

**TAPE  
AND REEL**



# **TAPE AND REEL SERIES**

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## **INTRODUCTION**

Maida zinc-oxide varistors are also available in ammo pack or Tape and Reel packaging formats. Generally, through-hole varistors with a lead spacing of 0.394 inches and a nominal disk diameter of 20mm can be taped. All components of the SMT Series are available in Tape and Reel only. Exceptions can occur, so please contact our engineering department to discuss your specific requirements.

Maida's taping specifications comply with the requirements of EIA standard RS-468. Configurations are available to meet the specific requirements of the various manufacturers of automatic insertion equipment.

### **How to Order Taped Components**

To order taped components, select the required code from the taping codes tables and apply the code to the end of the Maida style number. For example, D6544ZOV151RA20T19 designates a Tape and Reel format of 1 inch pitch centers with 0.300 inch lead spacing using #20 gauge lead wire.

Detailed drawings for all taping codes are available upon request.

**For more information call us at (757) 723-0785.**

Code	Packing Type	Lead Spacing	Lead Type	Wire Gauge	Taping Pitch
T1	Tape and Reel	0.200	Straight	22 Awg	0.5
T11	Ammo Pack	0.200	Straight	22 Awg	0.5
T12	Ammo Pack	0.300	Straight	22 Awg	0.5
T13	Ammo Pack	0.300	Inside Kink	22 Awg	0.5
T14	Tape and Reel	0.200	Inside Kink	22 Awg	0.5
T16	Tape and Reel	0.200	Offset Kink	22 Awg	0.5
T17	Tape and Reel	0.200	Outside Kink	22 Awg	0.5
T18	Tape and Reel	0.250	Outside Kink	22 Awg	0.5
T19	Tape and Reel	0.300	Straight	20 Awg	1
T1A	Tape and Reel	0.300	Outside Kink	20 Awg	0.5
T1B	Tape and Reel	0.250	Straight	22 Awg	0.5
T1C	Tape and Reel	0.200	Outside Kink	22 Awg	1
T1D	Ammo Pack	0.200	Inside Kink	22 Awg	0.5
T1E	Tape and Reel	0.200	Inside Kink	22 Awg	1
T1F	Tape and Reel	0.300	Inside Kink	22 Awg	0.5
T1G	Tape and Reel	0.300	Straight	20 Awg	0.5
T1H	Tape and Reel	0.394	Straight	20 Awg	1
T1I	Tape and Reel	0.375	Straight	20 Awg	1
T1J	Ammo Pack	0.300	Outside Kink	22 Awg	0.5
T1K	Tape and Reel	0.250	Inside Kink	22 Awg	0.5
T1L	Tape and Reel	0.200	Straight	22 Awg	1
T1M	Tape and Reel	0.300	Outside Kink	22 Awg	1
T1N	Tape and Reel	0.300	Outside Kink	20 Awg	1
T1P	Tape and Reel	0.335	Outside Kink	20 Awg	0.5
T1Q	Tape and Reel	0.375	Inside Kink	20 Awg	0.5
T1R	Tape and Reel	0.300	Double Kink	22 Awg	0.5
T1T	Tape and Reel	0.375	Outside Kink	20 Awg	1
T1U	Ammo Pack	0.300	Outside Kink	20 Awg	1
T1V	Ammo Pack	0.394	Outside Kink	22 Awg	1
T1W	Ammo Pack	0.200	In-Line	22 Awg	0.5
T1X	Tape and Reel	0.394	Outside Kink	20 Awg	1
T1Y	Tape and Reel	0.300	Inside Kink	20 Awg	1
T1Z	Tape and Reel	0.250	In-Line	22 Awg	0.5
T3	Ammo Pack	0.200	Outside Kink	22 Awg	0.5
T31	Tape and Reel	0.394	Outside Kink	18 Awg	1
T32	Tape and Reel	0.200	In-Line	22 Awg	0.5
T33	Tape and Reel	0.250	Straight	20 Awg	1
T34	Tape and Reel	0.100	Straight	22 Awg	0.5

*Detailed drawings for all taping codes are available from our engineering department.*

