

# SOLID TANTALUM CHIP CAPACITORS

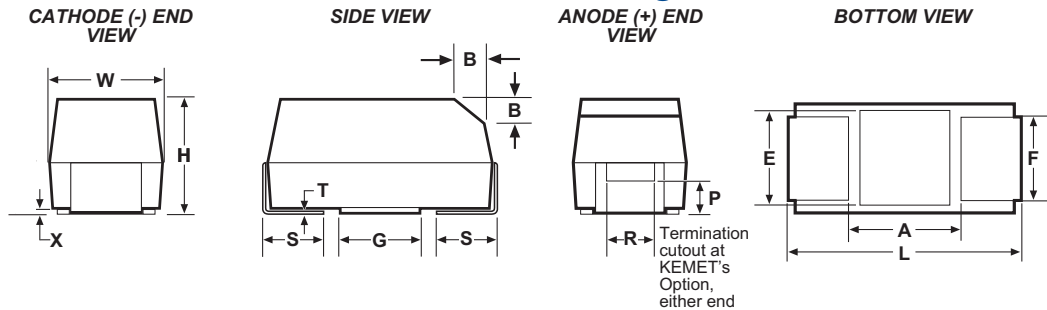
## T498 SERIES—HIGH TEMPERATURE (150°C)



### Features

- 150°C Maximum temperature capability
- Temperature/Voltage derating: 2/3 at 150°C
- Self-healing mechanism
- Capacitance: 0.47 to 220µF
- Reliability: 0.5%/1000 Hrs. @ rated voltage @ rated temperature
- 100% Accelerated steady state aging
- 100% Surge current testing
- EIA standard case size
- Voltage: 6 to 50 VDC
- RoHS Compliant versions available
- Various termination options

### Outline Drawings



### Dimensions - Millimeters (Inches)

Case Size		Component												
KEMET	EIA	L*	W*	H*	F* ±0.1 ± (.004)	S* ± 0.3 ± (.012)	B (Ref) ± 0.15 ± (.004)	X (Ref)	P (Ref)	R (Ref)	T (Ref)	A (Min)	G (Ref)	E (Ref)
A	3216-18	3.2 ± 0.2 (.126 ± .008)	1.6 ± 0.2 (.063 ± .008)	1.6 ± 0.2 (.063 ± .008)	1.2 (.047)	0.8 (.031)	0.4 (.016)	0.10 ± 0.10 (.004 ± .004)	0.4 (.016)	0.4 (.016)	0.13 (.005)	0.8 (.031)	1.1 (.043)	1.3 (.051)
B	3528-21	3.5 ± 0.2 (.138 ± .008)	2.8 ± 0.2 (.110 ± .008)	1.9 ± 0.2 (.075 ± .008)	2.2 (.087)	0.8 (.031)	0.4 (.016)	0.10 ± 0.10 (.004 ± .004)	0.5 (.020)	1.0 (.039)	0.13 (.005)	1.1 (.043)	1.8 (.071)	2.2 (.087)
C	6032-28	6.0 ± 0.3 (.236 ± .012)	3.2 ± 0.3 (.126 ± .012)	2.5 ± 0.3 (.098 ± .012)	2.2 (.087)	1.3 (.051)	0.5 (.020)	0.10 ± 0.10 (.004 ± .004)	0.9 (.035)	1.0 (.039)	0.13 (.005)	2.5 (.098)	2.8 (.110)	2.4 (.094)
D	7343-31	7.3 ± 0.3 (.287 ± .012)	4.3 ± 0.3 (.169 ± .012)	2.8 ± 0.3 (.110 ± .012)	2.4 (.094)	1.3 (.051)	0.5 (.020)	0.10 ± 0.10 (.004 ± .004)	0.9 (.035)	1.0 (.039)	0.13 (.005)	3.8 (.150)	3.5 (.138)	3.5 (.138)
X	7343-43	7.3 ± 0.3 (.287 ± .012)	4.3 ± 0.3 (.169 ± .012)	4.0 ± 0.3 (.157 ± .012)	2.4 (.094)	1.3 (.051)	0.5 (.020)	0.10 ± 0.10 (.004 ± .004)	1.7 (.067)	1.0 (.039)	0.13 (.005)	3.8 (.150)	3.5 (.138)	3.5 (.138)

Notes: 1. Metric dimensions govern  
2. (Ref) Dimensions provided for reference

### T498 Ordering Information

**T 498 X 227 M 010 A T E500**

**Tantalum** ————

**Series** ————  
498 – High Temp (150°C)

**Case Size** ————  
A,B,C,D,X

**Capacitance Picofarad Code** ————  
First two digits represent significant figures.  
Third digit specifies number of zeros.

