APPROVAL SHEET

WQCM0603
WQCM1005
WQCM1608

Multi-Layer Ceramic High Frequency Inductors
AEC-Q200

Walsin Technology Corporation
COPYRIGHT © WALSIN TECHNOLOGY CORPORATION. ALL RIGHTS RESERVED

RoHS COMPLIANT

Pb Pb-Free

*Contents in this sheet are subject to change without prior notice.

Copyright © by Walsin Technology Corporation. | All rights reserved.

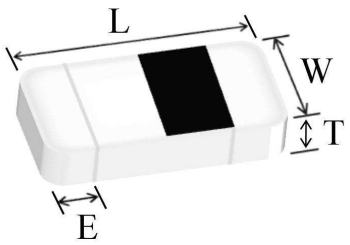
FEATURES

1. Particular ceramic material and coil structure provide high frequency application range up to 10GHz.
2. Small size and low profile.
3. Excellent solder ability and heat resistance.
4. Qualified based on AEC-Q200

APPLICATIONS

RF and wireless communication, information technology equipment which includes computer, telecommunications, radar detectors, automotive electronics, cellular phones, pagers, audio equipment, PDAs, keyless remote system and low-voltage power supply modules.

SHAPE and DIMENSION



WQCM Series	L	W	T	E (Min/Max)	Packing Qty (pcs/reel)
					Paper Tape
WQCM0603 (EIA 0201)	0.60±0.03	0.30±0.03	0.30±0.03	0.10~0.20	15,000
WQCM1005 (EIA 0402)	1.00±0.10	0.50±0.10	0.50±0.10	0.10~0.30	10,000
WQCM1608 (EIA 0603)	1.60±0.15	0.80±0.15	0.80±0.15	0.20~0.60	4,000

Ordering Information

WQ	CM	0603	Z0	S	1N2	T	B
Product Code Inductor AEC-Q200	**Series** Ceramic multilayer inductor.	**Dimensions** 1608:EIA 0603 1005:EIA 0402 0603:EIA 0201	**Series extension** Z0:STD A0:STD	**Tolerance** B: ± 0.1nH C: ± 0.2nH S: ± 0.3nH G: ± 2% H: ± 3% J: ± 5%	**Value** 1N2 =1.2nH 12N=12nH R10=100nH =0.10uH	**Packing Code** T=7" Reeled (Paper tape)	B:STD

Copyright © by Walsin Technology Corporation. | All rights reserved.