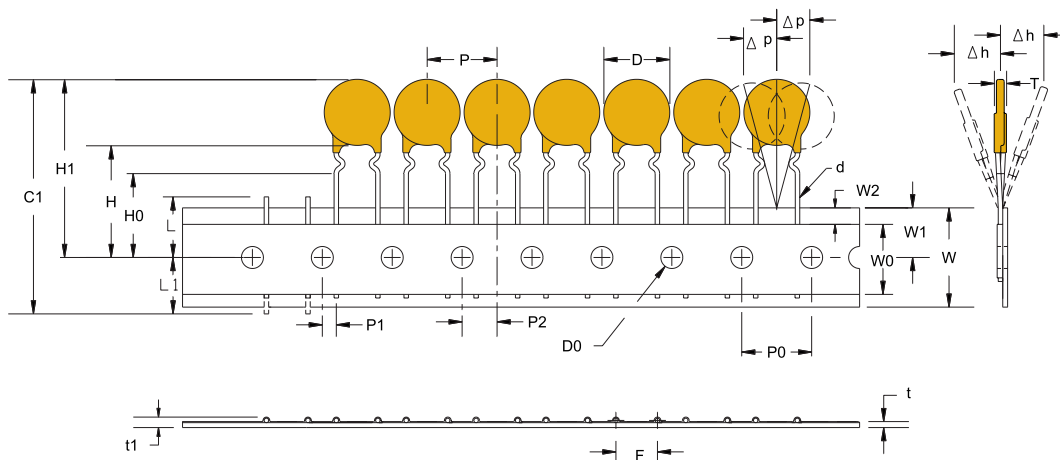
# TAPE AND REEL

## TAPING CODES

Code	Packing Type	Lead Spacing	Lead Type	Wire Gauge	Taping Pitch
T35	Tape and Reel	0.200	Inside Kink	20 Awg	0.5
T36	Ammo Pack	0.300	Straight	20 Awg	1
T37	Tape and Reel	0.375	Straight	22 Awg	0.5
T38	Tape and Reel	0.300	Straight	22 Awg	0.5
T39	Tape and Reel	0.300	In-Line	22 Awg	0.5
T4	Tape and Reel	0.300	In-Line	20 Awg	1
T41	Tape and Reel	0.200	Outside Kink	20 Awg	1
T42	Tape and Reel	0.200	Straight	20 Awg	0.5
T43	Ammo Pack	0.300	In-Line	20 Awg	1
T44	Ammo Pack	0.394	Straight	20 Awg	1
T45	Ammo Pack	0.394	Outside Kink	20 Awg	1
T46	Tape and Reel	0.375	Straight	20 Awg	1
T47	Ammo Pack	0.375	Inside Kink	20 Awg	1
T48	Tape and Reel	0.200	Outside Kink	20 Awg	0.5
T5	Ammo Pack	0.250	Outside Kink	22 Awg	0.5
T51	Tape and Reel	0.200	In-Line	20 Awg	0.5
T52	Ammo Pack	0.250	Inside Kink	22 Awg	0.5
T54	Tape and Reel	0.250	Outside Kink	20 Awg	1
T55	Tape and Reel	0.200	Double Kink	22 Awg	0.5
T56	Tape and Reel	0.300	Straight	22 Awg	1
T57	Ammo Pack	0.300	Inside Kink	20 Awg	1
T58	Tape and Reel	0.300	Inside Kink	22 Awg	1
T59	Ammo Pack	0.200	Inside Kink	20 Awg	0.5
T6	SMT Tape and Reel	N/A	N/A	N/A	8mm
T61	Ammo Pack	0.200	Outside Kink	20 Awg	1
T62	Ammo Pack	0.200	Inside Kink	22 Awg	1
T63	Tape and Reel	0.200	Straight	20 Awg	1
T64	Ammo Pack	0.200	Inside Kink	21 Awg	0.5
T65	Tape and Reel	0.394	Straight	18 Awg	1
T66	Tape and Reel	0.375	Inside Kink	20 Awg	1
T67	Tape and Reel	0.200	Inside Kink	24 Awg	0.5
T68	Ammo Pack	0.300	Straight	22 Awg	1
T69	Tape and Reel	0.200	Bump	22 Awg	0.5
T70	Tape and Reel	0.200	In-Line	22 Awg	1
T72	Tape and Reel	0.394	Inside Kink	20 Awg	1
T73	Tape and Reel	0.300	Outside Kink	22 Awg	1
T74	Tape and Reel	0.250	Straight	20 Awg	0.5

*Detailed drawings for all taping codes are available from our engineering department.*