**Capacitance Tolerance** ————  
M = ±20%  
K = ±10%

**ESR** ————  
Note: in mOhm  
K designates "thousand"  
E1K5 = 1.5 Ohm  
E500 = 0.5 Ohm

**Lead Material** ————  
T = 100% Tin  
G = Gold

**Failure Rate** ————  
A = Not Applicable

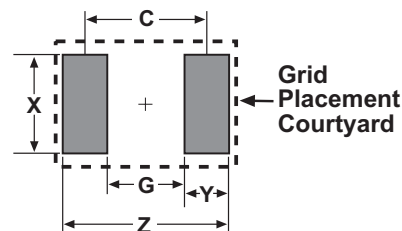
**Voltage** ————  
Note: 006 = 6.3

### T498 RATINGS & PART NUMBER REFERENCE

Capacitance μF	Case Size	KEMET Part Number	DC Leakage μA @ 25°C Max	DF % @ +25°C 120 Hz Max	ESR Ω @ +25°C 100 kHz Max
<b>**6.3 Volt Rating at +85°C ( 4 Volt Rating at +150°C)</b>					
10.0	B	T498B106(1)006A(2)E2K1	0.7	6.0	2.1
15.0	B	T498B156(1)006A(2)E1K8	1.0	6.0	1.8
22.0	C	T498C226(1)006A(2)E1K3	1.4	6.0	1.3
33.0	B	T498B336(1)006A(2)E1K7	2.1	6.0	1.7
47.0	C	T498C476(1)006A(2)E800	3.0	6.0	0.8
100.0	D	T498D107(1)006A(2)E600	6.3	8.0	0.6
<b>10 Volt Rating at +85°C ( 7 Volt Rating at +150°C)</b>					
2.2	A	T498A225(1)010A(2)E4K6	0.5	6.0	4.6
3.3	A	T498A335(1)010A(2)E3K6	0.5	6.0	3.6
4.7	A	T498A475(1)010A(2)E2K9	0.5	6.0	2.9
4.7	B	T498B475(1)010A(2)E2K7	0.5	6.0	2.7
10.0	B	T498B106(1)010A(2)E1K8	1.0	6.0	1.8
15.0	B	T498B156(1)010A(2)E1K5	1.5	6.0	1.5
15.0	C	T498C156(1)010A(2)E1K8	1.5	6.0	1.8
22.0	B	T498B226(1)010A(2)E1K5	2.2	6.0	1.5
22.0	C	T498C226(1)010A(2)E1K1	2.2	6.0	1.1
47.0	D	T498D476(1)010A(2)E600	4.7	6.0	0.6
100.0	D	T498D107(1)010A(2)E600	10.0	8.0	0.6
220.0	X	T498X227(1)010A(2)E500	22.0	8.0	0.5
<b>16 Volt Rating at +85°C (11 Volt Rating at +150°C)</b>					
1.0	A	T498A105(1)016A(2)E6K5	0.5	4.0	6.5
3.3	A	T498A335(1)016A(2)E3K4	0.5	6.0	3.4
4.7	B	T498B475(1)016A(2)E2K1	0.8	6.0	2.1
6.8	A	T498A685(1)016A(2)E2K6	1.1	6.0	2.6
6.8	B	T498B685(1)016A(2)E1K8	1.1	6.0	1.8
10.0	B	T498B106(1)016A(2)E2K8	1.6	6.0	2.8
10.0	C	T498C106(1)016A(2)E1K4	1.6	6.0	1.4
15.0	C	T498C156(1)016A(2)E1K1	2.4	6.0	1.1
22.0	C	T498C226(1)016A(2)E1K0	3.6	6.0	1.0
33.0	D	T498D336(1)016A(2)E600	5.3	6.0	0.6
47.0	D	T498D476(1)016A(2)E600	7.5	6.0	0.6
68.0	D	T498D686(1)016A(2)E600	10.8	6.0	0.6
100.0	X	T498X107(1)016A(2)E100	16.0	8.0	0.1
<b>20 Volt Rating at +85°C (13 Volt Rating at +150°C)</b>					
1.0	A	T498A105(1)020A(2)E5K9	0.5	4.0	5.9
10.0	C	T498C106(1)020A(2)E1K1	2.0	6.0	1.1
<b>25 Volt Rating at +85°C (17 Volt Rating at +150°C)</b>					
0.47	A	T498A474(1)025A(2)E8K5	0.5	4.0	8.5
2.2	B	T498B225(1)025A(2)E3K0	0.6	6.0	3.0
10.0	C	T498C106(1)025A(2)E1K1	2.5	6.0	1.1
15.0	D	T498D156(1)025A(2)E700	3.8	6.0	0.7
22.0	D	T498D226(1)025A(2)E600	5.5	6.0	0.6
33.0	D	T498D336(1)025A(2)E600	8.3	6.0	0.6
<b>35 Volt Rating at +85°C (24 Volt Rating at +150°C)</b>					
0.33	A	T498A334(1)035A(2)E11K	0.5	4.0	11.0
1.0	A	T498A105(1)035A(2)E10K	0.5	4.0	10.0
1.5	C	T498C155(1)035A(2)E3K3	0.5	6.0	3.3
3.3	C	T498C335(1)035A(2)E1K7	1.2	6.0	1.7
6.8	D	T498D685(1)035A(2)E900	2.4	6.0	0.9
10.0	D	T498D106(1)035A(2)E700	3.5	6.0	0.7
22.0	X	T498X226(1)035A(2)E500	7.7	6.0	0.5
33.0	X	T498X336(1)035A(2)E500	11.6	6.0	0.5
<b>50 Volt Rating at +85°C (34 Volt Rating at +150°C)</b>					
3.3	D	T498D335(1)050A(2)E1K1	1.7	6.0	1.1
10.0	D	T498D106(1)050A(2)E1K0	5.0	6.0	1.0

