

# **Ceramic transient voltage suppressors, CTVS**

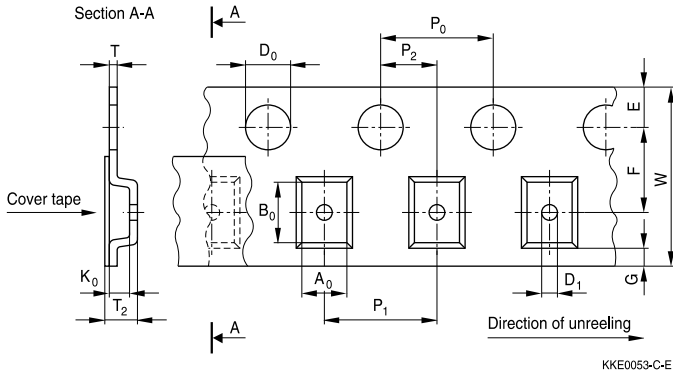
Taping and packing

Date: July 2014

## Taping and packing

### 1 Taping and packing for SMD components

#### 1.1 Blister tape (taping to IEC 60286-3)



#### Dimensions in mm

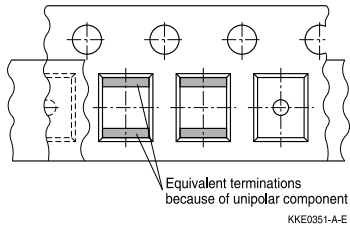
	8-mm tape					12-mm tape		Tolerance
	Case size (inch/mm)					Case size (inch/mm)		
		0508/ 1220	0612/ 1632	1012/ 2532				
	0603/ 1608	0506/ 1216	0805/ 2012	1206/ 3216	1210/ 3225	1812/ 4532	2220/ 5750	
A <sub>0</sub>	0.9 ±0.10	1.50	1.60	1.90	2.80	3.50	5.10	±0.20
B <sub>0</sub>	1.75 ±0.10	1.80	2.40	3.50	3.50	4.80	6.00	±0.20
K <sub>0</sub>	1.0	0.80	1.80			3.40		max.
T	0.30					0.30		max.
T <sub>2</sub>	1.3	1.20	2.50			3.90		max.
D <sub>0</sub>	1.50					1.50		+0.10/-0
D <sub>1</sub>	1.00					1.50		min.
P <sub>0</sub>	4.00					4.00		±0.10 <sup>1)</sup>
P <sub>2</sub>	2.00					2.00		±0.05
P <sub>1</sub>	4.00					8.00		±0.10
W	8.00					12.00		±0.30
E	1.75					1.75		±0.10
F	3.50					5.50		±0.05
G	0.75					0.75		min.

1) ≤±0.2 mm over 10 sprocket holes.

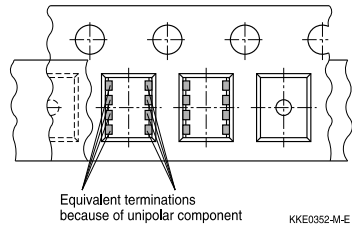
## Taping and packing

### Part orientation in tape pocket for blister tape

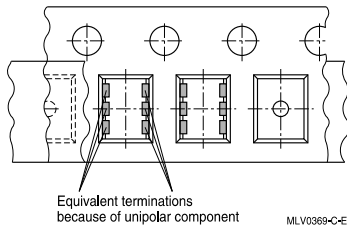
For discrete chip, EIA case sizes 0603, 0805, 1206, 1210, 1812 and 2220



