

DATA SHEET

PRODUCT **CHIP INDUCTORS**

SERIES WCA1005CP

PART NO. _____

DESCRIPTION _____

ISSUE DATE 2023/07/17

REVISION DATE 2023/07/17

REFERENCE NO. ENS000181180

RoHS COMPLIANCE ITEM

Disclaimer:

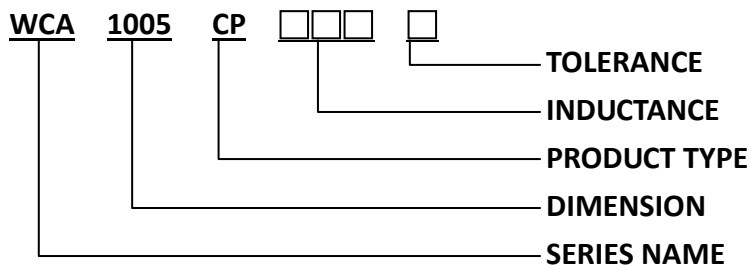
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CHIP INDUCTORS Engineering Specification

1. Scope

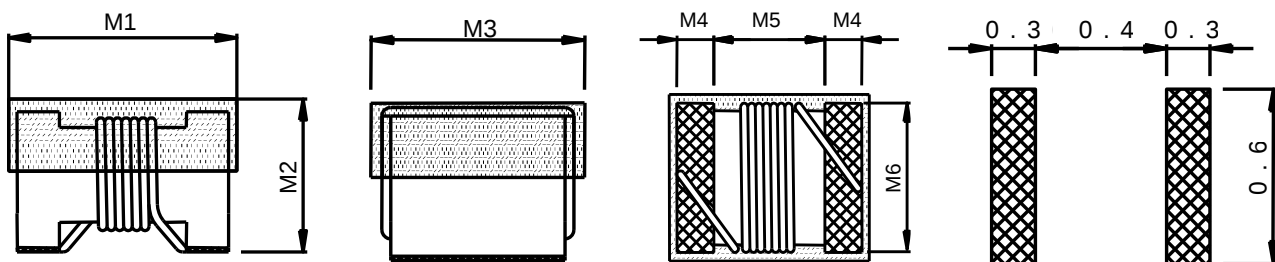
- Ceramic core wire wound construction.
- Component miniaturization is more suitable for SMT layout use.
- Inductance values from 1.0 to 120 nH.
- The Q value is better than multilayer technology..
- High reliability tests comply with AEC-Q200.

