

DATA SHEET

PRODUCT **CHIP INDUCTORS**

SERIES WCA2520CP

PART NO. _____

DESCRIPTION _____

ISSUE DATE 2023/07/18

REVISION DATE 2023/07/18

REFERENCE NO. ENS000181250

RoHS COMPLIANCE ITEM

Disclaimer:

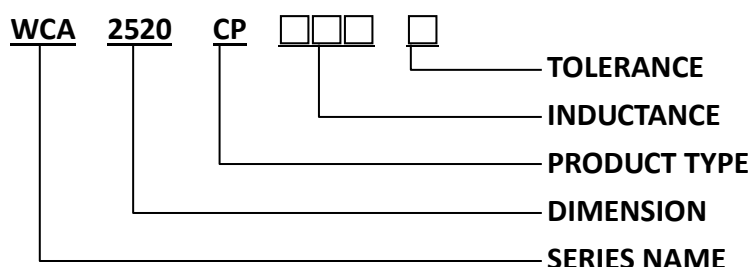
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CHIP INDUCTORS Engineering Specification

1. Scope

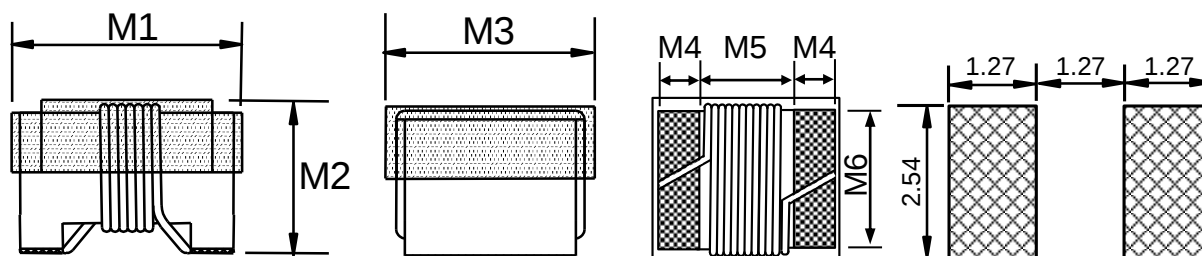
- Ceramic core wire wound construction.
- Wide range of inductance can be selected.
- Inductance values from 10.0 to 15000 nH.
- Exceptional Q and high SRF special for high frequency applications..
- High reliability tests comply with AEC-Q200.

2. Explanation of Part Number



3. Shapes and Dimensions

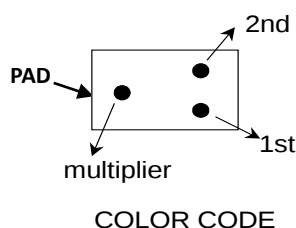
UNIT:mm



Recommended Patterns

Series	M1	M2		M3	M4	M5	M6
WCA2520CP	2.92 MAX.	5N6~R91	2.02 MAX.	2.79 MAX.	0.50±0.1	1.43±0.1	2.00±0.1
		1R0~150	2.10 MAX.				

4. Marking



Marking Direction: PAD on the left and right sides, color code 1st and 2nd on the right, color code 3 multiplier on the left.

Example: WCA2520CP10N□

MARKING: Dots 1st and 2nd indicate the inductance in nano Henries.

(DOTS 1st: BROWN , DOTS 2nd: BLACK)

Dots 3 indicates number of zeroes to be added.

(DOTS 3multiplier: BLACK)

MARK COLOR CODE IN COMPOSITE ELECTRICAL SPECIFICATION.