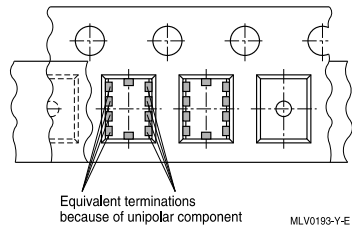
For array, EIA case size 0612



For arrays, EIA case sizes 0506 and 1012



For filter array, EIA case size 0508

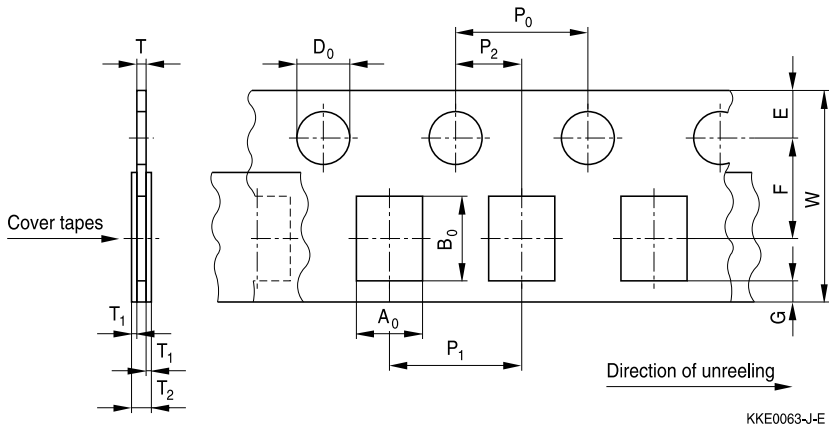


### Additional taping information

Reel material	Polystyrol (PS)
Tape material	Polystyrol (PS) or Polycarbonat (PC) or PVC
Tape break force	min. 10 N
Top cover tape strength	min. 10 N
Top cover tape peel force	0.2 to 0.6 N for 8-mm tape and 0.2 to 0.8 N for 12-mm tape at a peel speed of 300 mm/min
Tape peel angle	Angle between top cover tape and the direction of feed during peel off: 165° to 180°
Cavity play	Each part rests in the cavity so that the angle between the part and cavity center line is no more than 20°

## Taping and packing

### 1.2 Cardboard tape (taping to IEC 60286-3)



#### Dimensions in mm

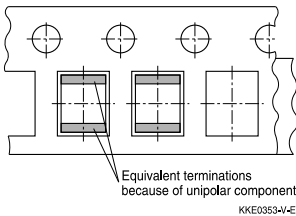
	8-mm tape						Tolerance
	Case size (inch/mm)					Case size (inch/mm)	
	0201/0603	0402/1005	0405/1012	0603/1608	1003/2508	0508/1220	
$A_0$	$0.38 \pm 0.05$	0.60	1.05	0.95	1.00	1.60	$\pm 0.20$
$B_0$	$0.68 \pm 0.05$	1.15	1.60	1.80	2.85	2.40	$\pm 0.20$
$T$	$0.35 \pm 0.02$	0.60	0.75	0.95	1.00	0.95	max.
$T_2$	0.4 min.	0.70	0.90	1.10	1.10	1.12	max.
$D_0$	$1.50 \pm 0.1$	1.50				1.50	$+0.10/-0$
$P_0$	4.00						$\pm 0.10^{2)}$
$P_2$	2.00						$\pm 0.05$
$P_1$	$2.00 \pm 0.05$	2.00	4.00	4.00	4.00	4.00	$\pm 0.10$
$W$	8.00						$\pm 0.30$
$E$	1.75						$\pm 0.10$
$F$	3.50						$\pm 0.05$
$G$	1.35	0.75					min.

2)  $\leq 0.2$  mm over 10 sprocket holes.

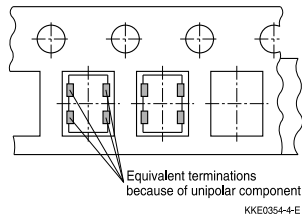
## Taping and packing

### Part orientation in tape pocket for cardboard tape

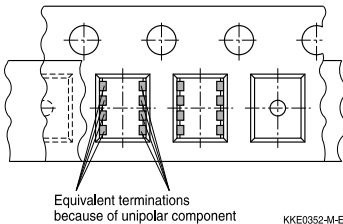
For discrete chip, EIA case sizes 0201, 0402, 0603 and 1003



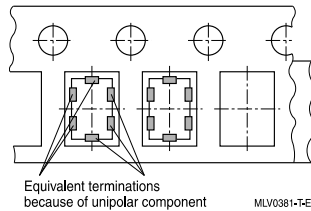
For array, EIA case size 0405



For array, EIA case size 0508



For filter array, EIA case size 0405

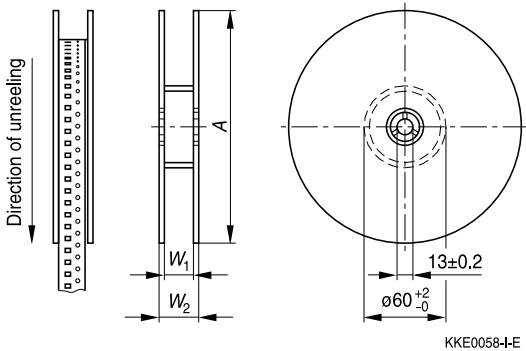


### Additional taping information

Reel material	Polystyrol (PS)
Tape material	Cardboard
Tape break force	min. 10 N
Top cover tape strength	min. 10 N
Top cover tape peel force	0.1 to 0.65 N at a peel speed of 300 mm/min
Tape peel angle	Angle between top cover tape and the direction of feed during peel off: 165° to 180°
Cavity play	Each part rests in the cavity so that the angle between the part and cavity center line is no more than 20°