2. Explanation of Part Number



3. Shapes and Dimensions

UNIT: mm



Recommended Patterns

Series	M1	M2	M3	M4	M5	M6
WCA1005CP	1.19 MAX.	0.66 MAX.	0.64 MAX.	0.23±0.1	0.56±0.1	0.50±0.1

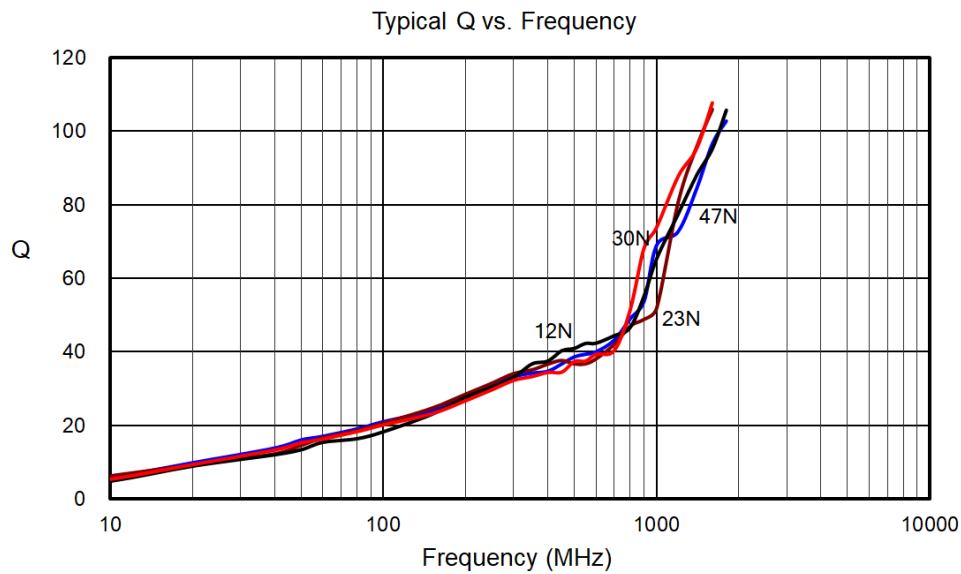
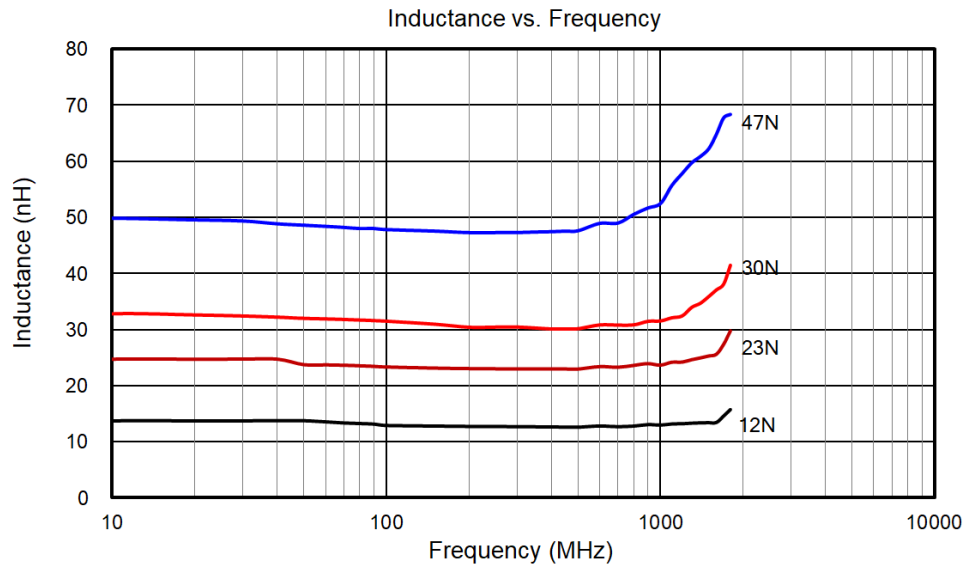
4. Electrical Specification