ITEM	DESCRIPTION	DIMENSIONS & TOLERANCES						
		INCHES	MM					
d	Wire diameter	0.025 OR 0.032	0.64 OR 0.81					
P	Taping pitch of component	0.500	12.70					
P0	Sprocket hole pitch	0.500 ± 0.012	12.7 ± 0.30					
P1	Sprocket hole center to lead center	0.150 ± 0.028	3.80 ± 0.70					
P2	Sprocket hole center to disk center	0.250 ± 0.028	6.35 ± 0.70					
F	Lead center to lead center	0.200 + 0.024 - 0.016	5.08 + 0.60 - 0.40					
Dh	Front to rear disk alignment	0 ± 0.039	0 ± 1					
DP	Plane deviation	0 ± 0.051	0 ± 1.30					
W	Carrier tape width	0.709 + 0.039 - 0.020	18 + 1.0 - 0.50					
W1	Sprocket hole position on carrier	0.354 + 0.030 - 0.020	9 + 0.75 - 0.50					
W0	Adhesive tape width	0.472 TYP.	12 TYP.					
H	Sprocket hole center to seating plane (Straight lead)	0.728 ± 0.098	18.5 ± 2.5					
H0	Sprocket hole center to seating plane (Formed lead)	0.630 ± 0.020	16 ± 0.50					
H1	Sprocket hole center to top of disk	DISK DIAMETER	COATED DISK DIAMETER					
			INCHES	MM				
		10mm	0.472 MAX.	12.0 MAX.			1.268 MAX.	32.2 MAX.
		11 - 14mm	0.531 - 0.650	13.5 - 16.5			1.425 MAX.	36.2 MAX.
	16 - 20mm	0.71 MAX.	23.0 MAX.	1.770 MAX.	45.0 MAX.			
L	Maximum lead cut out length		0.443 MAX.	11.0 MAX.				
L1	Maximum wire protrusion		0.394 MAX.	10.0 MAX.				
D0	Sprocket hole diameter		0.157 ± 0.008	4.0 ± 0.2				
t	Total tape thickness		0.035 MAX.	0.90 MAX.				
t1	Overall tape and lead thickness		0.059 MAX.	1.50 MAX.				
C1	Overall component and tape width	DISK DIAMETER	COATED DISK DIAMETER					
			INCHES	MM				
		10mm	0.472 MAX.	12.0 MAX.			1.700 MAX.	43.2 MAX.
		11 - 14mm	0.531 - 0.650	13.5 - 16.5			1.875 MAX.	47.6 MAX.
	16 - 20mm	0.71 MAX.	23.0 MAX.	2.210 MAX.	56.1 MAX.			
W2	Adhesive tape position		0.118 MAX.	3.0 MAX.				

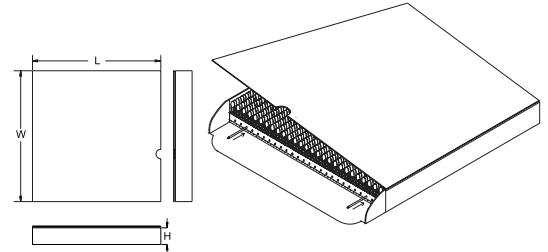


# TAPE AND REEL

## PACKAGING

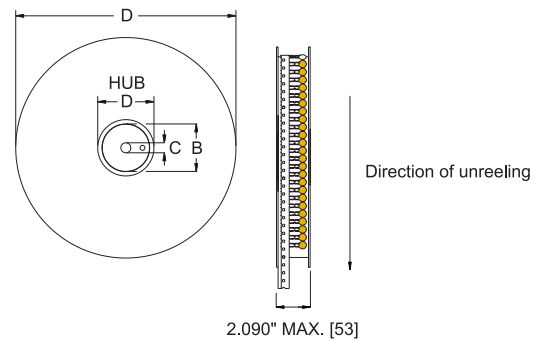
### Ammo Pack Dimensions

BOX	H		L		W		DIAMETER	PITCH
	IN	MM	IN	MM	IN	MM	MM	IN
1	2.13	54	13.250	336.6	13.250	336.6	18 - 20	1.000
2	1.88	47.6	13.250	336.6	13.250	336.6	10 - 16	1.000
3	1.63	41.3	13.250	336.6	13.250	336.6	5 - 10	0.500