Electrical Characteristics

- **WQCM0603 series (EIA 0201)**

Operating Temperature range: -55℃ to 125℃

Walsin Part Number	L(nH)	Tolerance	Q Min	Typical Q @ Frequency (MHz)	SRF (MHz)	RDC (Ω)	Rated Current (mA) Max.
					Min.	Max.	
WQCM0603Z0□0N3TB	0.3	B	4	100	10,000	0.07	850
WQCM0603Z0□0N4TB	0.4	B	4	100	10,000	0.07	850
WQCM0603Z0□0N5TB	0.5	B	4	100	10,000	0.08	800
WQCM0603Z0□0N6TB	0.6	B	4	100	10,000	0.08	800
WQCM0603Z0□0N7TB	0.7	B	4	100	10,000	0.09	750
WQCM0603Z0□0N8TB	0.8	B	4	100	10,000	0.10	750
WQCM0603Z0□0N9TB	0.9	B	4	100	10,000	0.10	750
WQCM0603Z0□1N0TB	1.0	B, C, S	4	100	10,000	0.14	600
WQCM0603Z0□1N1TB	1.1	B, C, S	4	100	10,000	0.14	600
WQCM0603Z0□1N2TB	1.2	B, C, S	4	100	10,000	0.14	600
WQCM0603Z0□1N3TB	1.3	B, C, S	4	100	10,000	0.14	600
WQCM0603Z0□1N4TB	1.4	B, C, S	4	100	10,000	0.18	550
WQCM0603Z0□1N5TB	1.5	B, C, S	4	100	10,000	0.18	550
WQCM0603Z0□1N6TB	1.6	B, C, S	4	100	10,000	0.18	500
WQCM0603Z0□1N7TB	1.7	B, C, S	4	100	10,000	0.19	500
WQCM0603Z0□1N8TB	1.8	B, C, S	4	100	10,000	0.19	500
WQCM0603Z0□1N9TB	1.9	B, C, S	4	100	10,000	0.20	450
WQCM0603Z0□2N0TB	2.0	B, C, S	4	100	10,000	0.20	450
WQCM0603Z0□2N1TB	2.1	B, C, S	4	100	10,000	0.20	450
WQCM0603Z0□2N2TB	2.2	B, C, S	4	100	10,000	0.22	450
WQCM0603Z0□2N3TB	2.3	B, C, S	4	100	10,000	0.22	450
WQCM0603Z0□2N4TB	2.4	B, C, S	4	100	10,000	0.24	450
WQCM0603Z0□2N5TB	2.5	B, C, S	4	100	10,000	0.24	450
WQCM0603Z0□2N6TB	2.6	B, C, S	4	100	10,000	0.25	450
WQCM0603Z0□2N7TB	2.7	B, C, S	5	100	10,000	0.25	450
WQCM0603Z0□2N9TB	2.9	B, C, S	5	100	9,500	0.28	450
WQCM0603Z0□3N0TB	3.0	B, C, S	5	100	9,500	0.28	450
WQCM0603Z0□3N1TB	3.1	B, C, S	5	100	9,500	0.28	450
WQCM0603Z0□3N2TB	3.2	B, C, S	5	100	9,500	0.30	450
WQCM0603Z0□3N3TB	3.3	B, C, S	5	100	9,500	0.30	450
WQCM0603Z0□3N4TB	3.4	B, C, S	5	100	8,000	0.30	400
WQCM0603Z0□3N5TB	3.5	B, C, S	5	100	8,000	0.30	400
WQCM0603Z0□3N6TB	3.6	B, C, S	5	100	8,000	0.30	400
WQCM0603Z0□3N7TB	3.7	B, C, S	5	100	8,000	0.30	400
WQCM0603Z0□3N8TB	3.8	B, C, S	5	100	6,500	0.30	400
WQCM0603Z0□3N9TB	3.9	B, C, S	5	100	6,500	0.30	400
WQCM0603Z0□4N3TB	4.3	B, C, S	5	100	6,500	0.40	350
WQCM0603Z0□4N7TB	4.7	B, C, S	5	100	6,500	0.40	350
WQCM0603Z0□5N1TB	5.1	B, C, S	5	100	6,500	0.40	350

Copyright © by Walsin Technology Corporation. | All rights reserved.

Walsin Part Number	L(nH)	Tolerance	Q Min	Typical Q @ Frequency (MHz)	SRF (MHz)	RDC (Ω)	Rated Current (mA) Max.
					Min.	Max.	
WQCM0603Z0□5N6TB	5.6	B, C, S	5	100	6,000	0.40	350
WQCM0603Z0□6N2TB	6.2	B, C, S	5	100	6,000	0.44	300
WQCM0603Z0□6N8TB	6.8	H,J	5	100	5,400	0.50	300
WQCM0603Z0□7N5TB	7.5	H,J	5	100	4,800	0.53	300
WQCM0603Z0□8N2TB	8.2	H,J	5	100	4,800	0.55	250
WQCM0603Z0□9N1TB	9.1	H,J	5	100	4,500	0.62	250
WQCM0603Z0□10NTB	10	H,J	5	100	4,500	0.65	250
WQCM0603Z0□12NTB	12	H,J	5	100	3,700	0.70	250
WQCM0603Z0□15NTB	15	H,J	5	100	2,200	0.80	250
WQCM0603Z0□18NTB	18	H,J	5	100	2,200	0.90	200

GENERAL TECHNICAL DATA

Operating temperature range: - 55℃~ +125℃
Storage Condition: Less than 40℃ and 70% RH
Storage Time: 6 months Max.
Soldering method: Reflow

TEST INSTRUMENTS CONDITIONS

Agilent E4991A RF Impedance
Material Analyzer with fixture 16197A or equivalent
Agilent 4338B Milliohm meter
Test Level：500mV

版權所有 侵害必究
華新科技股份有限公司
PSA
PASSIVE SYSTEM ALLIANCE
Walsin Technology Corporation
COPYRIGHT © WALSIN TECHNOLOGY CORPORATION, ALL RIGHTS RESERVED.

