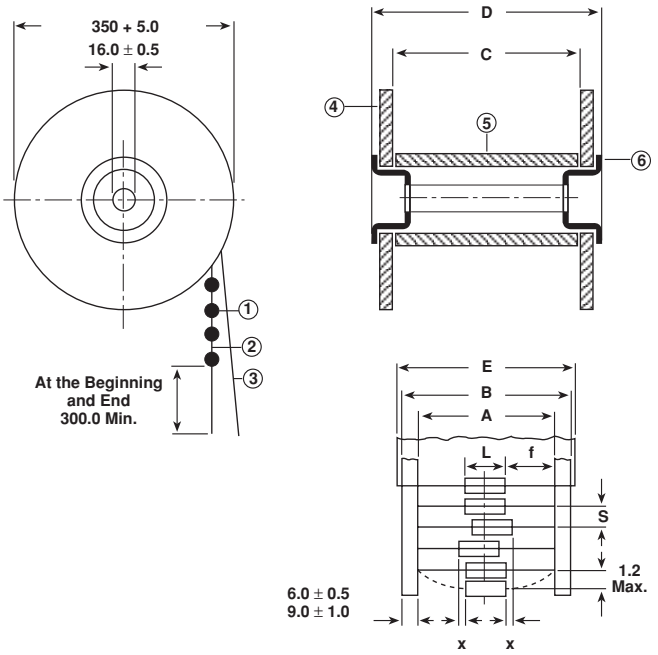
Axial Film Capacitors
Acc. to EN/IEC 60286-1

1. Capacitor
2. Tape
3. Kraft paper layers between components for protection
4. Flange (3.0mm thick)
5. Reel
6. Plastic hub

A. Inner spacing of tapes
B. Outer spacing of tapes
C. Inner reel width
D. Outer reel width
E. Width of kraft paper layers
F. Width of outer kraft paper layers
S. Component spacing
T. Permissible deviation over 10 spaces
L. Body length of capacitor
f. ≥ 19.0mm
x. ± 0.5 for $L_{max.} \leq 26$mm
x. ± 0.7 for $L_{max.} > 26$mm

Dimensions in millimeters



NOTE: The capacitors can also be supplied in cardboard boxes (AMMO-Pack).

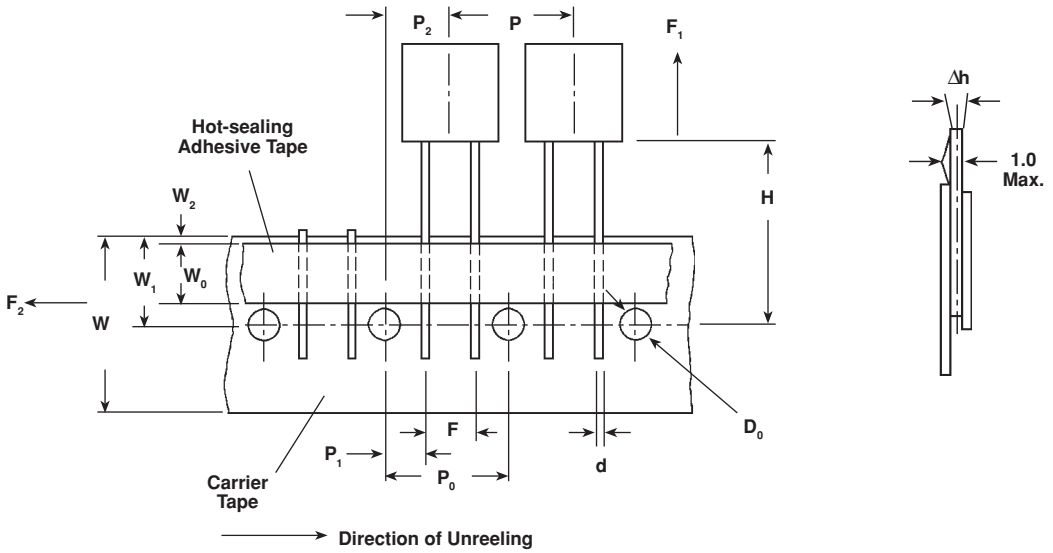
WIDTH OF ADHESIVE TAPE:
6.0 ± 0.5mm for Class I, II and III (S = 10.0 ± 0.5)
9.0 ± 1.0mm for Class III (S = 15.0 ± 0.5) and IV

