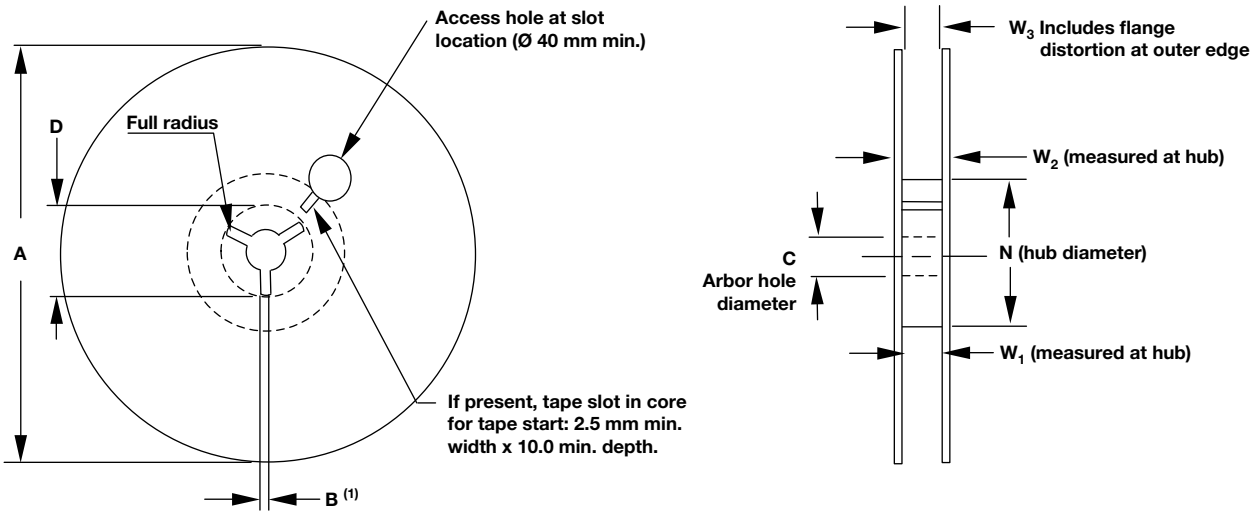
Surface Mount Multilayer Ceramic Chip Capacitors



Note

(1) Drive spokes optional, if used, asterisked dimensions B and D apply.

REEL DIMENSIONS in inches (millimeters)								
TAPE SIZE	**A MAX.**	**B MIN.**	**C**	**D MIN.**	**N MIN.**	**W_1**	**W_2 MAX.**	**W_3**
8 mm	12.992 (330)	0.059 (1.5)	0.512 + 0.020/- 0.008 (13.0 + 0.50/- 0.20)	0.795 (20.2)	1.969 (50.0)	0.331 + 0.059/- 0.0 (8.4 + 1.5/- 0.0)	0.567 (14.4)	Shall accommodate tape width without interference
12 mm						0.488 + 0.079/- 0.0 (12.4 + 2.0/- 0.0)	0.724 (18.4)	
16 mm					2.401 (61.0)	0.646 + 0.079/- 0.0 (16.4 + 2.0/- 0.0)	0.882 (22.4)	
24 mm	23.976 (609)				2.362 (60.0)	0.960 + 0.079/- 0.0 (24.4 + 2.0/- 0.0)	1.197 (30.4)	1.457 (37.0)

Notes

(1) For reels less than 360 mm diameter (A), the most widely used reel diameters are 178 mm ± 2 mm and 330 mm ± 2 mm. Reel diameters ranging from 254 mm to 292 mm also exist. Commonly used hub diameters are 80 mm, 100 mm, 150 mm and 178 mm.

(2) Tape with components must wrap around hub without damage.