Copyright © by Walsin Technology Corporation. | All rights reserved.

● WQCM1005 series (EIA 0402)

Operating Temperature range: -55℃ to 125℃

Walsin Part Number	L(nH)	Tolerance	Q Min	Typical Q @ Frequency (MHz)	SRF (MHz)	RDC (Ω)	Rated Current (mA) Max
					Min.	Max.	
WQCM1005Z0□0N3TB	0.3	B	8	100	10,000	0.08	1000
WQCM1005Z0□0N4TB	0.4	B	8	100	10,000	0.08	1000
WQCM1005Z0□0N5TB	0.5	B	8	100	10,000	0.08	1000
WQCM1005Z0□0N6TB	0.6	B	8	100	10,000	0.08	1000
WQCM1005Z0□0N7TB	0.7	B	8	100	10,000	0.08	1000
WQCM1005Z0□0N8TB	0.8	B	8	100	10,000	0.08	1000
WQCM1005Z0□1N0TB	1.0	B, C, S	8	100	10,000	0.08	1000
WQCM1005Z0□1N1TB	1.1	B, C, S	8	100	10,000	0.08	1000
WQCM1005Z0□1N2TB	1.2	B, C, S	8	100	10,000	0.09	1000
WQCM1005Z0□1N3TB	1.3	B, C, S	8	100	10,000	0.09	1000
WQCM1005Z0□1N5TB	1.5	B, C, S	8	100	10,000	0.10	1000
WQCM1005Z0□1N6TB	1.6	B, C, S	8	100	10,000	0.10	1000
WQCM1005Z0□1N8TB	1.8	B, C, S	8	100	10,000	0.12	900
WQCM1005Z0□2N0TB	2.0	B, C, S	8	100	10,000	0.12	900
WQCM1005Z0□2N2TB	2.2	B, C, S	8	100	10,000	0.13	900
WQCM1005Z0□2N4TB	2.4	B, C, S	8	100	10,000	0.13	800
WQCM1005Z0□2N7TB	2.7	B, C, S	8	100	6,000	0.16	800
WQCM1005Z0□3N0TB	3.0	B, C, S	8	100	6,000	0.16	800
WQCM1005Z0□3N3TB	3.3	B, C, S	8	100	6,000	0.16	800
WQCM1005Z0□3N6TB	3.6	B, C, S	8	100	6,000	0.20	700
WQCM1005Z0□3N9TB	3.9	B, C, S	8	100	6,000	0.20	700
WQCM1005Z0□4N3TB	4.3	B, C, S	8	100	6,000	0.20	700
WQCM1005Z0□4N7TB	4.7	B, C, S	8	100	6,000	0.20	700
WQCM1005Z0□5N1TB	5.1	B, C, S	8	100	5,300	0.23	600
WQCM1005Z0□5N6TB	5.6	B, C, S	8	100	4,500	0.23	600
WQCM1005Z0□6N2TB	6.2	B, C, S	8	100	4,500	0.25	600
WQCM1005Z0□6N8TB	6.8	G, H, J	8	100	4,500	0.25	600
WQCM1005Z0□7N5TB	7.5	G, H, J	8	100	4,200	0.28	500
WQCM1005Z0□8N2TB	8.2	G, H, J	8	100	3,700	0.28	500
WQCM1005Z0□9N1TB	9.1	G, H, J	8	100	3,400	0.30	500
WQCM1005Z0□10NTB	10	G, H, J	8	100	3,400	0.30	500
WQCM1005Z0□12NTB	12	G, H, J	8	100	3,000	0.45	400
WQCM1005Z0□15NTB	15	G, H, J	8	100	2,500	0.55	400
WQCM1005Z0□18NTB	18	G, H, J	8	100	2,200	0.65	300
WQCM1005Z0□22NTB	22	G, H, J	8	100	1,900	0.70	300

Copyright © by Walsin Technology Corporation. | All rights reserved.