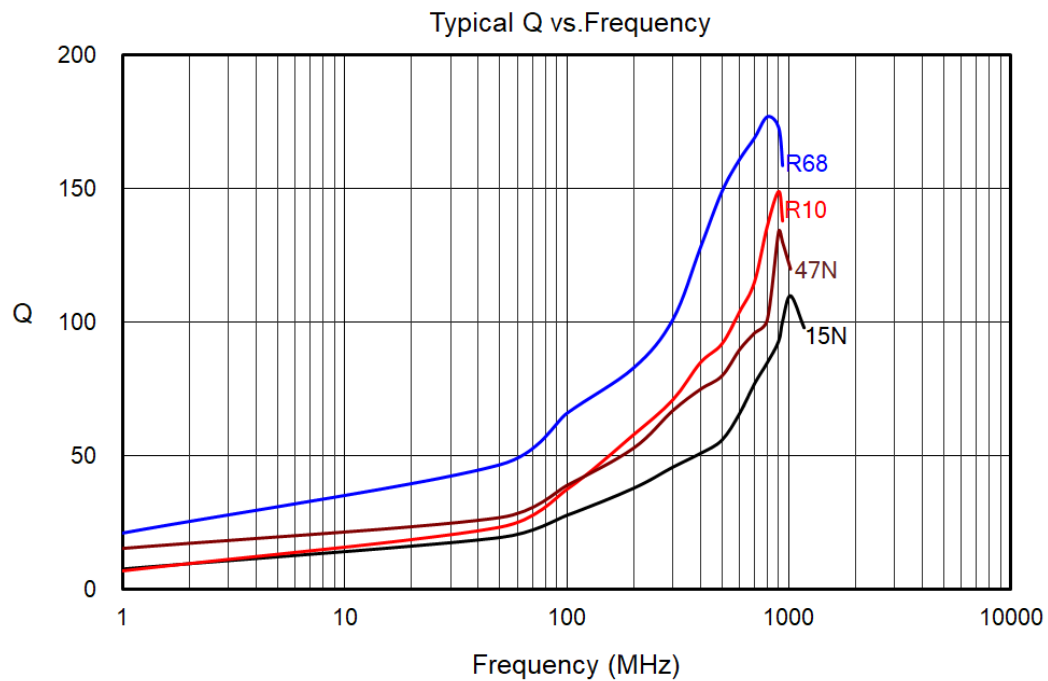
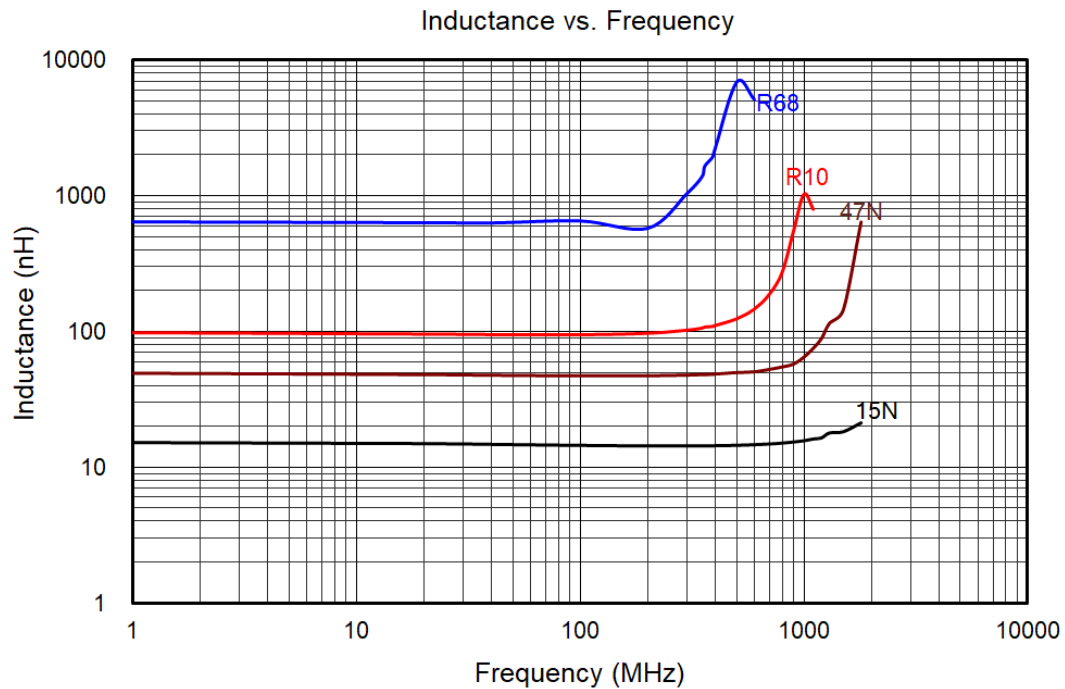
5. Electrical Specification