Part number	Inductance (nH) @250MHz	Inductance Tolerance	Q MIN.	Inductance (TYP.)	Q (TYP.)	Inductance (TYP.)	Q (TYP.)	SRF (GHz) MIN.	DC Resistance (Ω) MAX.	I _{rms} (mA)
				@900MHz		@1700MHz				
WCA1005CP1N0□	1.0	B、C、D	16	1.02	75	1.02	70	12.70	0.045	1360
WCA1005CP1N2□	1.2	B、C、D	16	1.17	30	1.17	40	12.90	0.090	740
WCA1005CP1N8□	1.8	B、C、D	16	2.08	59	1.94	74	12.00	0.070	1040
WCA1005CP1N9□	1.9	B、C、D	16	1.72	65	1.74	80	11.30	0.070	1040
WCA1005CP2N0□	2.0	B、C、D	16	1.93	54	1.93	75	11.10	0.070	1040
WCA1005CP2N2□	2.2	B、C、D	19	2.19	55	2.23	82	10.80	0.070	960
WCA1005CP2N4□	2.4	B、C、D	15	2.24	51	2.27	70	10.50	0.068	790
WCA1005CP2N5□	2.5	B、C、D	15	2.37	33	2.38	53	10.40	0.150	660
WCA1005CP2N7□	2.7	B、C、D	16	2.58	42	2.60	61	10.40	0.120	640
WCA1005CP3N3□	3.3	B、C、D	19	3.10	65	3.12	80	7.00	0.066	840
WCA1005CP3N6□	3.6	B、C、D	19	3.56	45	3.62	71	6.80	0.066	840
WCA1005CP3N9□	3.9	B、C、D	19	3.89	50	4.14	72	6.00	0.066	840
WCA1005CP4N1□	4.1	B、C、D	18	3.89	50	4.14	72	6.00	0.066	700
WCA1005CP4N3□	4.3	B、C、D	18	4.19	40	4.30	71	6.00	0.091	700
WCA1005CP4N7□	4.7	B、C、D	15	4.78	47	4.59	62	4.70	0.130	640
WCA1005CP5N1□	5.1	B、C、D	20	5.16	52	5.19	76	4.80	0.083	800
WCA1005CP5N6□	5.6	G、J、K	20	5.20	48	5.28	75	4.80	0.083	760
WCA1005CP5N8□	5.8	G、J、K	20	5.60	48	5.63	74	4.80	0.083	760
WCA1005CP6N2□	6.2	G、J、K	20	6.15	50	6.20	73	4.80	0.083	760
WCA1005CP6N8□	6.8	G、J、K	20	6.73	65	6.95	70	4.80	0.083	680
WCA1005CP7N3□	7.3	G、J、K	20	7.25	58	7.47	71	4.80	0.260	680
WCA1005CP7N5□	7.5	G、J、K	22	7.91	60	8.22	85	4.80	0.100	680
WCA1005CP8N2□	8.2	G、J、K	22	8.53	64	8.81	88	4.40	0.100	680
WCA1005CP8N7□	8.7	G、J、K	18	8.78	54	9.21	73	4.10	0.200	480
WCA1005CP9N0□	9.0	G、J、K	22	9.07	65	9.53	83	4.16	0.100	680
WCA1005CP9N1□	9.1	G、J、K	22	9.27	63	8.61	73	4.16	0.100	680
WCA1005CP9N5□	9.5	G、J、K	18	9.64	62	9.93	56	4.00	0.200	480
WCA1005CP10N□	10	G、J、K	21	10.16	50	9.72	85	3.90	0.200	480
WCA1005CP11N□	11	G、J、K	24	10.89	53	11.46	77	3.68	0.120	640
WCA1005CP12N□	12	G、J、K	24	12.71	62	12.87	77	3.60	0.120	640
WCA1005CP13N□	13	G、J、K	24	13.4	51	14.63	57	3.45	0.210	440
WCA1005CP15N□	15	G、J、K	24	15.2	55	16.88	76	3.28	0.170	560
WCA1005CP16N□	16	G、J、K	24	16.43	45	18.79	49	3.10	0.220	560
WCA1005CP18N□	18	G、J、K	25	17.39	52	22.18	64	3.10	0.230	420
WCA1005CP19N□	19	G、J、K	24	19.51	60	21.85	72	3.04	0.200	480
WCA1005CP20N□	20	G、J、K	25	20.7	52	23.66	53	3.00	0.250	420
WCA1005CP22N□	22	G、J、K	25	22.33	57	26.54	53	2.80	0.300	400
WCA1005CP23N□	23	G、J、K	22	23.8	49	26.85	64	2.72	0.300	400
WCA1005CP24N□	24	G、J、K	25	25.59	59	31.06	56	2.70	0.300	400
WCA1005CP27N□	27	G、J、K	24	29.26	45	32.56	62	2.48	0.300	400
WCA1005CP30N□	30	G、J、K	25	31.9	45	40.38	41	2.35	0.300	400
WCA1005CP33N□	33	G、J、K	24	34.12	35	40.32	36	2.35	0.440	400
WCA1005CP36N□	36	G、J、K	24	39.5	45	48.4	53	2.32	0.440	320
WCA1005CP39N□	39	G、J、K	25	42.65	45	50.96	42	2.10	0.550	200
WCA1005CP40N□	40	G、J、K	24	39.0	44	47.41	35	2.24	0.440	320
WCA1005CP43N□	43	G、J、K	25	45.8	46	61.55	35	2.03	0.810	100
WCA1005CP47N□	47	G、J、K	20	52.85	42	-	-	2.10	0.830	150
WCA1005CP51N□	51	G、J、K	25	56.6	40	-	-	1.75	0.820	100
WCA1005CP56N□	56	G、J、K	22	58.59	40	-	-	1.76	0.970	100
WCA1005CP57N□	57	G、J、K	22	60.15	40	-	-	1.76	0.970	100
WCA1005CP62N□	62	G、J、K	22	64.95	40	-	-	1.76	1.620	100
WCA1005CP68N□	68	G、J、K	22	72.17	40	-	-	1.62	1.120	100
WCA1005CP72N□	72	G、J、K	20	-	-	-	-	1.26	2.000	30
WCA1005CP75N□	75	G、J、K	20	-	-	-	-	1.62	2.000	50
WCA1005CP82N□	82	G、J、K	20	-	-	-	-	1.26	1.550	50
WCA1005CP91N□	91	G、J、K	22	-	-	-	-	1.26	2.000	50
WCA1005CPR10□	100	G、J、K	20	-	-	-	-	1.16	2.000	30
WCA1005CPR12□	120	G、J、K	20	-	-	-	-	1.90	2.200	50