STANDARD PACKAGING QUANTITIES [1][2][3][7]						
BODY SIZE	TAPE SIZE	7" REEL QUANTITIES			11 1/4" AND 13" REEL QUANTITIES	
		PAPER TAPE PACKAGING CODE "C" / "O" [5]	PLASTIC TAPE PACKAGING CODE "T" / "E" [7]	LOW QUANTITY "J"	PAPER TAPE PACKAGING CODE "P" / "I" [5]	PLASTIC TAPE PACKAGING CODE "R" / "M" [7]
0402 [4]	8 mm	5000 / 10 000	n/a	1000	10 000 / 30 000	n/a
0505	8 mm	n/a	3000	1000	n/a	10 000
0603	8 mm	4000	4000	1000	10 000	10 000
0805 [6]	8 mm	3000	3000	1000	10 000	10 000
1111	8 mm	n/a	2500	1000	n/a	10 000
1206 [6]	8 mm	3000	2500 / 3000	1000	10 000	9000 / 10 000
1210 [6]	8 mm	n/a	2000 / 2500 / 3000	1000	n/a	9000 / 10 000
1808	12 mm	n/a	2000	500	n/a	10 000
1812	12 mm	n/a	1000	500	n/a	4000
1825	12 mm	n/a	1000	500	n/a	4000
2008	12 mm	n/a	2000	n/a	n/a	10 000
2012	12 mm	n/a	1000	n/a	n/a	4000
2220	12 mm	n/a	1000	500	n/a	4000
2225	12 mm	n/a	500	250	n/a	4000
2525	12 mm	n/a	1000	500	n/a	n/a
3040	16 mm	n/a	500	n/a	n/a	n/a
3640 [8]	16 mm	n/a	350 / 500	n/a	n/a	n/a
3838	16 mm	n/a	400	n/a	n/a	n/a
4044	24 mm	n/a	300	n/a	n/a	n/a

Notes
(1) For details see individual datasheet.
(2) Reference: EIA standard 481 - "Taping of Surface Mount Components for Automatic Handling" packaging quantities used unless specified in single datasheets.
(3) n/a = not available, not supported anymore.
(4) Quantity can vary with customer request.
(5) Flamed paper tape code "O" (7" reel) and "I" (11 1/4" / 13" reel) for AgPd terminated parts (termination code "F", "E" and size 0402 / 0603 / 0805).
(6) Packaging code "C/P" or "T/R" and lower quantities can depend from product thickness.
(7) Packaging code "E" and "M" used in automotive series (VJ..31 / VJ..34) for size 0603 / 0805 / 1206 / 1210 where applicable.
(8) Quantity 350 pcs for Source Energy Capacitors (SEC) and Controlled Discharge Capacitors (CDC).

PLASTIC BLACK CONDUCTIVE POLYCARBONATE CARRIER TAPE

STANDARD PACKAGING QUANTITIES [1][2]			
BODY SIZE	TAPE SIZE	7" REEL QUANTITIES PACKAGING CODE MUST INCL. PROCESS CODE "TA3"	11 1/4" AND 13" REEL QUANTITIES PACKAGING CODE MUST INCL. PROCESS CODE "RA3"
0603	8 mm	4000	10 000
0805	8 mm	3000	10 000
1206 [4]	8 mm	2500 / 3000	9000 / 10 000
1210 [4]	8 mm	2000 / 2500 / 3000	9000 / 10 000
1808	12 mm	2000	10 000
1812	12 mm	1000	4000
1825	12 mm	1000	4000
2220	12 mm	1000	4000
2225	12 mm	500	4000
3040	16 mm	500	n/a
3640 [5]	16 mm	350 / 500	n/a
4044	24 mm	300	n/a

Notes
(1) Contact mlcc@vishay.com for available series.
(2) Reference: EIA standard 481 - "Taping of Surface Mount Components for Automatic Handling" packaging quantities used unless specified in single datasheets.
(3) n/a = not available, not supported anymore.
(4) Quantity can vary with customer request.
(5) Quantity 350 pcs for Source Energy Capacitors (SEC) and Controlled Discharge Capacitors (CDC).