MKT 1813, MKP 1839, MKP 1845, MKC 1860

CAP. - DIM D	$L_{max.}$**	INPUT CLASS	A mm	S mm	T mm	B mm	C mm	$D_{max.}$ mm	E mm	F mm	PIECES PER BOX REEL/AMMO
≤ 5.0	11.5	I	52 + 2 - 1	5 ± 0.5	± 2	65 ± 2	70^{-1}	80	68^{-1}	70^{-1}	3000*
> 5.0 ≤ 7.0	22.0	II	63 ± 2	10 ± 0.5	± 2	75 ± 2	85^{-1}	95	83^{-1}	85^{-1}	1500*
> 7.0 ≤ 9.5											1000*
> 5.0 ≤ 7.0	31.5	III	73 ± 2	10 ± 0.5	± 2	85 ± 2	100^{-1}	110	98^{-1}	100^{-1}	1500*
> 7.0 ≤ 9.5											1000*
> 9.5 ≤ 13.5	31.5	III	73 ± 2	15 ± 0.75	± 3	91 ± 2	100^{-1}	110	98^{-1}	100^{-1}	500*
> 13.5 ≤ 16.5	31.5	IV	73 ± 2	20 ± 1	± 4	91 ± 2	100^{-1}	110	98^{-1}	100^{-1}	300*
> 16.5 ≤ 18.0											200*

*Packing units for Ammo-packaging on request.
**Taping for $L_{max.}$ = 41.5mm upon request.

Radial Plastic Film Capacitors
Acc. to EN/IEC 60286-2



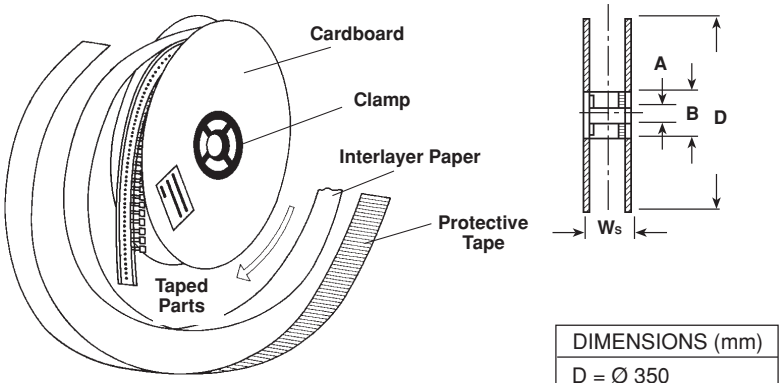
ITEM	SYMBOL	DIMENSIONS IN MILLIMETERS				
		PCM 5	PCM 7.5[3]	PCM 10[3]	PCM 15[3]	TOL.
Carrier Tape Width	W	18.0	18.0	18.0	18.0	± 0.5
Hold-down Tape Width	W_0	6	6	10	12.0	Min.
Pitch of Component	P	12.7	12.7	25.4	25.4	± 1.0
Hole Center to Component Center	P_2	6.35	6.35	12.7	12.7	± 1.3
Feed Hole Center to Lead	P_1	3.85	2.6	7.7	5.2	± 0.7
Height of Component from	H[1]	16.5	16.5	16.5	16.5	± 0.3
Tape Center		18.5	18.5	18.5	18.5	± 0.5
Hold-down Tape Position	W_2	0.3 to 3.0	0.3 to 3.0	0.3 to 3.0	0.3 to 2.0	—
Hole Position	W_1	9.0	9.0	9.0	9.0	± 0.5
Feed Hole Pitch	P_0[2]	12.7	12.7	12.7	12.7	± 0.2
Feed Hole Diameter	D_0	4.0	4.0	4.0	4	± 0.2
Lead Wire Diameter	d	0.5 - 0.6	0.5 - 0.7	0.6 - 0.8	0.8	± 0.05
Component Alignment	Δh	± 2.0	± 2.0	± 2.0	± 2	Max.
Lead Spacing[4]	F	5.0	7.5	10.0	15	+ 0.6 - 0.1
Extraction Force of Components	F_1	5	5	5	5	Min. [N]
Break Force of the Tape	F_2	15	15	15	15	Min. [N]