Walsin Part Number	L(nH)	Tolerance	Q Min	Typical Q @ Frequency (MHz)	SRF (MHz)	RDC (Ω)	Rated Current (mA) Max
					Min.	Max.	
WQCM1005Z0□27NTB	27	G, H, J	8	100	1,700	0.80	300
WQCM1005Z0□33NTB	33	G, H, J	8	100	1,600	0.90	200
WQCM1005Z0□39NTB	39	G, H, J	8	100	1,200	1.00	200
WQCM1005Z0□47NTB	47	G, H, J	8	100	1,100	1.10	200
WQCM1005Z0□56NTB	56	G, H, J	8	100	1,000	1.10	200
WQCM1005Z0□68NTB	68	G, H, J	8	100	800	1.20	200
WQCM1005Z0□82NTB	82	J	8	100	600	1.30	200
WQCM1005Z0□R10TB	100	J	8	100	600	1.60	200

GENERAL TECHNICAL DATA

Operating temperature range: - 55℃~ +125℃
Storage Condition: Less than 40℃ and 70% RH
Storage Time: 6 months Max.
Soldering method: Reflow

TEST INSTRUMENTS CONDITIONS

Agilent E4991A RF Impedance
Material Analyzer with fixture 16197A or equivalent
Agilent 4338B Milliohm meter
Test Level：500mV

PSA PASSIVE SYSTEM ALLIANCE Walsin Technology Corporation COPYRIGHT © WALSIN TECHNOLOGY CORPORATION. ALL RIGHTS RESERVED.

Copyright © by Walsin Technology Corporation. | All rights reserved.

Electrical Characteristics

- WQCM1608 series (EIA 0603)

Operating Temperature range: -55℃ to 125℃

Walsin Part Number	L(nH)	Tolerance	Q (Min.)	Typical Q @ Frequency (MHz)	DCR(Ω) Max.	S.R.F (MHz) Min.	Rated Current (mA) Max.
WQCM1608A0□1N0TB	1.0	B, S	8	100	0.05	10,000	1,000
WQCM1608A0□1N2TB	1.2	B, S	8	100	0.05	10,000	1,000
WQCM1608A0□1N5TB	1.5	B, S	8	100	0.10	10,000	1,000
WQCM1608A0□1N8TB	1.8	B, S	8	100	0.10	10,000	1,000
WQCM1608A0□2N2TB	2.2	B, S	8	100	0.10	8,000	1,000
WQCM1608A0□2N7TB	2.7	B, S	10	100	0.13	7,000	1,000
WQCM1608A0□3N3TB	3.3	B, S	10	100	0.13	6,000	1,000
WQCM1608A0□3N9TB	3.9	B, S	10	100	0.15	6,000	1,000
WQCM1608A0□4N7TB	4.7	B, S	10	100	0.20	5,000	1,000
WQCM1608A0□5N6TB	5.6	B, S	10	100	0.23	4,000	600
WQCM1608A0□6N8TB	6.8	G, J	10	100	0.25	4,000	600
WQCM1608A0□8N2TB	8.2	G, J	10	100	0.28	3,500	600
WQCM1608A0□10NTB	10	G, J	12	100	0.30	3,400	600
WQCM1608A0□12NTB	12	G, J	12	100	0.35	2,600	600
WQCM1608A0□15NTB	15	G, J	12	100	0.40	2,300	600
WQCM1608A0□18NTB	18	G, J	12	100	0.45	2,000	600
WQCM1608A0□22NTB	22	G, J	12	100	0.50	1,600	600
WQCM1608A0□27NTB	27	G, J	12	100	0.55	1,400	600
WQCM1608A0□33NTB	33	G, J	12	100	0.60	1,200	600
WQCM1608A0□39NTB	39	G, J	12	100	0.65	1,100	500
WQCM1608A0□47NTB	47	G, J	12	100	0.70	900	500
WQCM1608A0□56NTB	56	G, J	12	100	0.75	900	500
WQCM1608A0□68NTB	68	G, J	12	100	0.85	700	400
WQCM1608A0□82NTB	82	G, J	12	100	0.95	600	300
WQCM1608A0□R10TB	100	J	12	100	1.00	600	300
WQCM1608A0□R12TB	120	J	8	50	1.20	500	300
WQCM1608A0□R15TB	150	J	8	50	1.20	500	300
WQCM1608A0□R18TB	180	J	8	50	1.30	400	300
WQCM1608A0□R20TB	200	J	8	50	1.50	400	300
WQCM1608A0□R22TB	220	J	8	50	1.50	400	300
WQCM1608A0□R27TB	270	J	8	50	1.90	400	200
WQCM1608A0□R33TB	330	J	8	50	2.10	350	200
WQCM1608A0□R39TB	390	J	8	50	2.30	350	150
WQCM1608A0□R47TB	470	J	8	50	2.60	300	150

