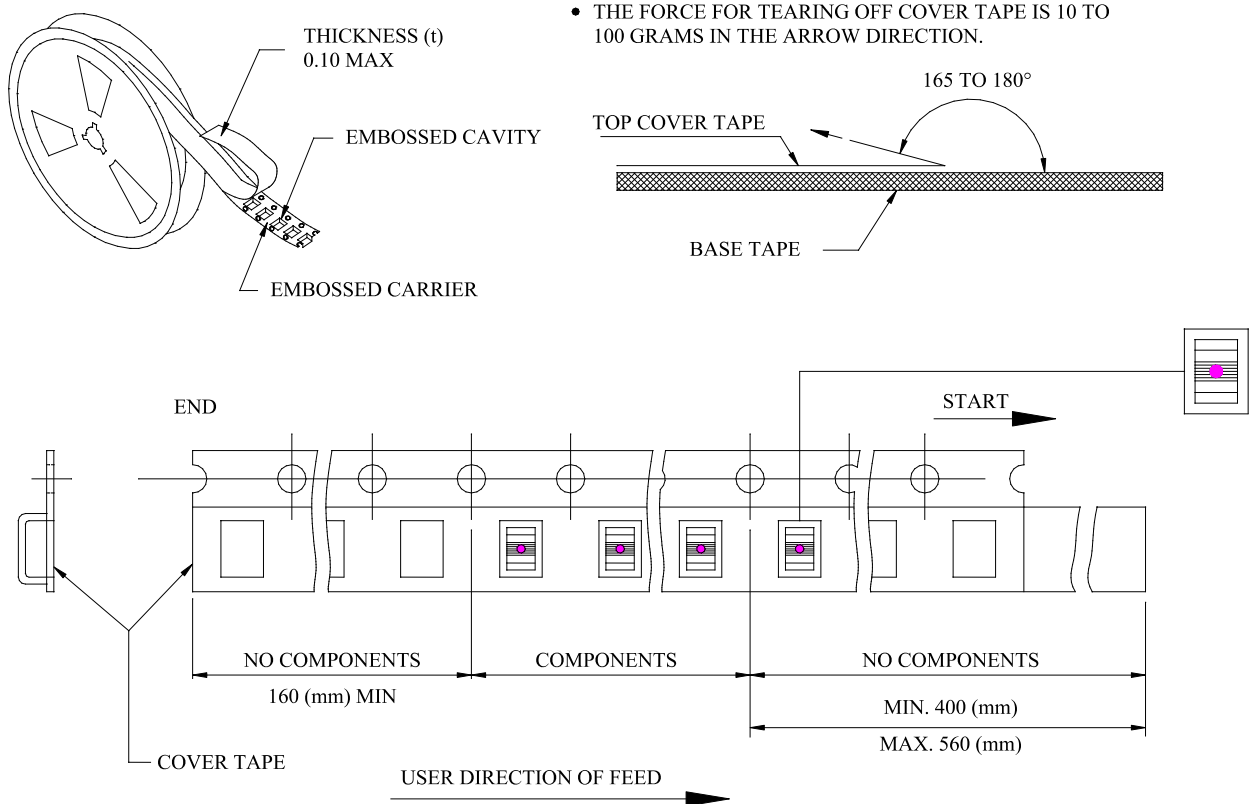
1. □Tolerance: K:±10%、J:±5%、G:±2%

2. MSL: LEVEL 1

6. Electrical Curve



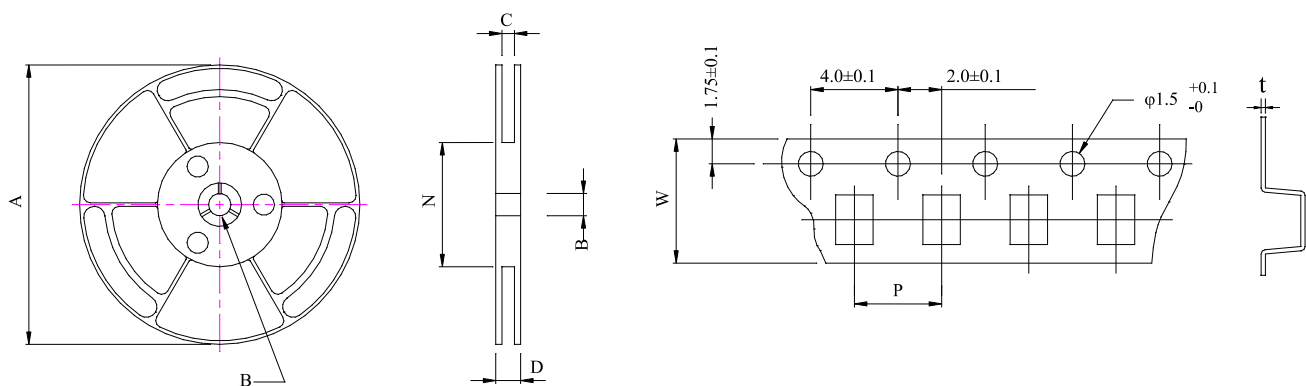
7. Packing



■ CARRIER TAPE REELS (mm)