[1] Depending on type of automatic insertion machine.
[2] Cumulative pitch error over 10 holes = 9 spaces 114.3mm + 0.4mm - 0.6mm.
[3] Unless specified otherwise all components with PCM 7.5mm will be taped between the holes. Components with PCM 10mm and PCM 15mm will be taped above the holes.
[4] Measured at the upper end of the carrier tape.

LETTER CODES FOR TAPING OF RADIAL LEADED CAPACITORS (PCM 5 - 15mm)

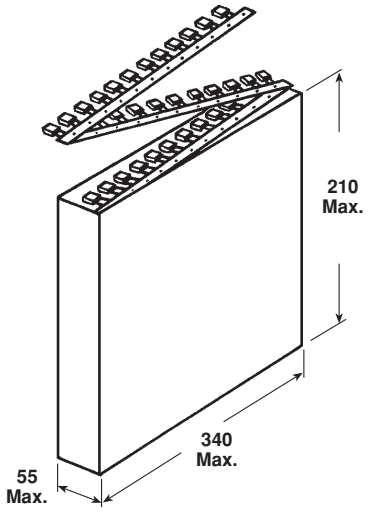
LETTER CODE	TYPE OF PACKAGING	HEIGHT (H) [mm]
D	AMMO	16.5
G	AMMO	18.5
F	REEL	16.5
W	REEL	18.5

REEL FOR RADIALLY TAPED CAPACITORS (Box size 50 x 370 x 370mm)



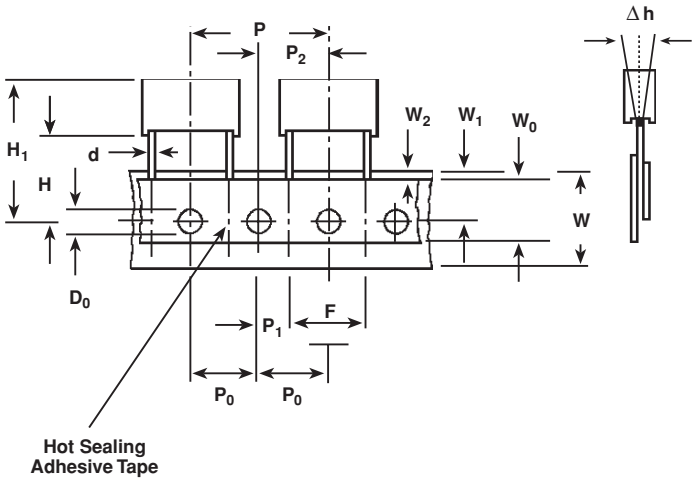
DIMENSIONS (mm)
D = Ø 350
A = Ø 30
B = Ø 85
W_S = 52 Max.

CARDBOARD BOX FOR RADIALLY TAPED CAPACITORS (AMMO PACKING)

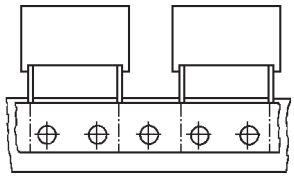


Radial Plastic Film Capacitors (Robotic Insertion)