EMBOSSED 8 mm, 12 mm, 16 mm AND 24 mm CARRIER TAPE

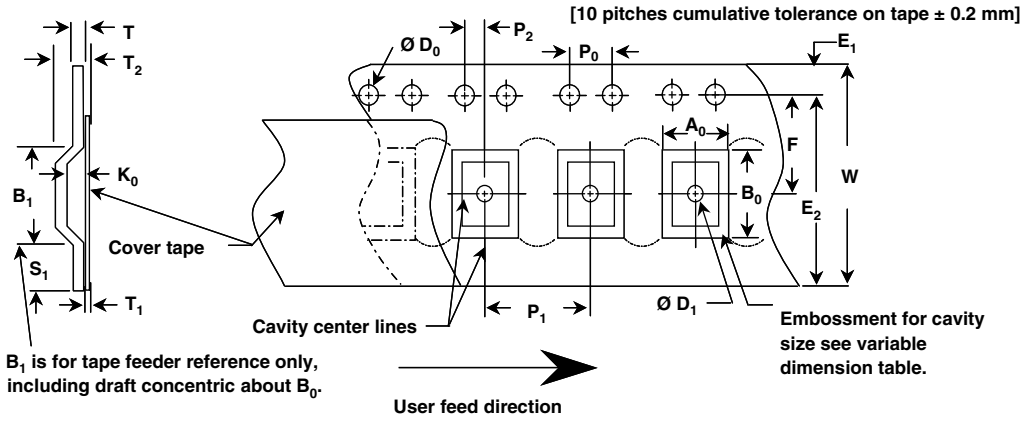


Figure 1

CONSTANT CARRIER TAPE METRIC DIMENSIONS in inches (millimeters)							
TAPE SIZE	D_0	E_1	P_0	P_2	S_1 MIN.	T MAX.	T_1 MAX.
8 mm and 12 mm	0.059 + 0.004/- 0.0 (1.50 + 0.10/- 0.0)	0.069 ± 0.004 (1.75 ± 0.10)	0.175 ± 0.004 (4.0 ± 0.10)	0.079 ± 0.002 (2.0 ± 0.05)	0.024 (0.60)	0.024) (0.60)	0.004 (0.10)

VARIABLE CARRIER TAPE METRIC DIMENSIONS in inches (millimeters)									
TAPE SIZE	B_1 MAX.	D_1 MIN.	E_2 MIN.	F	P_1	R MIN.	T_2 MAX.	W MAX.	A_0, B_0 AND K_0
8 mm	0.171 (4.35)	0.0177 (0.450)	0.246 (6.25)	0.138 ± 0.002 (3.50 ± 0.05)	0.157 ± 0.004 (4.00 ± 0.10)	0.984 (25.0)	0.098 (2.50)	0.327 (8.30)	See note (1)
12 mm	0.323 (8.20)	0.059 (1.50)	0.404 (10.25)	0.217 ± 0.002 (5.50 ± 0.05)	0.157 ± 0.004 (4.00 ± 0.10) or 0.314 ± 0.004 (8.00 ± 0.10)	1.181 (30.0)	0.256 (6.50)	0.484 (12.30)	See note (1)
16 mm	0.476 (12.1)	0.059 (1.50)	0.561 (14.25)	0.295 ± 0.004 (7.50 ± 0.10)	0.157 ± 0.004 (4.00 ± 0.10) to 0.470 ± 0.004 (12.00 ± 0.10) in 0.157 (4.00) increments	1.181 (30.0)	0.341 (8.0)	0.641 (16.3)	See note (1)
24 mm	0.791 (20.1)	0.059 (1.50)	0.876 (22.25)	0.453 ± 0.004 (11.5 ± 0.10)	0.157 ± 0.004 (4.00 ± 0.10) to 0.787 ± 0.004 (20.00 ± 0.10) in 0.157 (4.00) increments	1.181 (30.0)	0.472 (12.0)	0.956 (24.3)	See note (1)

Note

(1) The cavity defined by A_0, B_0 and K_0 shall surround the component with sufficient clearance that:

a) The component does not protrude above the top surface of the carrier tape.

b) The component can be removed from the cavity in a vertical direction without mechanical restriction, after the cover tape has been removed.

c) Rotation of the component is limited to 20° maximum for 8 mm/12 mm tapes and 10° maximum for 16 mm/24 mm figure 4 and 5.

d) Lateral movement of the component is restricted to 0.5 mm maximum for 8 mm, 12 mm wide tape and to 1.0 mm maximum for 16 mm / 24 mm wide tape figure 3.

