SCOPE

This specification describes Yageo CC Y5V series chip capacitors.

ORDERING INFORMATION

Part number is identified by the series, size, tolerance, packing style, temperature coefficient, rated voltage and capacitance value.

CC ×××× × × **Y5V** × **BB** ×××
(1) (2) (3) (4) (5)

(1) SIZE – INCH BASED (METRIC)

0402 (1005)
0603 (1608)
0805 (2012)
1206 (3216)

(2) TOLERANCE

M = ±20%
Z = –20/+80%

(3) PACKING STYLE

R = 7″ paper tape
K = 7″ blister tape
P = 13″ paper tape
F = 13″ blister tape
C = Bulk case

(4) RATED VOLTAGE

6 = 10 V
7 = 16 V
8 = 25 V
9 = 50 V

(5) CAPACITANCE VALUE:

First two for significant figures and 3rd for number of zero
Letter "R" for decimal point

CONSTRUCTION

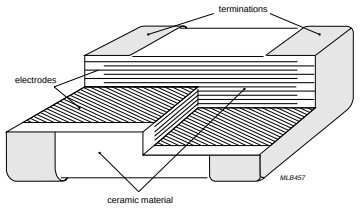

Fig. 1 Surface mounted multilayer ceramic capacitor construction

DIMENSION

For dimension see Table 1

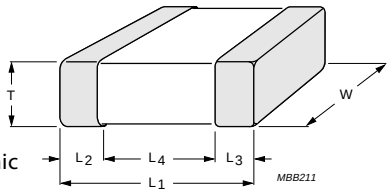

Fig. 2 Surface mounted multilayer ceramic capacitor dimension

Table 1

TYPE		0402	0603	0805	1206
L_1 (mm)		1.0 ±0.05	1.6 ±0.10	2.0 ±0.10	3.2 ±0.15
W (mm)		0.5 ±0.05	0.8 ±0.07	1.25 ±0.10	1.6 ±0.15
T (mm)	min.	0.45	0.73	0.50	0.50
	max.	0.55	0.87	1.35	1.35
L_2/L_3 (mm)	min.	0.15	0.20	0.25	0.25
	max.	0.30	0.60	0.75	0.75
L_4 (mm)	min.	0.40	0.40	0.55	1.40

CAPACITANCE RANGE & THICKNESS FOR 10V & 16V

Table 2

CAPACITANCE (nF)	10V 0603	0805	1206	16V 0402	0603	0805	1206
10				0.5 ±0.05			
22							
47							
100							
220					0.8 ±0.07		
470						0.85 ±0.1	
1,000	0.8 ±0.07	0.85 ±0.1					0.85 ±0.1
2,200							
4,700							1.15 ±0.1
10,000			1.15 ±0.1				

CAPACITANCE RANGE & THICKNESS FOR 25V & 50V

Table 3

CAPACITANCE (nF)	25V 0603	0805	1206	50V 0603	0805	1206
10	0.8 ±0.07			0.8 ±0.07	0.6 ±0.1	
22						
47						
100		0.6 ±0.1	0.6 ±0.1			0.6 ±0.1
220					0.85 ±0.1	
470		0.85 ±0.1	0.85 ±0.1			0.85 ±0.1
1,000			1.15 ±0.1			1.15 ±0.1

THICKNESS CLASSES AND PACKING QUANTITY

Table 4

THICKNESS CLASSIFICATION (mm)	8 mm TAPE WIDTH / AMOUNT PER REEL				AMOUNT PER BULK CASE		
	Ø180 mm, 7"		Ø330 mm, 13"				
	Paper	Blister	Paper	Blister	0402	0603	0805
0.5 ±0.05	10,000	---	50,000	---	50,000	---	---
0.6 ±0.10	4,000	---	20,000	---	---	---	10,000
0.8 ±0.07	4,000	---	15,000	---	---	15,000	---
0.85 ±0.10	4,000	---	15,000	---	---	---	8,000
1.15 ±0.10	---	3,000	---	10,000	---	---	---
1.25 ±0.10	---	3,000	---	10,000	---	---	5,000

ELECTRICAL CHARACTERISTICS

Table 5

CHARACTERISTICS	TEST CONDITIONS	REQUIREMENT
Operation temperature range	---	–30 °C to +85 °C
Temperature characteristic/coefficient (TC)	With respect to 25 °C within operation temperature range	+22% to –82%
Capacitance tolerance	1Vrms/1KHz at 25 °C	±20%, –20%~+80%
Dissipation factor (D.F.)	1Vrms/1KHz at 25 °C	See table 6
Insulation resistance (IR)	At U_r (rated voltage) for 1 minute	$R_{ins} \geq 10$ GΩ or $R_{ins} \times C \geq 100$ seconds whichever is less
Dielectric withstanding Voltage	At 2.5 x U_r for 5 seconds	No breakdown