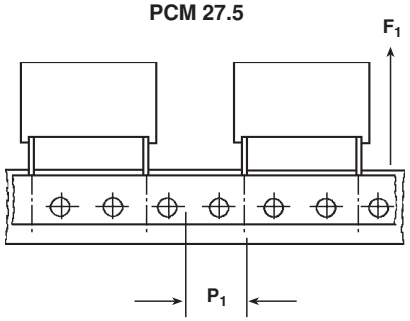
PCM 15



PCM 22.5



PCM 27.5



ITEM	DIMENSIONS in millimeters				
	SYMBOL	PCM 15.0	PCM 22.5	PCM 27.5	TOLERANCE
Carrier tape width	W	18.0	18.0	18.0	± 0.5
Hold-down tape width	W_0	12	12.0	12.0	± 0.3
Pitch of component	P	25.4	38.1	50.8	± 1.0
Hole center to component center	P_2	12.7	19.05	25.4	± 1.3
Feed hole center to lead	P_1	5.2	7.8/5.3	11.65	± 0.7
Height of component from tape center	H	16.0 18.5	16.0 18.5	16.0 18.5	+ 1.5 - 0.5
Hold-down tape position	W_2	0.5	0.5	0.5	+ 0.5 - 0
Hole position	W_1	9.0	9.0	9.0	± 0.5
Feed hole pitch	P_0*	12.7	12.7	12.7	± 0.2
Feed hole diameter	D_0	4.0	4.0	4.0	± 0.3
Lead wire diameter	d	0.8	0.8 - 1.0	0.8 - 1.0	± 0.05
Component alignment	Δh	± 3.0	± 3.0	± 3.0	Max.
Lead spacing	F	15	22.5	27.5	+ 0.6 - 0.1
Component height	H_1	30	36	50	Max.
Extraction force for components	F_1	5	5	5	Min. [N]
Break force of the tape	F_2	15	15	15	Min. [N]

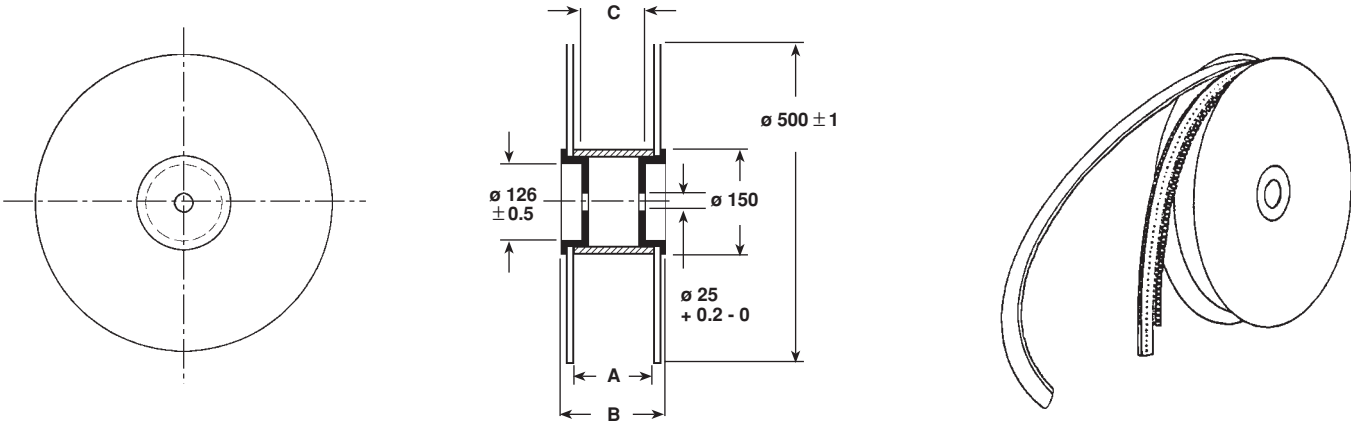
*Cumulative pitch error over 10 holes = 9 spaces 114.4 mm + 0.4 mm - 0.6 mm

LETTER CODES FOR TAPING OR RADIAL LEADED CAPACITORS (PCM 15 - 27.5MM)