### LAND PATTERN DIMENSIONS FOR REFLOW SOLDER

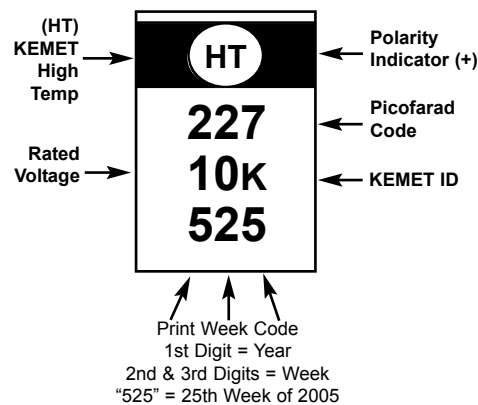
KEMET/ EIA Size Code	Pad Dimensions				
	Z	G	X	Y (Ref)	C (Ref)
A/3216-18	4.70	0.80	1.50	1.95	2.75
B/3528-21	5.00	1.10	2.50	1.95	3.05
C/6032-28	7.60	2.50	2.50	2.55	5.05
D/7343-31	8.90	3.80	2.70	2.55	6.35
X/7343-43	8.90	3.80	4.40	2.55	6.35



### PACKAGING SPECIFICATIONS

Case Codes		Tape & Reel Dimensions				
KEMET	EIA	Tape Width (mm)	Pitch mm ± 0.1		Reel Quantity	
			Part	Sprocket	180mm (7")	330mm (13")
A	3216-18	8 ± 0.3	8	4	2000	9000
B	3528-21	8 ± 0.3	8	4	2000	8000
C	6032-28	12 ± 0.3	8	4	500	3000
D	7343-31	12 ± 0.3	8	4	500	2500
X	7343-43	12 ± 0.3	8	4	500	2000

### COMPONENT MARKING



(1) To complete KEMET part number, insert K - ± 10% or M - ±20% capacitance tolerance.