Table 6 D.F. specification for 0402to 1206 sizes

DISSIPATION FACTOR (D.F.)	RATED VOLTAGE (U_r)	CAPACITANCE VALUE OF SIZES 0402	0603	0805	1206
≤ 5%	25 V	---	< 100 nF	≤ 270 nF	< 1 µF
	50 V	---	< 100 nF	≤ 270 nF	< 1 µF
≤ 7%	25 V	---	≥ 100 nF	270 nF < Cap. Range < 470 nF	≥ 1 µF
	50 V	---	≥ 100 nF	> 270 nF	≥ 1 µF
≤ 9%	10 V	---	≤ 270 nF	≤ 1 µF	≤ 2.2µF
	16 V	---	≤ 270 nF	≤ 1 µF	≤ 2.2µF
	25 V	---	---	≥ 470 nF	---
≤ 12.5%	10 V	all	> 270 nF	> 1 µF	> 2.2µF
	16 V	all	> 270 nF	> 1 µF	> 2.2µF

TAPING REEL

Table 7

TAPE WIDE	8 mm	8 mm	12 mm
ØA (mm)	180	330	180
ØB (mm)	62±1.5	62±1.5	62±1.5
ØD (mm)	20.5	20.5	20.5
ØC (mm)	12.75±0.15/–0	12.75±0.15/–0	12.75±0.15/–0
W (mm)	8.4+1.5/–0	8.4+1.5/–0	12.4+2/–0
T_{max} (mm)	14.4	14.4	18.4

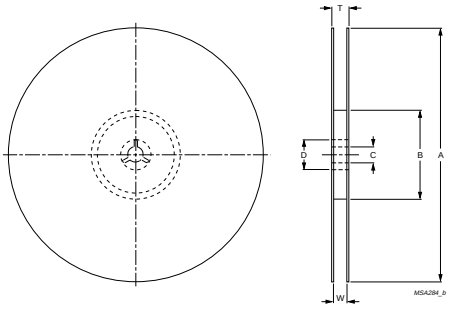

Fig. 3 Reel dimension

For dimension see Table 7

PAPER TAPE SPECIFICATION

Table 8

DIMENSION	0402	0603	0805	1206
A (mm)	0.62±0.05	1.10±0.05	1.65±0.05	2.0±0.1
B (mm)	1.12±0.05	1.90±0.05	2.4±0.05	3.5±0.1
W (mm)	8.0±0.2	8.0±0.2	8.0±0.2	8.0±0.2
E (mm)	1.75±0.1	1.75±0.1	1.75±0.1	1.75±0.1
F (mm)	3.5±0.05	3.5±0.05	3.5±0.05	3.5±0.05
P_0 (mm)	4±0.05	4±0.05	4±0.05	4±0.05
P_1 (mm)	2±0.05	4±0.1	4±0.1	4±0.1
P_2 (mm)	2±0.05	2±0.05	2±0.05	2±0.05
ØD_0 (mm)	1.5+0.1	1.5+0.1	1.5+0.1/–0	1.5+0.1/–0
T (mm)	0.6±0.05	0.95±0.05	0.95±0.05	0.95±0.05

For dimension see Table 8

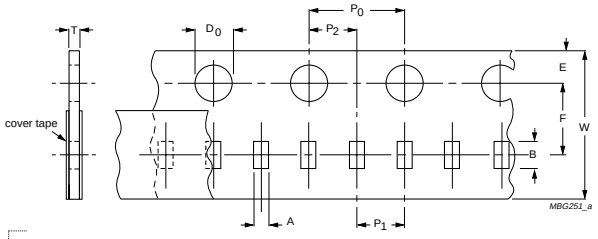

Fig. 4 Paper tape dimension

BLISTER TAPE SPECIFICATION

Table 9

DIMENSION	0805	1206	1210	1812
A (mm)	0.20	0.30	0.30	0.40
B (mm)	0.20	0.30	0.30	0.40
W (mm)	8.1±0.2	8.1±0.2	8.1±0.2	12.0±0.2
E (mm)	1.75±0.1	1.75±0.1	1.75±0.1	1.75±0.1
F (mm)	3.5±0.05	3.5±0.05	3.5±0.05	5.5±0.05
P_0 (mm)	4±0.1	4±0.1	4±0.1	4±0.1
P_1 (mm)	4±0.1	4±0.1	4±0.1	8±0.1
P_2 (mm)	2±0.05	2±0.05	2±0.05	2±0.05
ØD_0 (mm)	1.5+0.1/–0	1.5+0.1/–0	1.5+0.1/–0	1.5+0.1/–0
T_{max} (mm)	3.5	3.5	3.5	3.5