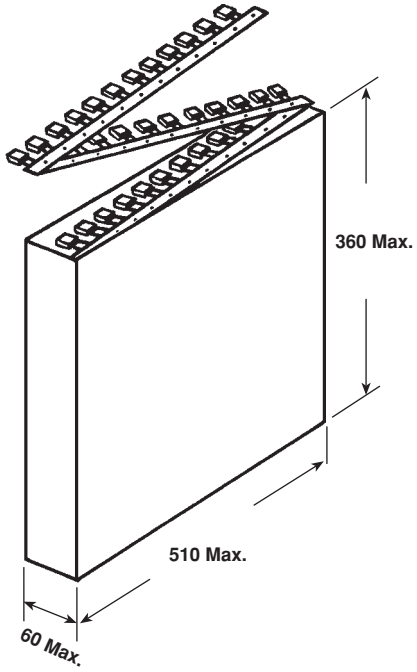
LETTER CODE	TYPE OF PACKAGING	HEIGHT H
G	AMMO	18.5
V	REEL	18.5

Reel Packaging

Unreeling Direction



AMMO-Packaging



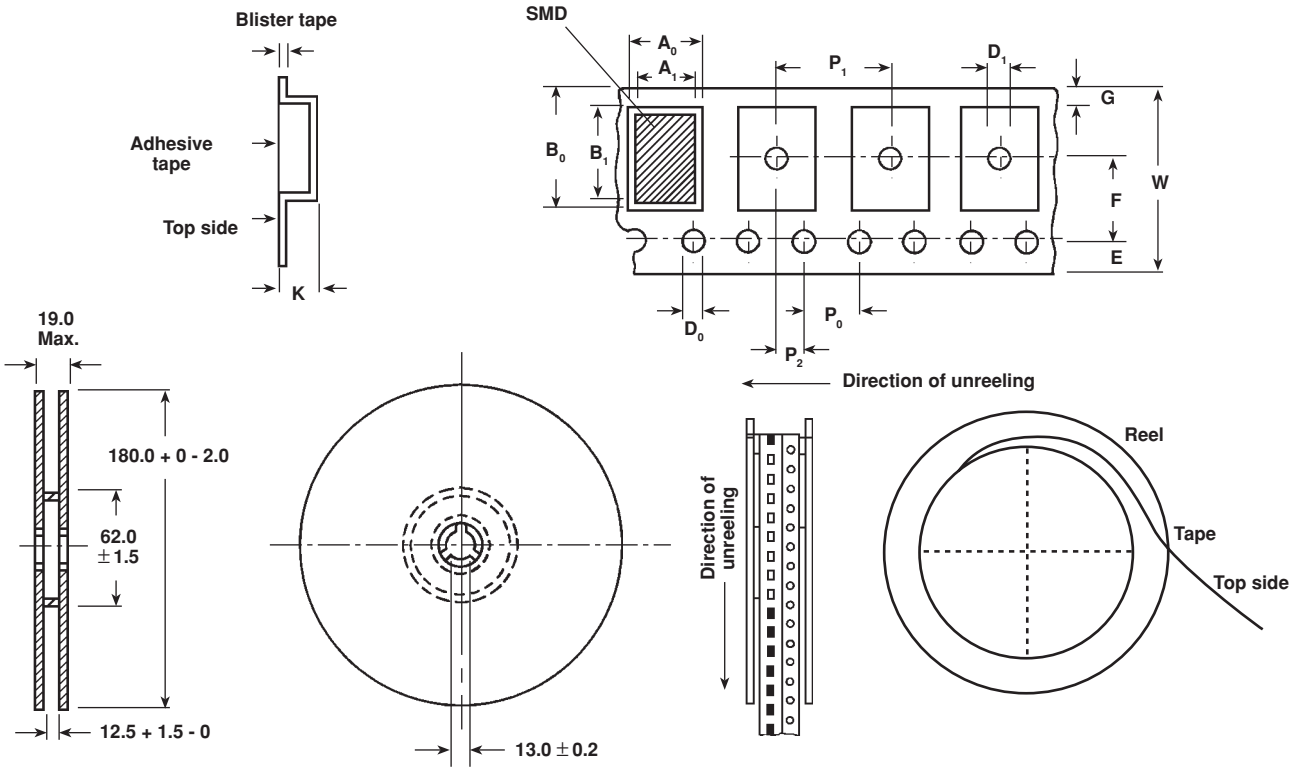
MAX. CAP. HEIGHT	**REEL-DIMENSIONS** in millimeters		
H	**A**	**B**	**C**
20	52	70	28
25	57	75	33
30	62	80	38
35	67	85	43
40	72	90	48