### Reel Dimensions

REEL	FLANGE		HUB					
	D		D		B ± 0.080"		C ± 0.039" (see note 4)	
	IN	MM	IN	MM	IN	MM	IN	MM
1	17.0	432	4.50	114	2.99	76	0.630	16
2	14.0	356	3.040	77.2	2.99	76	0.630	16

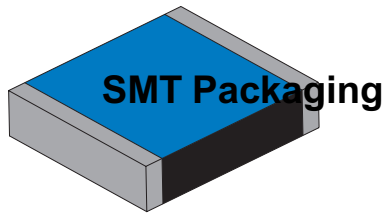


### Quantities per package

DIAMETER	PITCH	AMMO PACK				REEL			
			QTY		QTY		QTY		QTY
18 - 20	1.000	≤150	1000	≤180	900	≤150	500	≤180	400
10 - 16	1.000	≤150	1000	≤280	900	≤150	1000	≤280	500
5 - 10	0.500	≤150	2000	≥270	1500	≤250	1500	≥270	1000

Notes:

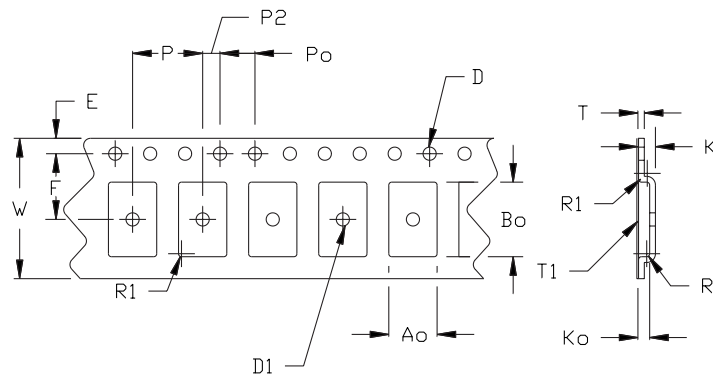
- Standard RS - 468 configurations are available to meet the specific requirements of various manufacturers of automatic insertion equipment.
- Body diameters to 0.906" [23.0 mm] available on 1.000" [25.4 mm] pitch.
- Wire diameter of 0.040" [1.02 mm] is also available.
- Center hole on reel available at 1.18" [30 mm].



### Tape Dimensions SMT Tape Dimensions

Item	Description	Dimensions	
		IN	mm
A0	Cavity Width	$0.217 \pm 0.004$	$5.5 \pm 0.1$
B0	Cavity Length	$0.335 \pm 0.004$	$8.5 \pm 0.1$
D	Sprocket Hole Diameter	$0.059 + 0.004 - 0$	$1.5 + 0.1 - 0$
D1	Ejection Hole Diameter	0.059 MIN.	1.5 MIN.
E	Sprocket Hole from Edge	$0.069 \pm 0.004$	$1.75 \pm 0.1$
F	Sprocket Hole to Ejection Hole	$0.295 \pm 0.004$	$7.5 \pm 0.1$
K	Overall Thickness	0.118 MAX.	3.0 MAX.
K0	Cavity Depth	0.079 MIN.	2.0 MIN.
P	Pitch of Component	$0.315 \pm 0.004$	$8.0 \pm 0.1$
P0	Sprocket Hole Pitch	$0.157 \pm 0.004$	$4.0 \pm 0.1$
P2	Hole Center to Component Center	$0.079 \pm 0.006$	$2.0 \pm 0.15$
R1	Tape Cavity Radii	0.020 MAX.	0.5 MAX.
T	Carrier Tape Thickness	0.039 MAX.	1.0 MAX.
T1	Cover Tape Thickness	0.004 MAX.	0.1 MAX.
W	Carrier Tape Width	$0.630 \pm 0.012$	$16.0 \pm 0.3$

### SMT Tape Layout



### Single-Pulse Peak Current Ratings Per Safety Agency Certification Testing

CSA C22.2
VAC Range
120-150
180-300
320-580
620-1000

Disk Series Designation							
D58	D73	D61	D71	D62	D69	D63	D65
na	1200	2000	2500	3500	4500	5500	6500
na	1200	2000	na	3500	4500	5500	6500
na	na	2000	na	3500	4500	5500	6500
na	na	na	na	na	4500	5500	6500