PAPER 8 mm CARRIER TAPE

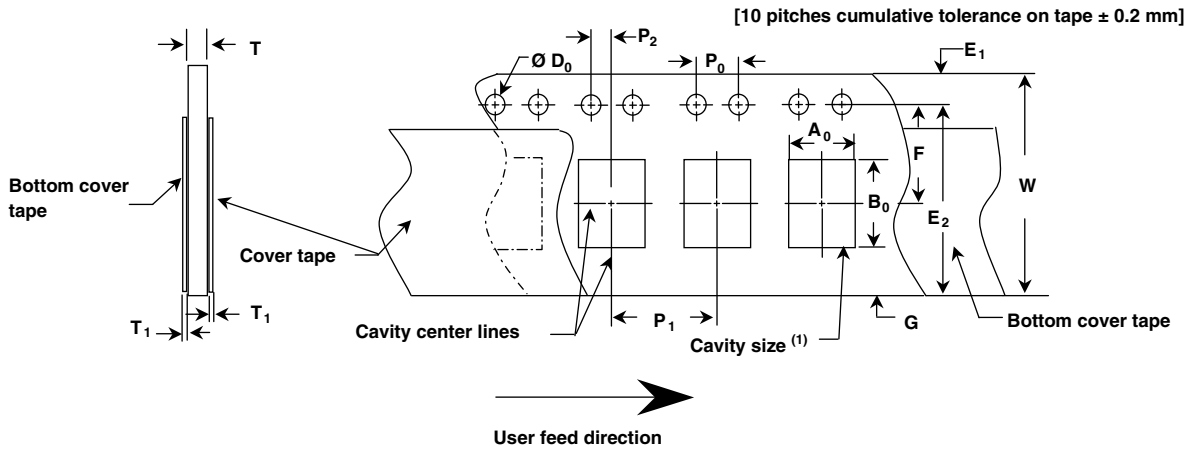


Figure 2

CONSTANT CARRIER TAPE METRIC DIMENSIONS in inches (millimeters)							
TAPE SIZE	D_0	E_1	P_0	P_2	T_1 MAX.	G MIN.	R REF.
8 mm	0.059 + 0.004/- 0.0 (1.50 + 0.10/- 0.0)	0.069 + 0.004 (1.75 ± 0.10)	0.175 + 0.004 (4.0 ± 0.10)	0.079 + 0.002 (2.0 ± 0.05)	0.024 (0.60)	0.029 (0.75)	0.010 (0.25)

VARIABLE CARRIER TAPE METRIC DIMENSIONS in inches (millimeters)						
TAPE SIZE	E_2 MIN.	F	P_1	W MAX.	A_0, B_0 AND K_0	T
8 mm 2 mm Pitch	0.246 (6.25)	0.138 ± 0.002 (3.50 ± 0.05)	0.79 ± 0.004 (2.00 ± 0.10)	0.327 (8.30)	See note 1	1.1 mm maximum for paper base tape
8 mm 4 mm Pitch	0.246 (6.25)	0.138 ± 0.002 (3.50 ± 0.05)	0.157 ± 0.004 (4.00 ± 0.10)	0.327 (8.30)	See note 1	1.1 mm maximum for paper base tape

Note

(1) The cavity defined by A_0, B_0 and K_0 shall surround the component with sufficient clearance that:

a) The component does not protrude above the top surface of the carrier tape.

b) The component can be removed from the cavity in a vertical direction without mechanical restriction, after the cover tape has been removed.

c) Rotation of the component is limited to 20° maximum for 8 mm and 12 mm tapes and 10° maximum for 16 mm figure 3 and 4.

d) Lateral movement of the component is restricted to 0.5 mm maximum for 8 mm and 12 mm wide tape and to 1.0 mm maximum for 16 mm wide tape figure 5.