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		
									1st	2nd	multiplier
WCA2520CP10N□	10	50	K, J	50	500	4100	0.08	1000	Brown	Black	Black
WCA2520CP12N□	12	50	K, J	50	500	3300	0.09	1000	Brown	Red	Black
WCA2520CP15N□	15	50	K, J	50	500	2500	0.10	1000	Brown	Green	Black
WCA2520CP18N□	18	50	K, J, G	50	350	2500	0.11	1000	Brown	Gray	Black
WCA2520CP22N□	22	50	K, J, G	55	350	2400	0.12	1000	Red	Red	Black
WCA2520CP24N□	24	50	K, J, G	50	350	1900	0.13	1000	Red	Yellow	Black
WCA2520CP27N□	27	50	K, J, G	55	350	1600	0.13	1000	Red	Violet	Black
WCA2520CP33N□	33	50	K, J, G	60	350	1600	0.14	1000	Orange	Orange	Black
WCA2520CP36N□	36	50	K, J, G	60	350	1600	0.15	1000	Orange	Blue	Black
WCA2520CP39N□	39	50	K, J, G	60	350	1500	0.15	1000	Orange	White	Black
WCA2520CP47N□	47	50	K, J, G	65	350	1500	0.16	1000	Yellow	Violet	Black
WCA2520CP56N□	56	50	K, J, G	65	350	1300	0.18	1000	Green	Blue	Black
WCA2520CP68N□	68	50	K, J, G	65	350	1300	0.20	1000	Blue	Gray	Black
WCA2520CP82N□	82	50	K, J, G	60	350	1000	0.22	1000	Gray	Red	Black
WCA2520CPR10□	100	25	K, J, G	60	350	1000	0.56	800	Brown	Black	Brown
WCA2520CPR12□	120	25	K, J, G	60	350	950	0.63	800	Brown	Red	Brown
WCA2520CPR15□	150	25	K, J, G	45	100	850	0.70	800	Brown	Green	Brown
WCA2520CPR18□	180	25	K, J, G	45	100	750	0.77	750	Brown	Gray	Brown
WCA2520CPR20□	200	25	K, J, G	50	100	750	0.81	500	Red	Black	Brown
WCA2520CPR22□	220	25	K, J, G	45	100	700	0.84	720	Red	Red	Brown
WCA2520CPR24□	240	25	K, J, G	50	100	650	0.84	500	Red	Yellow	Brown
WCA2520CPR27□	270	25	K, J, G	45	100	600	0.91	690	Red	Violet	Brown
WCA2520CPR30□	300	25	K, J, G	45	100	500	1.05	660	Orange	Black	Brown
WCA2520CPR33□	330	25	K, J, G	45	100	570	1.05	660	Orange	Orange	Brown
WCA2520CPR36□	360	25	K, J, G	45	100	530	1.05	660	Orange	Blue	Brown
WCA2520CPR39□	390	25	K, J, G	45	100	500	1.12	630	Orange	White	Brown
WCA2520CPR43□	430	25	K, J, G	45	100	480	1.19	600	Yellow	Orange	Brown
WCA2520CPR47□	470	25	K, J, G	45	100	450	1.19	600	Yellow	Violet	Brown
WCA2520CPR56□	560	25	K, J, G	45	100	415	1.33	580	Green	Blue	Brown
WCA2520CPR62□	620	25	K, J, G	45	100	375	1.40	560	Blue	Red	Brown
WCA2520CPR68□	680	25	K, J, G	45	100	375	1.47	540	Blue	Gray	Brown
WCA2520CPR75□	750	25	K, J, G	45	100	360	1.54	520	Violet	Green	Brown
WCA2520CPR82□	820	25	K, J, G	45	100	350	1.61	500	Gray	Red	Brown
WCA2520CPR91□	910	25	K, J, G	35	50	320	1.68	480	White	Brown	Brown
WCA2520CP1R0□	1000	25	K, J, G	35	50	290	1.75	460	Brown	Black	Red
WCA2520CP1R2□	1200	7.9	K, J, G	35	50	250	2.0	310	Brown	Red	Red
WCA2520CP1R5□	1500	7.9	K, J, G	28	50	200	2.3	330	Brown	Green	Red
WCA2520CP1R8□	1800	7.9	K, J, G	28	50	160	2.6	300	Brown	Gray	Red
WCA2520CP2R0□	2000	7.9	K, J, G	25	50	160	2.8	280	Red	Black	Red
WCA2520CP2R2□	2200	7.9	K, J, G	28	50	160	2.8	280	Red	Red	Red
WCA2520CP2R7□	2700	7.9	K, J, G	22	25	140	3.2	290	Red	Violet	Red
WCA2520CP3R3□	3300	7.9	K, J, G	22	25	110	3.4	290	Orange	Orange	Red
WCA2520CP3R9□	3900	7.9	K, J, G	20	25	100	3.6	260	Orange	White	Red
WCA2520CP4R7□	4700	7.9	K, J, G	20	25	90	4.0	260	Yellow	Violet	Red
WCA2520CP5R6□	5600	7.9	K, J	16	7.96	20	4.5	240	Green	Blue	Red
WCA2520CP8R2□	8200	7.9	K, J, G	15	7.96	25	6.0	170	Gray	Red	Red
WCA2520CP100□	10000	2.52	K, J	15	7.96	20	9.0	150	Brown	Black	Orange
WCA2520CP120□	12000	2.52	K, J	15	7.96	18	10.5	130	Brown	Red	Orange
WCA2520CP150□	15000	2.52	K, J	15	7.96	15	11.5	120	Brown	Green	Orange