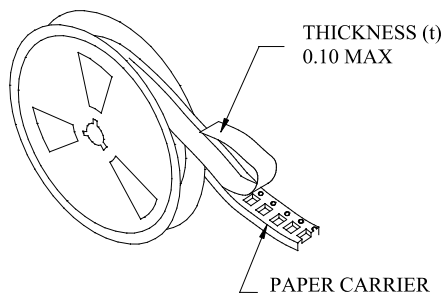
NOTE:

1. □Tolerance: K:±10%、J:±5%、G:±2%、D:±0.5 nH、C:±0.2 nH、B:±0.1 nH
2. MSL: Level 1

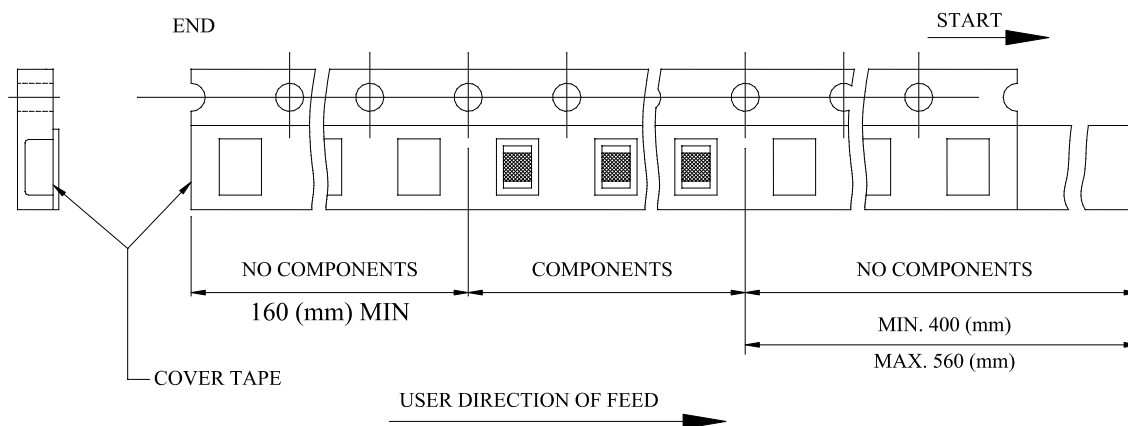
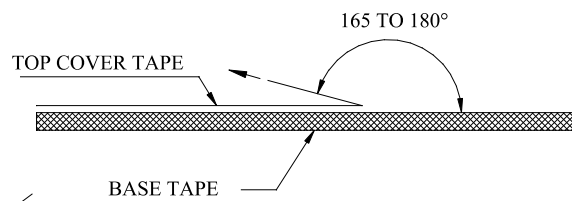
5. Electrical Curve



6. Packing

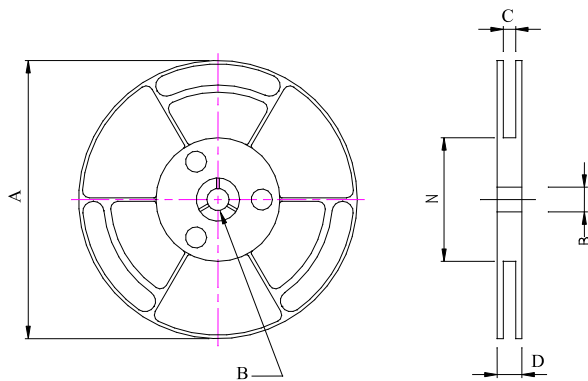


- THE FORCE FOR TEARING OFF COVER TAPE IS 10 TO 100 GRAMS IN THE ARROW DIRECTION.

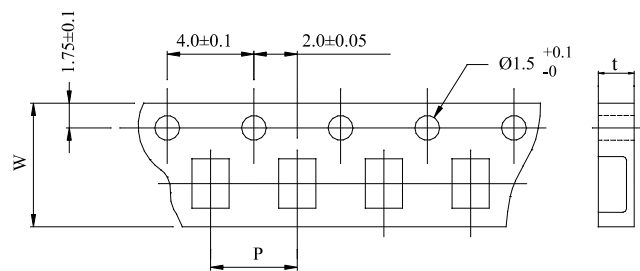


■ CARRIER TAPE REELS (mm)

MATERIAL: PAPER



■ DIMENSIONS OF CARRIER TAPE (mm)