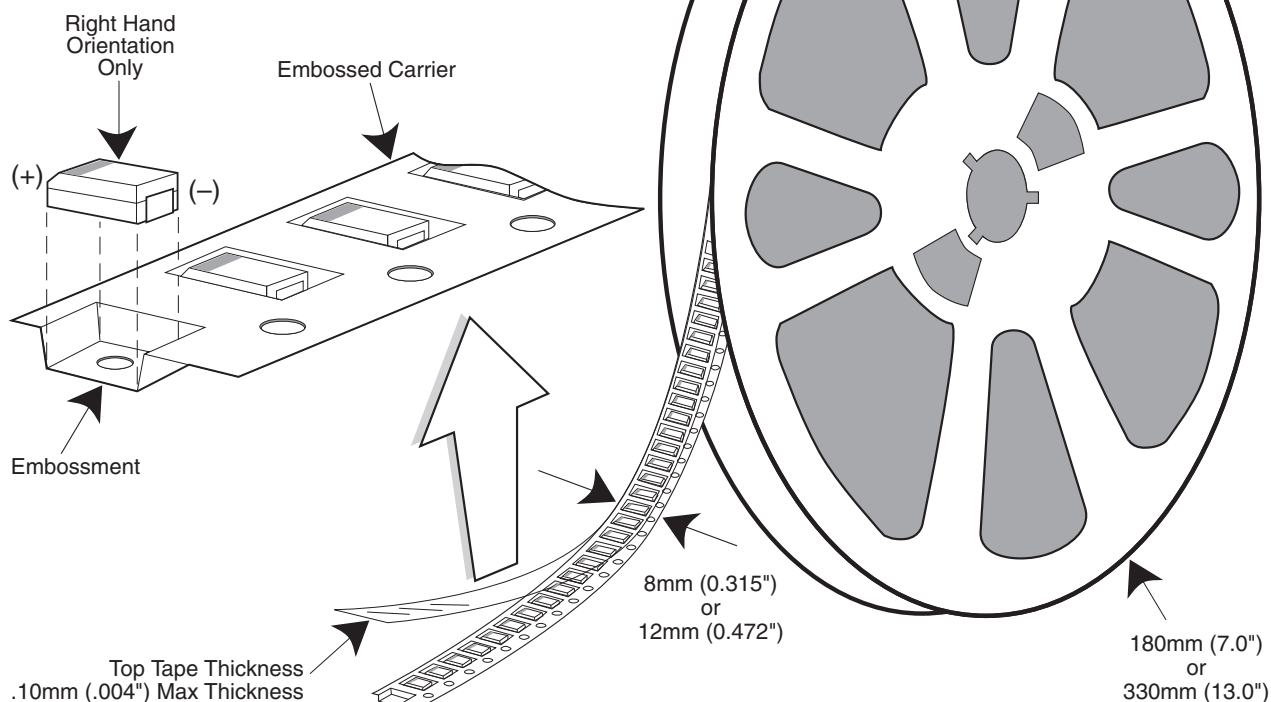
(2) To complete KEMET part number, insert T for 100% tin, or G for gold.

\*\* 6 volt product equivalent to 6.3 volt product.

Note: Higher voltage ratings, lower ESR and tighter capacitance tolerance product may be substituted within the same size at KEMET's option. Voltage substitutions will be marked with the higher voltage rating.

## Tape & Reel Packaging

KEMET's Molded Tantalum and Aluminum Chip Capacitor families are packaged in 8 mm and 12 mm plastic tape on 7" and 13" reels, in accordance with EIA Standard 481-1: Taping of Surface Mount Components for Automatic Handling. This packaging system is compatible with all tape fed automatic pick and place systems.



**Labeling:** Bar code labeling (standard or custom) shall be on the side of the reel opposite the sprocket holes. Refer to EIA-556.