MATERIAL: PLASTIC

■ DIMENSIONS OF CARRIER TAPE (mm)



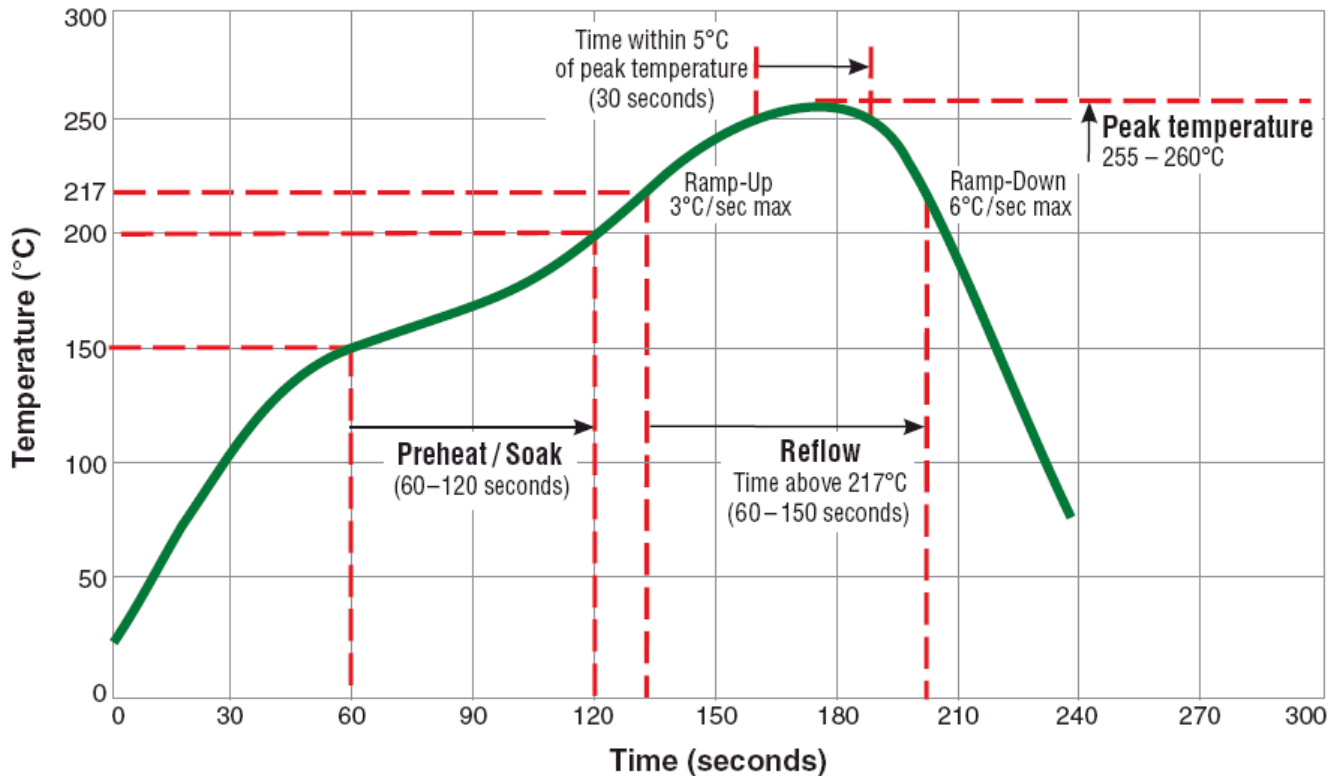
UNIT: mm

	A	B	C	D	N	P	W	t
DIM.	178	13.0	8.4	12.5	50	4.0	8.0	0.25
TOL.	±2.0	±0.8	+1.0-0	MAX.	MIN.	±0.1	±0.2	±0.05

Quantity : 3,000 Pcs/Reel

8. Recommended Soldering Conditions

Typical RoHS Reflow Profile



9. Note

- TOLERANCE: K = $\pm 10\%$ 、J = $\pm 5\%$ 、G = $\pm 2\%$
- INDUCTANCE AND Q MEASURED AN KEYSIGHT 4991B OR EQUIVALENT.
- SRF MEASURED USING AN KEYSIGHT 5071C NETWORK ANALYZER AND A INPAQ TEST FIXTURE OR EQUIVALENT.
- DC RESISTANCE MESASURED USING A MICRO-OHMMETER.
- CURRENT THAT CAUSES A 15°C TEMPERATURE RISE FROM 25°C AMBIENT.
- ELECTRICAL SPECIFICATIONS AT 25°C.
- OPERATING TEMPERATURE RANGE : -40°C TO +125°C.
- Storage temperature RANGE: Component: -40°C TO +125°C.
Tape and reel packaging: -40°C TO +80°C.
- MEAN TIME BETWEEN FAILURES (MTBF) 1 BILLION HOURS.
- MOISTURE SENSITIVITY LEVEL (MSL) 1 (UNLIMITED FLOOR LIFE AT < 30°C / 85% RELATIVE HUMIDITY).
- GRAPHIC IS ONLY FOR DIMENSIONALLY APPLICATION.
- THIS IS A RoHS AND REACH COMPLLIANT PRODUCT WHOSE RELATED DOCUMENTSS ARE AVAILABLE ON REQUEST.

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10. Reliability Performance

Test Item	Accept criteria	Test Condition	Standard Source
High Temperature Exposure (Storage)	1.Change from an initial value L:within±5% 2.no visible damage.	1000 hrs. at rated operating temperature (e.g. 125°C part can be stored for 1000 hrs. @ 125°C. Same applies for 105°C and 85°C. Unpowered. Measurement at 24±4 hours after test conclusion.	AEC-Q200 RevD Table 5
Temperature Cycling	1.Change from an initial value L:within±5% 2.no visible damage.	1000 cycles (-40°C to +125°C). Note: If 85°C part or 105°C part the 1000 cycles will be at that temperature. Measurement at 24±4 hours after test conclusion. 30min maximum dwell time at each temperature extreme. 1 min. maximum transition time.	AEC-Q200 RevD Table 5