Copyright © by Walsin Technology Corporation. | All rights reserved.

Test condition & Requirements (WQCM series)

Item	Test Condition	Criteria
High Temperature Exposure	1.Temperature : 125℃ ± 5℃ 2.Test time : 1000 hours Measurement: at ambient temperature 24 hours after test completion	1.No mechanical damage 2.Inductance value should be within ± 10 % of the initial value 3.Q variation within 20%
Temperature Cycle	1.Temperature : -55 ~ +125℃ 2.Cycle : 1000 cycles 3.Dwell time : 30minutes Measurement : at ambient temperature 24 hours after test completion	1.No mechanical damage 2.Inductance value should be within ± 10 % of the initial value 3. Q variation within 20%.
Biased Humidity	1.Temperature : 85℃ ± 2℃ 2.Humidity : 85 % RH 3.Test time : 1000 hours 4.Apply current : full rated current Measurement: at ambient temperature 24 hours after test completion	1.No mechanical damage 2.Inductance value should be within ± 10 % of the initial value 3.Q variation within 20%
Operational Life	1.Temperature : 125℃ ± 5℃ 2.Test time : 1000 hours 3.Apply current : full rated current Measurement : at ambient temperature 24 hours after test completion	1.No mechanical damage 2.Inductance value should be within ± 10 % of the initial value 3. Q variation within 20%.
Mechanical Shock	Condition F:1500g's/0.5ms/Half sine	1.No mechanical damage 2.Inductance value should be within ± 10 % of the initial value 3.Q variation within 20%
Vibration Test	5g's for 20 minutes,12cycles each of 3 orientations Test from 10-2000Hz.,12cycles each of 3 orientations	1.No mechanical damage 2.Inductance value should be within ± 10 % of the initial value 3.Q variation within 20%
Resistance to Solder Heat	1.Solder temperature : 260 ± 5℃ 2.Flux : Rosin 3.DIP time : 10 ± 1 sec	1.More than 95 % of terminal electrode should be covered with new solder 2.No mechanical damage 3.Inductance value should be within ± 10 % of the initial value 4.Q variation within 20%
ESD	Classification Levels 1C	1. No mechanical damage 2. Inductance variation within10%. 3. Q variation within 20%.

Copyright © by Walsin Technology Corporation. | All rights reserved.

<table>
<tr><td>Solderability Test</td><td>1.Solder temperature : 235 ± 5℃
2.Flux : Rosin
3.DIP time : 5 ± 1 sec</td><td>1.More than 95 % of terminal electrode should be covered with new solder
2.No mechanical damage</td></tr>
<tr><td>Board Flex</td><td>Epoxy-PCB(1.6mm)
Deflection 2mm(min)
60s minimum holding time</td><td>No mechanical damage.</td></tr>
<tr><td>Terminal Strength</td><td><table><tr><td>Size</td><td>Apply Force(F)</td><td>Test Time</td></tr><tr><td>0603</td><td>2 N</td><td>10 ±1 sec.</td></tr><tr><td>1005</td><td>5 N</td><td>10 ±1 sec.</td></tr><tr><td>1608</td><td>10 N</td><td>10 ±1 sec</td></tr></table></td><td>No mechanical damage</td></tr>
</table>