Square Series Designation			
R69	R65	R66	S66
6500	12000	18000	22000
6500	10000	15000	18000
6500	10000	13000	15000
6500	10000	13000	15000

UL497B
VAC Range
11-40
50-60
75-120
130-150
180-420
460-550

Disk Series Designation							
D58	D73	D61	D71	D62	D69	D63	D65
100	250	500	na	na	1000	na	2000
400	250	2000	500	700	1000	na	6500
400	1200	2000	2500	3500	4500	na	6500
400	1200	2000	2500	3500	4500	5500	6500
400	1200	2000	na	3500	4500	5500	6500
na	na	2000	na	3500	4500	5500	6500

Square Series Designation			
R69	R65	R66	S66
na	na	na	na
na	na	na	na
na	na	na	na
na	na	na	na
na	na	na	na
na	na	na	na

UL1414
VAC Range
120-150
180-300
320-680
750-1000

Disk Series Designation							
D58	D73	D61	D71	D62	D69	D63	D65
400	1200	2000	2500	3500	4500	5500	6500
400	1200	2000	na	3500	4500	5500	6500
na	na	2000	na	3500	4500	5500	6500
na	na	na	na	na	4500	5500	6500

Square Series Designation			
R69	R65	R66	S66
6500	12000	18000	22000
6000	10000	15000	18000
6000	10000	13000	15000
6000	10000	13000	15000

UL1449
VAC Range
11-40
50-60
75-120
130-150
180-300
320-680
750-1000

Disk Series Designation							
D58	D73	D61	D71	D62	D69	D63	D65
100	250	500	na	na	1000	na	2000
400	250	2000	500	700	1000	na	6500
400	1200	2000	2500	3500	4500	na	6500
400	1200	2000	2500	3500	4500	5500	6500
400	1200	2000	na	3500	4500	5500	6500
na	na	2000	na	3500	4500	5500	6500
na	na	na	na	na	4500	5500	6500

Square Series Designation			
R69	R65	R66	S66
na	na	na	na
na	na	na	na
na	na	na	na
6500	12000	18000	22000
6000	10000	15000	18000
6000	10000	13000	15000
6000	10000	13000	15000

VDE/CECC 42 000
VAC Range
130-180
210-680
750-1000

Disk Series Designation							
D58	D73	D61	D71	D62	D69	D63	D65
400	1200	2000	2500	3500	4500	5500	6500
na	na	2000	na	3500	4500	5500	6500
na	na	na	na	na	4500	5500	6500

Square Series Designation			
R69	R65	R66	S66
na	na	na	na
na	na	na	na
na	na	na	na



**Single-Pulse (10/1000  $\mu$ s current waveform) Energy Ratings  
for Safety Agency Certification Testing**

(Note: These are the conservative values on file with the respective safety agencies. They do not reflect the maximum capabilities for peak current and energy certified by in this catalog.)

VAC Rating	Series (Disk Diameter) Description							
	D58	D73	D61	D71	D62	D69	D63	D65
11	0.3	0.8	1.5	na	na	3.5	na	10
14	0.4	0.9	2			4		13
17	0.5	1	2.5			5		15
20	0.6	1.2	3			6		20
25	0.8	1.5	3.5			7		24
30	1	1.8	4.5			8.5		30
35	1	2.2	5.5			10		35
40	1.2	3	6.5		na	12		40
50	2	4	6	8	10	15		42
60	2	5	7	9	11	20		45
75	2.5	6	8	10	13	22		55
95	3	8	10	13	17	30		65
120	3.5	10	13	18	na	35	na	65
130	4	11	14	20	24	38	70	70
140	4.5	12	16	22	26	42	75	75
150	5	13	17	23	28	45	80	80
180	6	15	20	na	30	55	65	100
210	na	na	na		35	na	na	na
230	7.5	20	35		50	70	80	115
250	8	21	40		66	72	90	130
270	9	23	43		60	75	100	140
300	10	25	45		65	80	105	150
320	na	na	45		70	90	110	160
360			45		na	85	na	na
390			45			85		150
400			na		na	85	na	na
420			50		70	90	145	160
460			na		na	100	na	175
480			50		80	105	110	180
510			55		85	110	130	190
550			60		90	115	145	200
580			65		95	120	160	220
620			65		100	130	170	230
680			70		105	150	200	260
750			na		na	na	na	na
1000	na	na	na	na	na	220	280	360