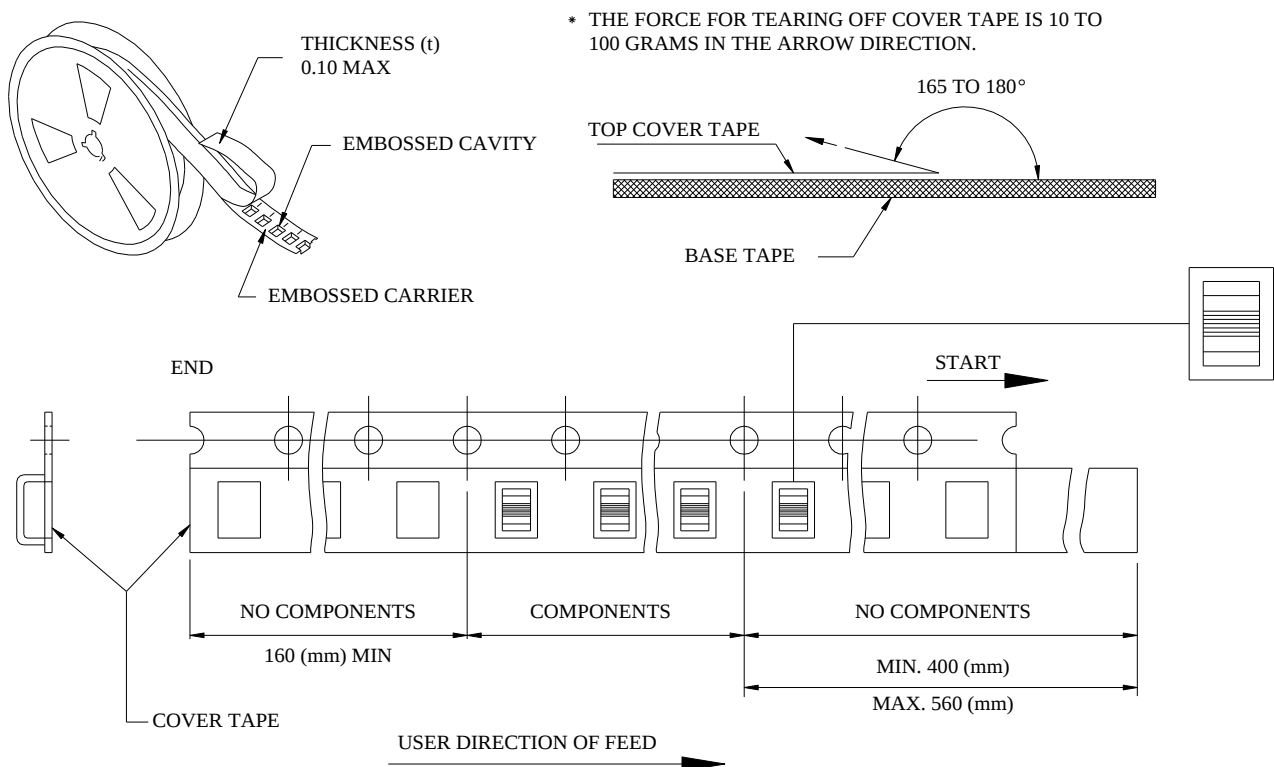
NOTE:

1. □Tolerance: K:±10%、J:±5%、G:±2%
2. MSL: Level 1

6. Electrical Curve

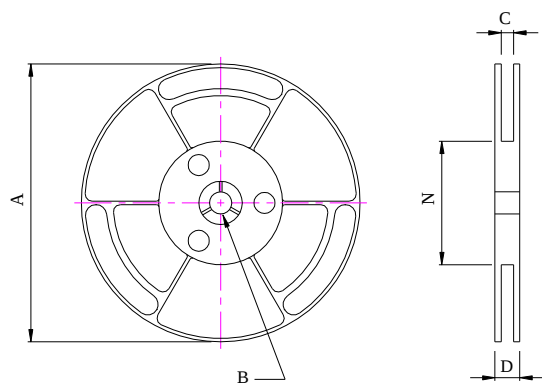


7. Packing

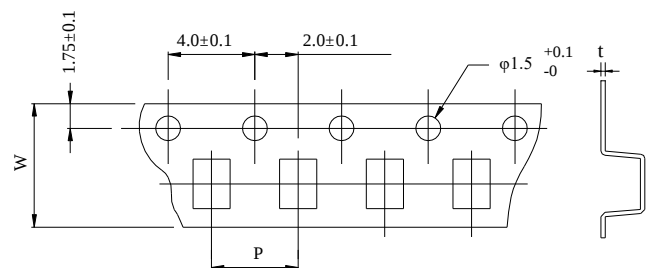


■ CARRIER TAPE REELS (mm)

MATERIAL: PLASTIC



■ DIMENSIONS OF CARRIER TAPE (mm)



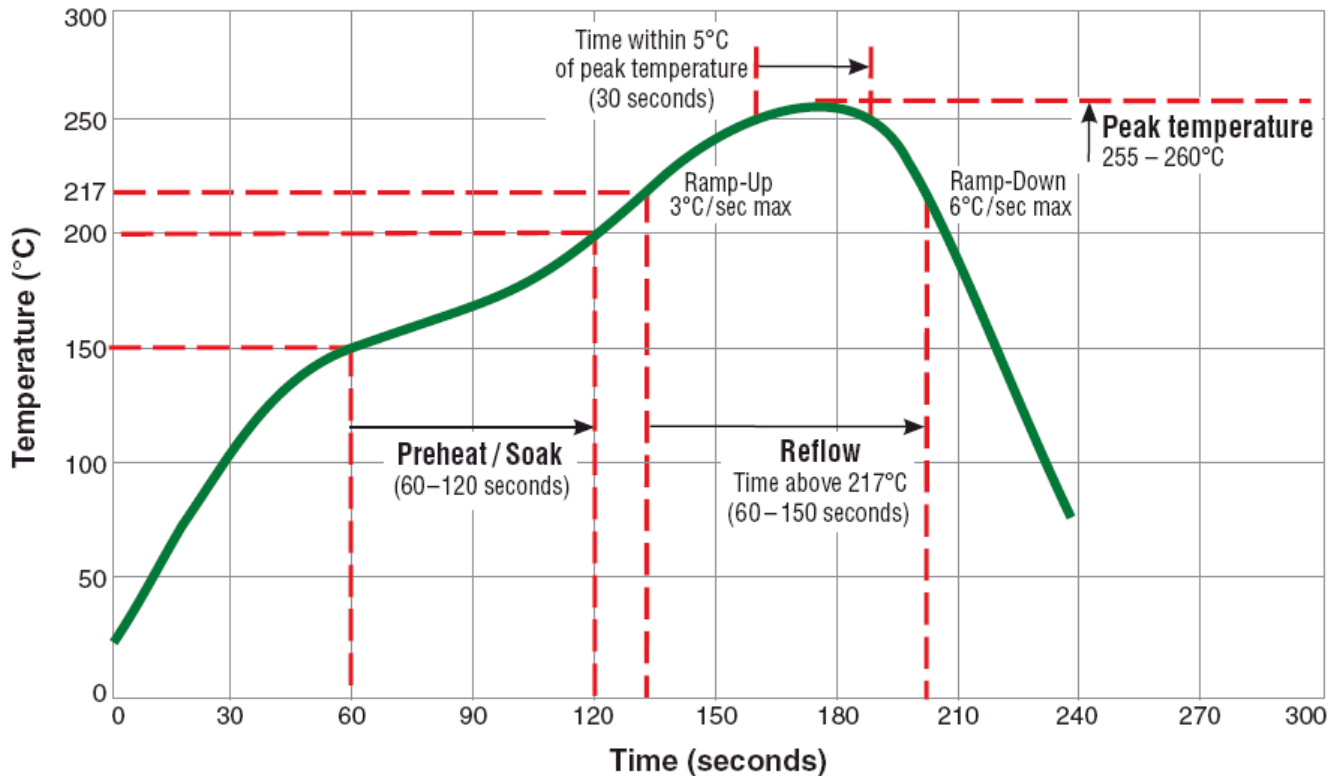
UNIT: mm

	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 : 2,000 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 COMPLLIENT 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