### QUANTITIES PACKAGED PER REEL

Case Code		Tape Width-mm	7" Reel*	13" Reel
KEMET	EIA			
R	2012-12	8	2,500	10,000
I	3216-10	8	3,000	12,000
S	3216-12	8	2,500	10,000
T	3528-12	8	2,500	10,000
M	3528-15	8	2,000	8,000
U	6032-15	12	1,000	5,000
L	6032-19	12	1,000	5,000
W	7343-15	12	1,000	3,000
Z	7343-17	12	1,000	3,000
V	7343-20	12	1,000	3,000
A	3216-18	8	2,000	9,000
B	3528-21	8	2,000	8,000
C	6032-28	12	500	3,000
D	7343-31	12	500	2,500
Y	7343-40	12	500	2,000
X	7343-43	12	500	2,000
E	7260-38	12	500	2,000

\* No c-spec required for 7" reel packaging. C-7280 required for 13" reel packaging.

# TANTALUM, CERAMIC AND ALUMINUM CHIP CAPACITORS

## Packaging Information

### Performance Notes

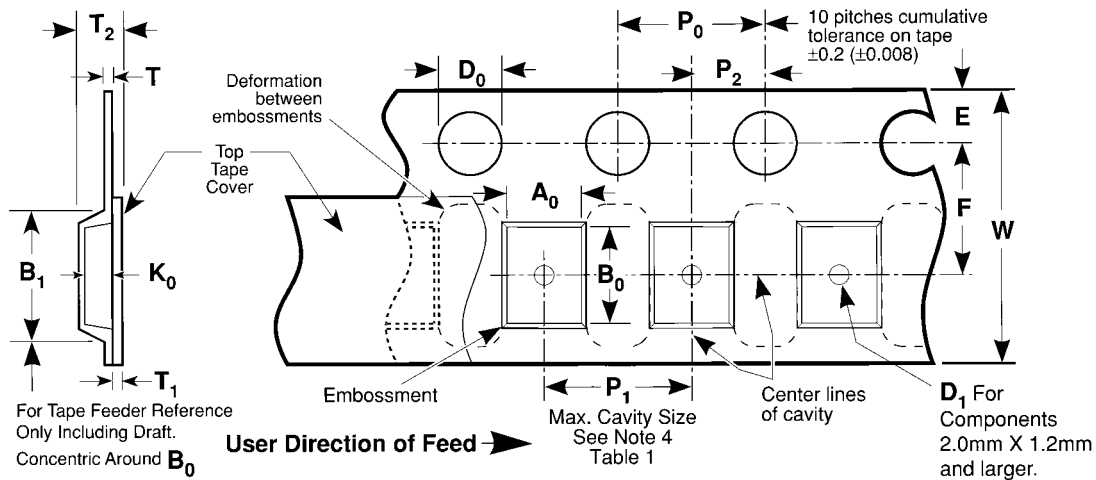
- Cover Tape Break Force:** 1.0 Kg Minimum.
- Cover Tape Peel Strength:** The total peel strength of the cover tape from the carrier tape shall be:

Tape Width	Peel Strength
8 mm	0.1 Newton to 1.0 Newton (10g to 100g)
12 mm	0.1 Newton to 1.3 Newton (10g to 130g)

The direction of the pull shall be opposite the direction of the carrier tape travel. The pull angle of the carrier tape shall be 165° to 180° from the plane of the carrier tape. During peeling, the carrier and/or cover tape shall be pulled at a velocity of 300 ±10 mm/minute.

- Reel Sizes:** Molded tantalum capacitors are available on either 180 mm (7") reels (standard) or 330 mm (13") reels (with C-7280). Note that 13" reels are preferred.
- Labeling:** Bar code labeling (standard or custom) shall be on the side of the reel opposite the sprocket holes. Refer to EIA-556.