Radial Capacitors

PACKAGING QUANTITIES FOR RADIAL CAPACITORS IN PCM 5 TO 37.5											
PCM	W	x	H	x	L	BULK	AMMOPACK		REEL		CASE
							BIG BOX	SMALL BOX	350	500	
(mm)			(mm)			WIRE	G, D	G, D	W, F	V	
5	2.5	x	6.0	x	7.5	2000	—	1750	2500	—	72/2
5	2.5	x	6.5	x	7.2	2000	—	1750	2500	—	65/2
5	2.5	x	9.0	x	7.2	2000	—	1750	2500	—	93/2
5	3.0	x	6.5	x	7.5	2000	—	1500	2000	—	71/2
5	3.0	x	7.5	x	7.2	2000	—	1500	2000	—	69/2
5	3.5	x	8.5	x	7.2	1000	—	1250	1750	—	66/2
5	3.5	x	8.5	x	7.5	2000	—	1250	2000	—	73/2
5	4.5	x	6.0	x	7.2	2000	—	1000	1250	—	63/2
5	4.5	x	9.5	x	7.2	1000	—	1000	1250	—	67/2
5	4.5	x	9.5	x	7.5	2000	—	1000	1500	—	74/2
5	5.0	x	10.0	x	7.5	2000	—	1000	1250	—	75/2
5	5.0	x	10.5	x	7.2	1000	—	800	1000	—	68/2
5	5.5	x	7.0	x	7.2	1000	—	800	1000	—	64/2
5	5.5	x	7.0	x	7.5	1500	—	800	1000	—	85/2
5	5.5	x	11.5	x	7.2	500	—	800	1000	—	79/2
5	5.5	x	11.5	x	7.5	1500	—	800	1000	—	83/2
5	7.2	x	13.0	x	7.2	500	—	600	700	—	78/2
5	7.5	x	9.0	x	7.2	500	—	600	700	—	76/2
5	7.5	x	9.0	x	7.5	1500	—	600	700	—	84/2
5	9.0	x	10.0	x	7.2	500	—	500	600	—	77/2
5	9.0	x	11.0	x	7.5	1000	—	500	600	—	86/2
7.5	2.5	x	7.5	x	10.0	2500	—	1750	2500	—	62/2
7.5	3.0	x	8.5	x	10.0	2000	—	1500	2000	—	57/2
7.5	4.0	x	9.0	x	10.0	2000	—	1000	1500	—	58/2
7.5	4.5	x	8.0	x	10.5	2000	—	1000	1500	—	51/2
7.5	4.5	x	9.5	x	10.0	1500	—	1000	1250	—	59/2
7.5	5.0	x	10.5	x	10.3	1250	—	1000	1250	—	60/2
7.5	5.7	x	11.5	x	10.3	1000	—	800	1000	—	61/2
10	3.5	x	8.0	x	13.0	2000	—	750	1000	—	10/2
10	4.0	x	9.0	x	13.0	1500	—	700	750	—	32/2
10	4.5	x	9.5	x	13.0	1250	—	550	750	—	02/2
10	5.5	x	10.5	x	13.0	1000	—	450	500	—	03/2
10	6.5	x	11.5	x	13.0	750	—	375	500	—	04/2
10	10.5	x	17.5	x	13.0	300	600	—	300	—	34/2