MAXIMUM COMPONENT ROTATION FOR PUNCHED AND EMBOSSED CARRIER

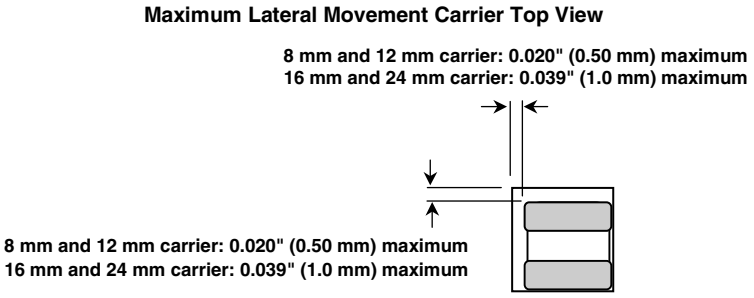


Figure 3

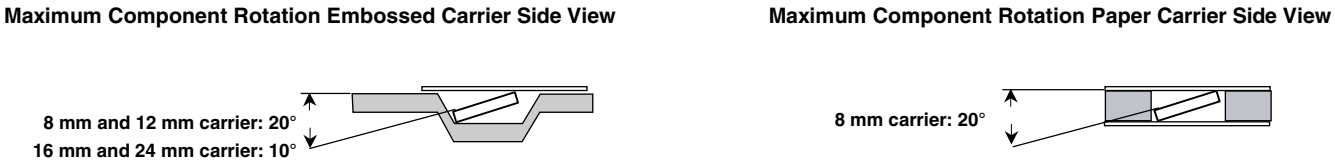


Figure 4

MAXIMUM LATERAL MOVEMENT FOR PUNCHED AND EMBOSSED CARRIER

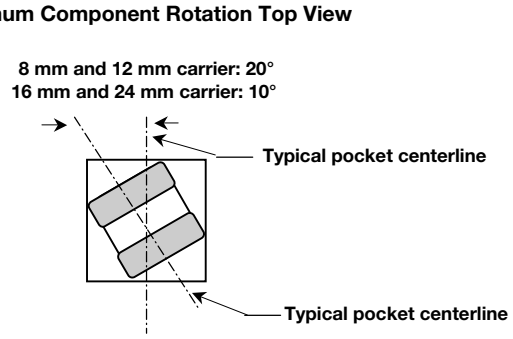


Figure 5

BENDING RADIUS FOR PUNCHED EMBOSSED CARRIER

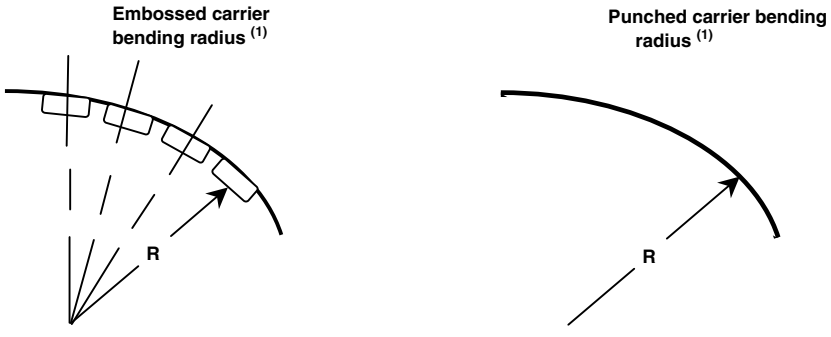


Figure 6

Note

(1) The tape with or without components shall pass without damage round "R", see dimensions table