### Embossed Carrier Tape Configuration: Figure 1



**Table 1 — EMBOSSED TAPE DIMENSIONS (Metric will govern)**

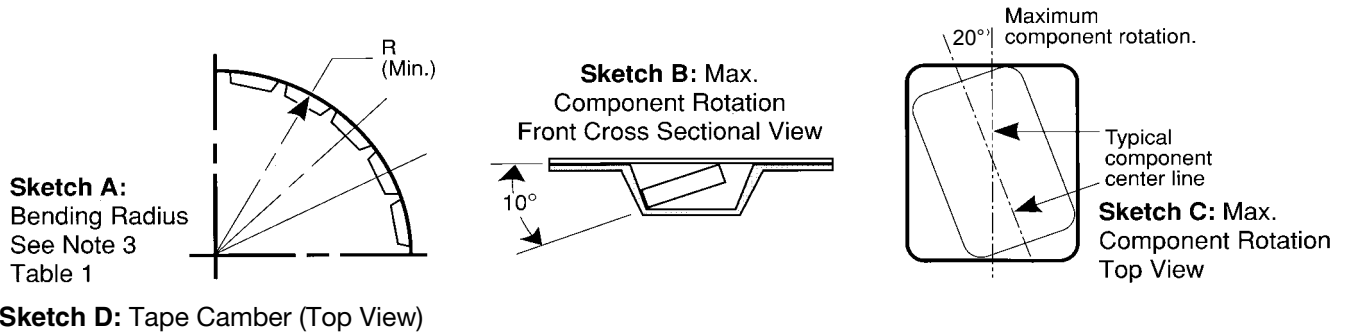
Constant Dimensions — Millimeters (Inches)									
Tape Size	D <sub>0</sub>	E	P <sub>0</sub>	P <sub>2</sub>	T Max	T <sub>1</sub> Max			
8 mm and 12 mm	1.5 +0.10 -0.0 (0.059 +0.004, -0.0)	1.75 ±0.10 (0.069 ±0.004)	4.0 ±0.10 (0.157 ±0.004)	2.0 ±0.05 (0.079 ±0.002)	0.600 (0.024)	0.100 (0.004)			
Variable Dimensions — Millimeters (Inches)									
Tape Size	Pitch	B <sub>1</sub> Max. Note 1	D <sub>1</sub> Min. Note 2	F	P <sub>1</sub>	R Min. Note 3	T <sub>2</sub> Max	W	A <sub>0</sub> B <sub>0</sub> K <sub>0</sub> Note 4
8 mm	Single (4 mm)	4.4 (0.173)	1.0 (0.039)	3.5 ±0.05 (0.138 ±0.002)	4.0 ±0.10 (0.157 ±0.004)	25.0 (0.984)	2.5 (0.098)	8.0 ±0.30 (.315 ±0.012)	
12 mm	Double (8 mm)	8.2 (0.323)	1.5 (0.059)	5.5 ±0.05 (0.217 ±0.002)	8.0 ±0.10 (0.315 ±0.004)	30.0 (1.181)	4.6 (0.181)	12.0 ±0.30 (0.472 ±0.012)	

### NOTES

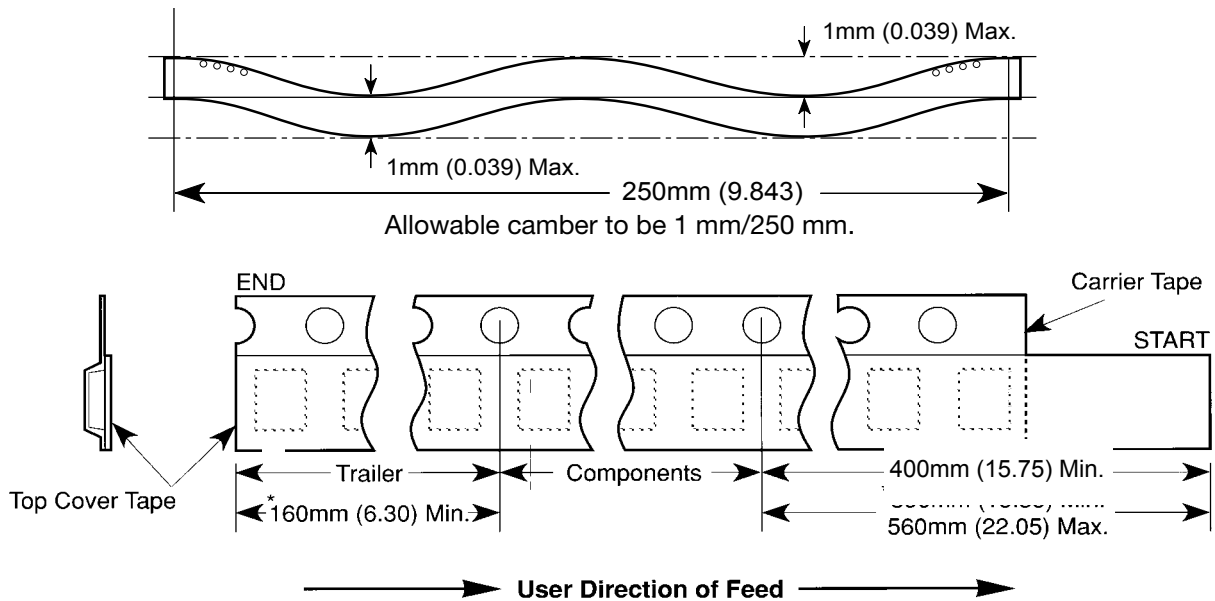
- B<sub>1</sub> dimension is a reference dimension for tape feeder clearance only.
- The embossment hole location shall be measured from the sprocket hole controlling the location of the embossment. Dimensions of embossment location and hole location shall be applied independent of each other.
- Tape with components shall pass around radius "R" without damage (see sketch A). The minimum trailer length (Fig. 2) may require additional length to provide R min. for 12 mm embossed tape for reels with hub diameters approaching N min. (Table 2)
- The cavity defined by A<sub>0</sub>, B<sub>0</sub>, and K<sub>0</sub> shall be configured to surround the part with sufficient clearance such that the chip does not protrude beyond the sealing plane of the cover tape, the chip can be removed from the cavity in a vertical direction without mechanical restriction, rotation of the chip is limited to 20 degrees maximum in all 3 planes, and lateral movement of the chip is restricted to 0.5 mm maximum in the pocket (not applicable to vertical clearance.)