NOTE

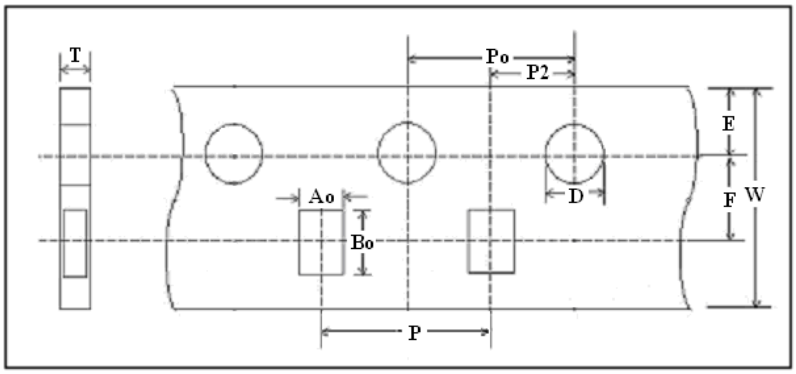
The storage atmosphere must be free of gas containing sulfur and chlorine. Also, avoid exposing the product to saline moisture. If the product is exposed to such atmospheres, the terminals will oxidize and solderability will be affected.

華新科技股份有限公司 PSA PASSIVE SYSTEM ALLIANCE Walsin Technology Corporation COPYRIGHT © WALSIN TECHNOLOGY CORPORATION, ALL RIGHTS RESERVED.

Copyright © by Walsin Technology Corporation. | All rights reserved.

Packaging Specification

➢ **Type：Paper Carrier**



➢ **Taping Dimension**

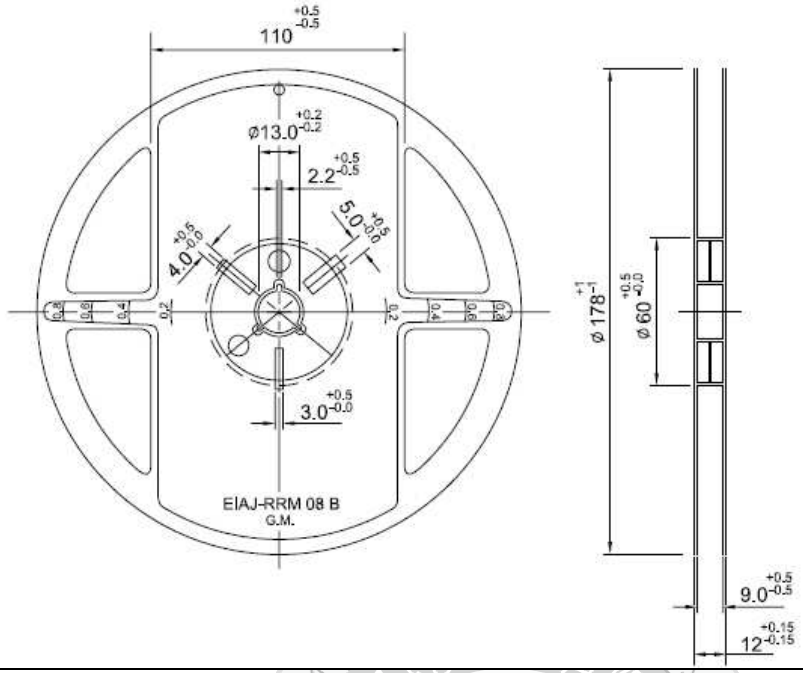
(mm)	0603	1005	1608
Symbol	PAPER	PAPER	PAPER
W	8.00 ± 0.10	8.00±0.10	8.00±0.10
P	2.00 ± 0.05	2.00±0.05	4.00±0.10
E	1.75 ± 0.05	1.75±0.05	1.75±0.10
F	3.50 ± 0.05	3.50±0.05	3.50±0.10
D	1.55 ± 0.05	1.55±0.05	1.56±0.10
Po	4.00 ± 0.10	4.00±0.10	4.00±0.10
P2	2.00 ± 0.05	2.00±0.05	2.00±0.10
Ao	0.36 ± 0.02	0.60±0.03	1.05±0.05
Bo	0.66 ± 0.02	1.12±0.03	1.85±0.05
T	0.42 ± 0.02	0.60±0.03	0.95±0.05