## Taping and packing

### 1.3 Reel packing

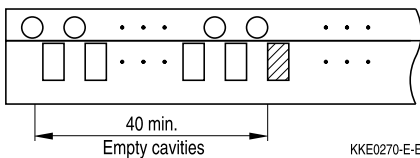


#### Dimensions in mm

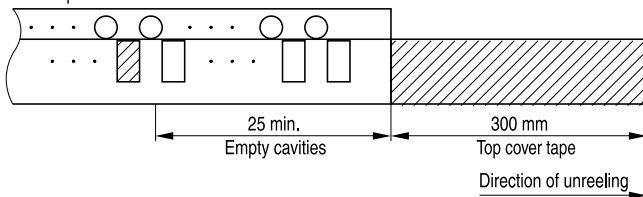
	8-mm tape		12-mm tape	
	180-mm reel	330-mm reel	180-mm reel	330-mm reel
A	180 +0/-3	330 +0/-2.0	180 +0/-3	330 +0/-2.0
$W_1$	8.4 +1.5/-0	8.4 +1.5/-0	12.4 +1.5/-0	12.4 +1.5/-0
$W_2$	14.4 max.	14.4 max.	18.4 max.	18.4 max.

#### Leader, trailer

Tape end (Trailer)

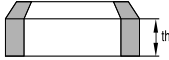
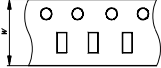




Leader part



## Taping and packing

### 1.4 Packing units for discrete chip and array chip

Case size inch/mm	 Chip thickness th	 Cardboard tape		  Ø 180-mm reel    Ø 330-mm reel	
		W	W	pcs.	pcs.
0201/0603	0.33 mm	8 mm	–	15000	–
0402/1005	0.6 mm	8 mm	–	10000	50000
0405/1012	0.7 mm	8 mm	–	5000	–
0506/1216	0.5 mm	–	8 mm	4000	–
0508/1220	0.9 mm	8 mm	8 mm	4000	–
0603/1608	0.9 mm	8 mm	8 mm	4000	16000
0612/1632	0.7 mm	–	8 mm	3000	–
0805/2012	0.7 mm	–	8 mm	3000	–
	0.9 mm	–	8 mm	3000	12000
	1.3 mm	–	8 mm	3000	12000
1003/2508	0.9 mm	8 mm	–	4000	–
1012/2532	1.0 mm	–	8 mm	2000	–
1206/3216	0.9 mm	–	8 mm	3000	–
	1.3 mm	–	8 mm	3000	12000
	1.4 mm	–	8 mm	2000	8000
	1.6 mm	–	8 mm	2000	8000
1210/3225	0.9 mm	–	8 mm	3000	–
	1.3 mm	–	8 mm	3000	12000
	1.4 mm	–	8 mm	2000	8000
	1.6 mm	–	8 mm	2000	8000
1812/4532	1.3 mm	–	12 mm	1500	–
	1.4 mm	–	12 mm	1000	–
	1.6 mm	–	12 mm	1000	4000
	2.0 mm	–	12 mm	–	3000
	2.3 mm	–	12 mm	–	3000
2220/5750	1.3 mm	–	12 mm	1500	–
	1.4 mm	–	12 mm	1000	–
	1.6 mm	–	12 mm	1000	–
	2.0 mm	–	12 mm	–	3000
	2.3 mm	–	12 mm	–	3000
	2.7 mm	–	12 mm	600	–
	3.0 mm	–	12 mm	600	–

## Taping and packing

### 2 Delivery mode for leaded SHCV varistors

Standard delivery mode for SHCV types is bulk. Alternative taping modes (AMMO pack or taped on reel) are available upon request.

Packing units for:

Type	Pieces
SR6	2000
SR1 / SR2	1000

For types not listed in this data book please contact EPCOS.