## Packaging Information

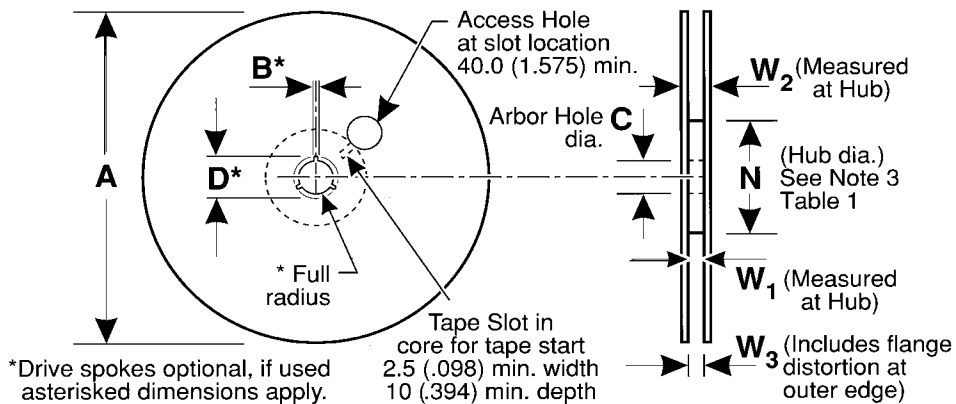
### Embossed Carrier Tape Configuration (cont.)



**Sketch D:** Tape Camber (Top View)



**Figure 2:** Tape Leader & Trailer Dimensions (Metric Dimensions Will Govern)



**Figure 3:** Reel Dimensions (Metric Dimensions will govern)

**Table 2 – REEL DIMENSIONS (Metric will govern)**

Tape Size	A Max	$B^*$ Min	C	$D^*$ Min	N Min	$W_1$	$W_2$ Max	$W_3$
8 mm	330.0 (12.992)	1.5 (0.059)	13.0 ± 0.20 (0.512 ± 0.008)	20.2 (0.795)	50.0 (1.969) See Note 3 Table 1	8.4 +1.5, -0.0 (0.331 +0.059, -0.0)	14.4 (0.567)	7.9 Min (0.311) 10.9 Max (0.429)
12 mm	330.0 (12.992)	1.5 (0.059)	13.0 ± 0.20 (0.512 ± 0.008)	20.2 (0.795)	Table 1	12.4 +2.0, -0.0 (0.488 +0.078, -0.0)	18.4 (0.724)	11.9 Min (0.469) 15.4 Max (0.606)