For dimension see Table 9

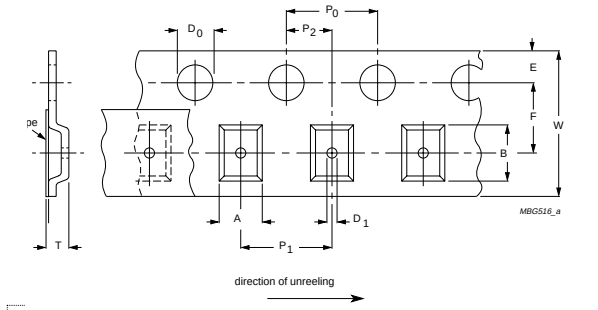

Fig. 5 Leader/trailer tape dimension

PACKING METHOD

LEADER/TRAILER TAPE SPECIFICATION

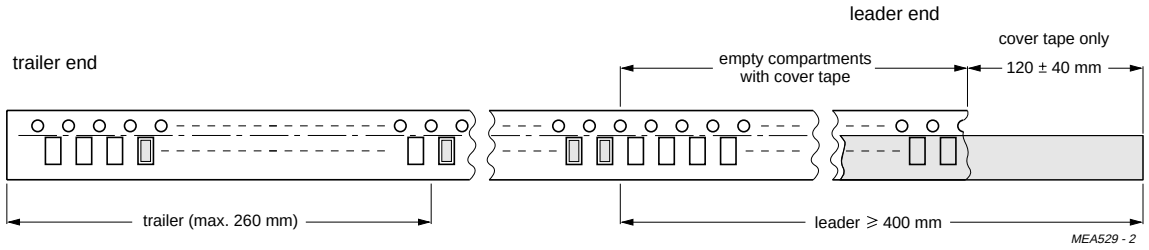

Fig. 6 Leader and trailer tape dimension

METHOD OF MOUNTING

For normal use the capacitors may be mounted on printed-circuit boards or ceramic substrates by applying wave soldering, reflow soldering (including vapor phase soldering) or conductive adhesive in accordance with CECC 00802 classification A.

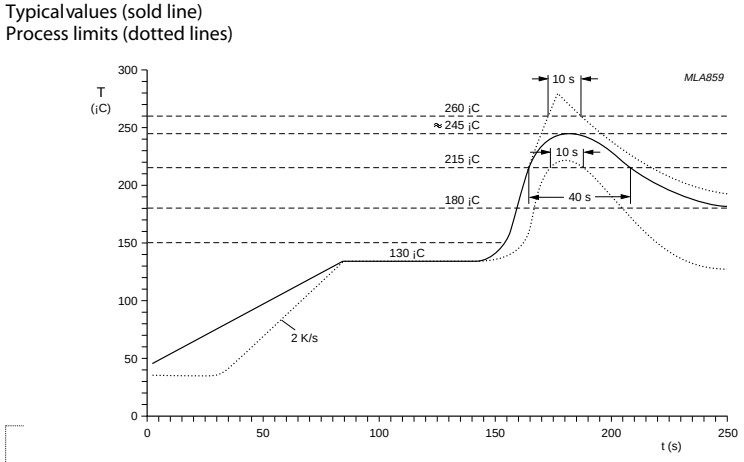

Fig. 7 Recommended reflowsoldering profile

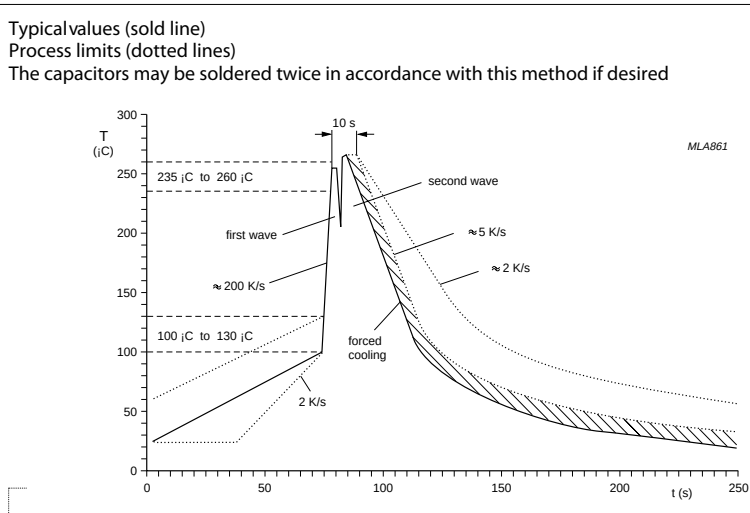

Fig. 8 Recommended wave soldering profile