PACKAGING QUANTITIES FOR RADIAL CAPACITORS IN PCM 5 TO 37.5											
PCM	W	x	H	x	L	BULK	AMMOPACK		REEL		CASE
							BIG BOX	SMALL BOX	350	500	
(mm)			(mm)			WIRE	G, D	G, D	W, F	V	
15	5.5	x	10.5	x	18.0	750	1200	—	500	1000	05/2
15	6.5	x	12.5	x	18.0	500	1000	—	450	1000	06/2
15	7.5	x	13.5	x	18.0	450	850	—	400	800	07/2
15	8.5	x	14.5	x	18.0	300	750	—	350	700	08/2
15	8.5	x	17.5	x	18.0	300	750	—	350	700	28/2
15	10.5	x	17.5	x	18.0	225	650	—	300	600	35/2
15	15.5	x	28.0	x	18.0	175	425	—	200	400	37/2
22.5	6.5	x	14.5	x	26.5	260	625	—	—	600	09/2
22.5	7.5	x	15.5	x	26.5	235	600	—	—	500	11/2
22.5	8.5	x	16.5	x	26.5	200	525	—	—	450	12/2
22.5	8.5	x	20.0	x	26.5	200	525	—	—	450	24/2
22.5	9.0	x	17.0	x	26.5	190	500	—	—	450	46/2
22.5	10.5	x	18.5	x	26.5	170	425	—	—	400	13/2
22.5	11.0	x	21.0	x	26.5	150	400	—	—	375	45/2
22.5	12.5	x	20.0	x	26.5	125	350	—	—	300	27/2
22.5	15.5	x	26.5	x	26.5	100	275	—	—	250	38/2
22.5	18.0	x	29.5	x	26.5	90	225	—	—	200	39/2
27.5	8.0	x	13.5	x	30.0	160	225	—	—	150	22/2
27.5	9.0	x	17.0	x	31.5	160	325	—	—	350	23/2
27.5	9.0	x	18.5	x	31.5	160	325	—	—	350	29/2
27.5	11.5	x	18.5	x	29.0	125	250	—	—	250	48/2
27.5	11.5	x	20.5	x	31.5	125	250	—	—	250	14/2
27.5	13.5	x	23.5	x	31.5	110	225	—	—	225	15/2
27.5	15.0	x	24.5	x	31.5	100	200	—	—	200	18/2
27.5	16.5	x	29.5	x	31.5	85	—	—	—	190	17/2
27.5	18.0	x	28.0	x	31.5	80	175	—	—	160	26/2
27.5	18.0	x	33.0	x	31.5	80	175	—	—	160	40/2
27.5	20.0	x	35.0	x	31.5	70	175	—	—	150	41/2
37.5	12.5	x	22.5	x	41.5	90	—	—	—	—	44/2
37.5	14.5	x	24.5	x	41.5	80	—	—	—	—	16/2
37.5	16.0	x	28.5	x	41.5	70	—	—	—	—	19/2
37.5	18.0	x	32.5	x	41.5	60	—	—	—	—	20/2
37.5	20.0	x	40.0	x	42.5	56	—	—	—	—	42/2
37.5	20.0	x	50.0	x	42.5	56	—	—	—	—	43/2
37.5	20.5	x	33.5	x	41.5	50	—	—	—	—	25/2
37.5	22.0	x	24.5	x	42.0	50	—	—	—	—	30/2

SMD Plastic Film Capacitors
Acc. to EN/IEC 60286-3



ITEM	SYMBOL	MKT 1824 DIMENSIONS (mm)
Carrier Tape Width	W	12.0 - 0.1 + 0.3
Tape Thickness	t	0.6 Maximum
Feed Hole Spacing	P_0	4.0 + 0.1
Feed Hole Position	E	1.75 ± 0.1
Feed Hole Diameter	D_0	1.5 + 0.1
Component Position	F	5.5 ± 0.05
Hole Center to Component Center	P_2	2.0 ± 0.05
Blister Hole Diameter	D_1	≥ 1.5
Pitch of Component	P_1	8.0 ± 0.1 (A_1 = 4.9)
Pitch of Component	P_1	12.0 ± 0.1 (A_1 = 6.8)
Blister Width	A_0	Depending on size of component
Blister Length	B_0	Depending on size of component
Component Width	A_1	Refer to individual data sheet
Component Length	B_1	Refer to individual data sheet
Total Thickness	K	4.5 Maximum
Distance (margin to component window)	G	0.75 Minimum
Tolerance Over 10 Pitches	—	± 0.2
Peel off Force of Adhesive Tape		0.1 - 1.3 N (speed of tape transfer 300 mm/min)

CAPACITOR WIDTH W	PIECES PER REEL (Reel Dim. 180 mm)	PIECES PER REEL* (Reel Dim. 330 mm)
4.9 mm	600	2500
6.8 mm	300	1500

*On request.