Quantity per reel

WQCM0603：15K pcs
WQCM1005：10K pcs
WQCM1608： 4K pcs

Copyright © by Walsin Technology Corporation. | All rights reserved.

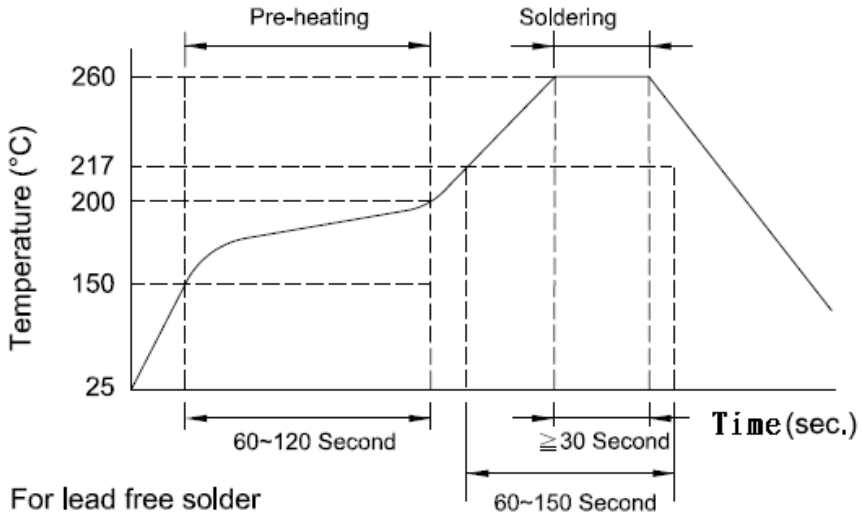
REEL DIMENSION



Unit：mm

7" Reel Packaging Quantity			
PART SIZE (EIA SIZE)	0603 (0201)	1005 (0402)	1608 (0603)
Qty.(pcs)	15,000	10,000	4,000
BOX	5 reels / inner box	5 reels / inner box	5 reels / inner box

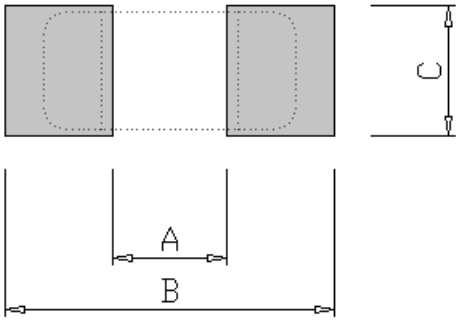
RECOMMENDED SOLDERING CONDITIONS



Copyright © by Walsin Technology Corporation. | All rights reserved.

LAND PATTERNS REFLOW SOLDERING

Solder land information :



Size(mm)	A	B	C
0603 (EIA 0201)	0.20 ~ 0.30 (0.008 ~ 0.012)	0.80 ~ 0.90 (0.031 ~ 0.035)	0.20 ~ 0.30 (0.008 ~ 0.012)
1005 (EIA 0402)	0.4 (0.016)	1.4 ~ 1.5 (0.055 ~ 0.059)	0.5 ~ 0.6 (0.020 ~ 0.024)
1608 (EIA 0603)	0.5 ~ 0.7 (0.019 ~ 0.027)	2.1 ~ 3.1 (0.083 ~ 0.122)	0.65 ~ 0.95 (0.026 ~ 0.037)

Walsin Technology Corporation
COPYRIGHT © WALSIN TECHNOLOGY CORPORATION. ALL RIGHTS RESERVED.

Copyright © by Walsin Technology Corporation. | All rights reserved.