Biased Humidity	1.Change from an initial value L:within±5% 2.no visible damage.	1000 hours 85°C/85%RH. Unpowered. Measurement at 24±4 hours after test conclusion.	AEC-Q200 RevD Table 5
Operational Life	1.Change from an initial value L:within±5% 2.no visible damage.	1000 hrs. @ 105°C. If 85°C or 125°C part will be tested at that temperature. Measurement at 24±4 hours after test conclusion.	AEC-Q200 RevD Table 5
Mechanical Shock	1.Change from an initial value L:within±5% 2.no visible damage.	Peak Value: 100g's, Duration: 6ms, Waveform: Half-sine Velocity Change: 12.3ft/sec.	MIL-STD-202 Method 213 Condition C
Vibration	1.Change from an initial value L:within±5% 2.no visible damage.	5g's for 20 minutes, 12 cycles each of 3 orientations. Note: Use 8"X5" PCB, .031" thick, 7 secure points on one long side and 2 secure points at corners of opposite sides. Parts mounted within 2" from any secure point. Test from 10-2000 Hz.	AEC-Q200 RevD Table 5
Resistance to Soldering Heat	1.no visible damage.	Condition K: Reflow temp:250±5°C, Peak time: 30±5sec, Temp ramp: 1°C/s-4°C/s; time above 183°C, 90 s - 120 s, Cycles: 3.	MIL-STD-202 Method 210
ESD	1.Change from an initial value L:within±5% 2.no visible damage.	Passive Component Human Body Model (HBM) direct contact discharge 8KV.	AEC-Q200-002 Or ISO/DIS10605
Solder ability	1. Lead must have 95% above coverage.	SMD: a) Method B, 4hrs@155°C dry heat, @235°C	AEC-Q200 RevD Table 5
Flammability	1.Meet UL-94 V0 or V1 request	V-0 or V-1 Acceptable.	UL-94
Board Flex	1.Change from an initial value L:within±5% 2.no visible damage.	100mmX40mm board mechanical means to apply a force which will bend the board (D) x = 2 mm minimum, applied forces shall be 60 (+ 5) Sec.	AEC-Q200-005
Terminal Strenh (SMD)	1.Component can't drop 2.no visible damage.	1.8Kg force, applied for 60 second.	AEC-Q200-006