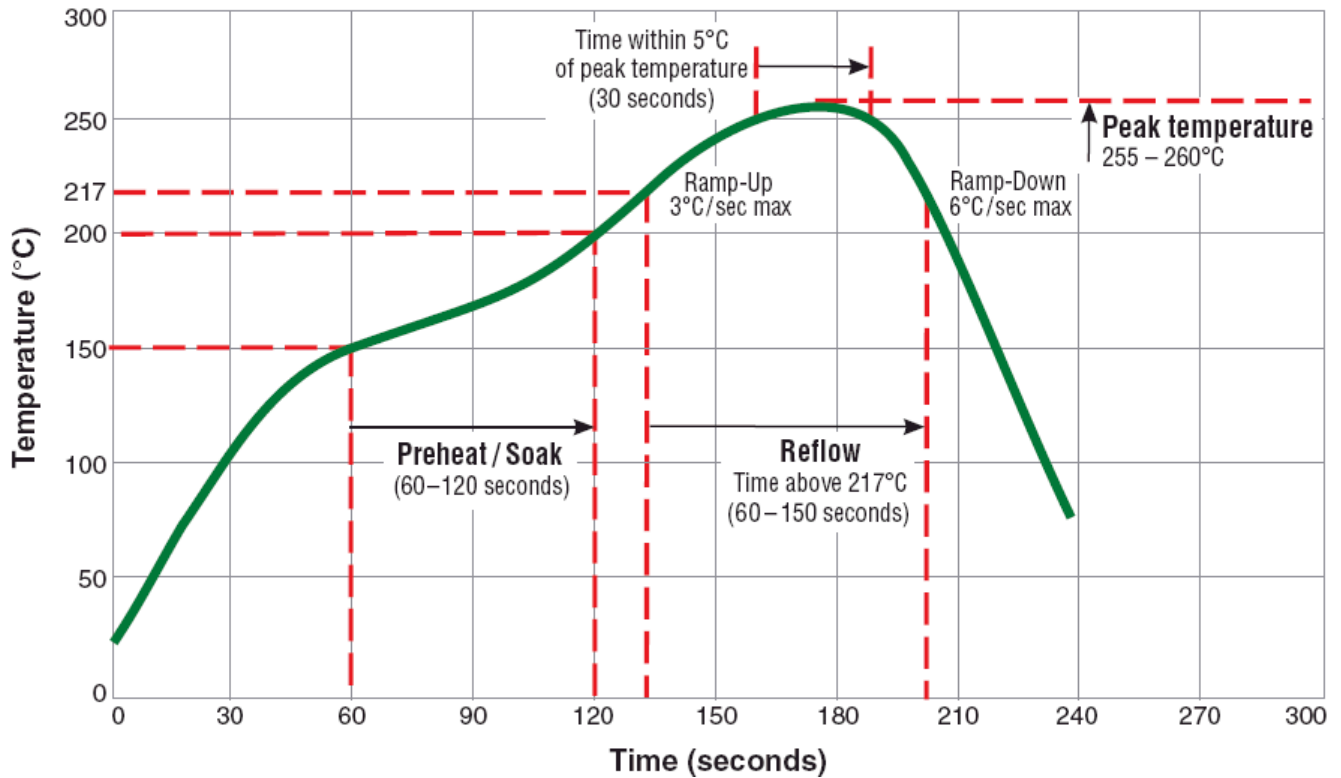
UNIT: mm

	A	B	C	D	N	P	W	t
DIM.	178	13.0	8.4	14.4	50	2.0	8.0	0.68
TOL.	MAX.	+0.5-0.2	+2.0-0	MAX	MIN.	±0.1	±0.2	±0.03

Quantity : 4,000 Pcs/Reel

7. Recommended Soldering Conditions

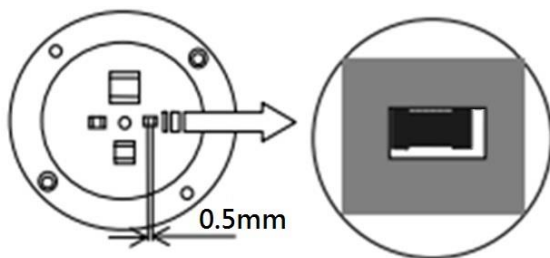
Typical RoHS Reflow Profile



8. Note

- TOLERANCE : K:±10%、J:±5%、G:±2%、D:±0.5 nH、C:±0.2 nH、B:±0.1 nH
- 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. TEST METHOD:

POSITION COIL UNDER TEST AS SHOWN IN BELOW AND CONTACT COIL WITH EACH TERMINAL BY ADDING WEIGHT.



9. 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