

# DATA SHEET

**E18/4/10**

**Planar E cores and accessories**

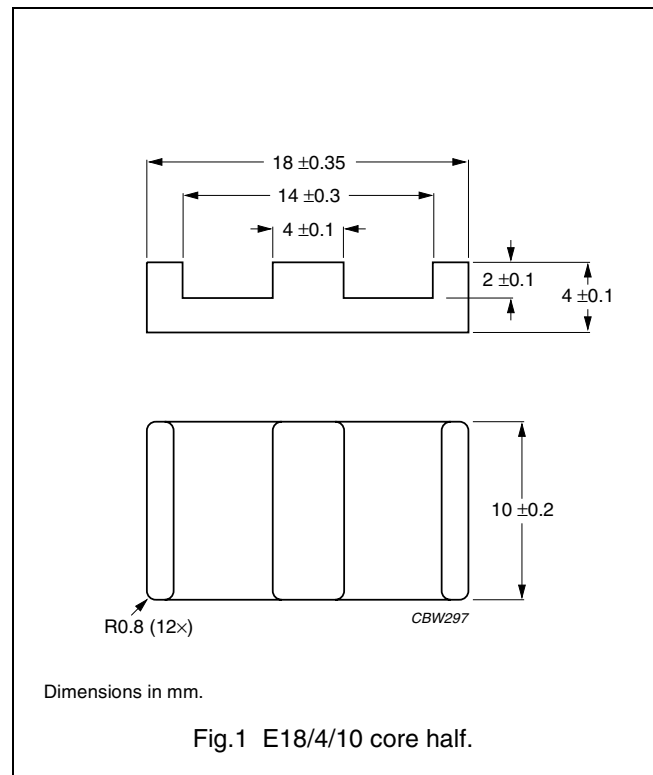
Supersedes data of September 2004

2008 Sep 01

**CORES**

**Effective core parameters of a set of E cores**

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.616	mm <sup>-1</sup>
$V_e$	effective volume	960	mm <sup>3</sup>
$l_e$	effective length	24.3	mm
$A_e$	effective area	39.3	mm <sup>2</sup>
$A_{min}$	minimum area	39.3	mm <sup>2</sup>
m	mass of core half	≈ 2.4	g

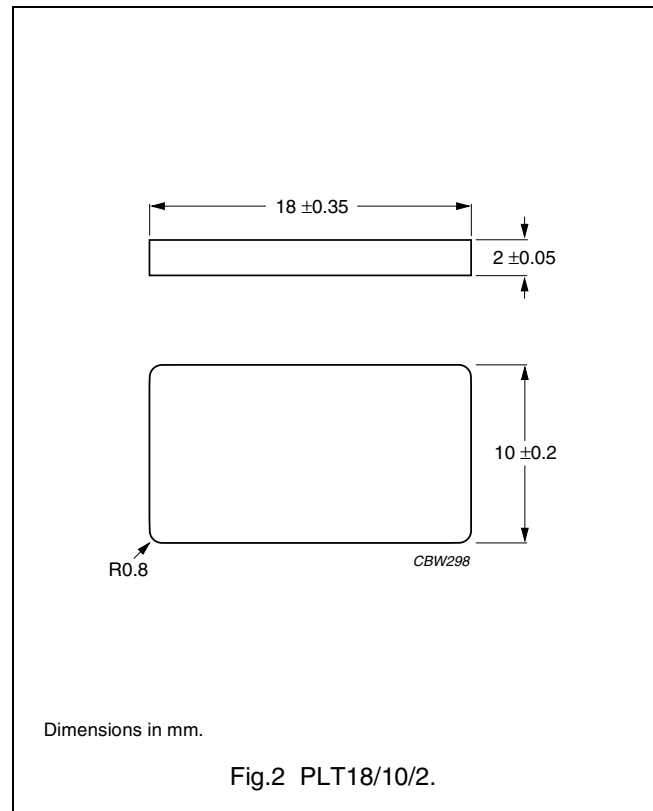


**Effective core parameters of an E/PLT combination**

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	0.514	mm <sup>-1</sup>
$V_e$	effective volume	800	mm <sup>3</sup>
$l_e$	effective length	20.3	mm
$A_e$	effective area	39.5	mm <sup>2</sup>
$A_{min}$	minimum area	39.5	mm <sup>2</sup>
m	mass of plate	≈ 1.7	g

**Ordering information for plates**

GRADE	TYPE NUMBER
3C90	PLT18/10/2-3C90
3C92 <small>des</small>	PLT18/10/2-3C92
3C93 <small>des</small>	PLT18/10/2-3C93
3C94	PLT18/10/2-3C94
3C95 <small>des</small>	PLT18/10/2-3C95
3C96 <small>des</small>	PLT18/10/2-3C96
3F3	PLT18/10/2-3F3
3F35 <small>des</small>	PLT18/10/2-3F35
3F4 <small>des</small>	PLT18/10/2-3F4
3F45 <small>prot</small>	PLT18/10/2-3F45
3E6	PLT18/10/2-3E6



## Planar E cores and accessories

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**Core halves for use in combination with a non-gapped E core**

$A_L$  measured in combination with a non-gapped core half, clamping force for  $A_L$  measurements,  $20 \pm 10$  N, using a PCB coil containing 4 layers of 8 tracks each, total height 1.6 mm.

GRADE	$A_L$ (nH)	$\mu_e$	AIR GAP ( $\mu\text{m}$ )	TYPE NUMBER
3C90	100 $\pm 3\%$	$\approx 49$	$\approx 800$	E18/4/10-3C90-A100-E
	160 $\pm 3\%$	$\approx 78$	$\approx 420$	E18/4/10-3C90-A160-E
	250 $\pm 5\%$	$\approx 123$	$\approx 220$	E18/4/10-3C90-A250-E
	315 $\pm 8\%$	$\approx 154$	$\approx 170$	E18/4/10-3C90-A315-E
	3200 $\pm 25\%$	$\approx 1560$	$\approx 0$	E18/4/10-3C90
3C92 <b>des</b>	2330 $\pm 25\%$	$\approx 1140$	$\approx 0$	E18/4/10-3C92
3C93 <b>des</b>	2700 $\pm 25\%$	$\approx 1320$	$\approx 0$	E18/4/10-3C93
3C94	100 $\pm 3\%$	$\approx 49$	$\approx 800$	E18/4/10-3C94-A100-E
	160 $\pm 3\%$	$\approx 78$	$\approx 420$	E18/4/10-3C94-A160-E
	250 $\pm 5\%$	$\approx 123$	$\approx 220$	E18/4/10-3C94-A250-E
	315 $\pm 8\%$	$\approx 154$	$\approx 170$	E18/4/10-3C94-A315-E
	3200 $\pm 25\%$	$\approx 1560$	$\approx 0$	E18/4/10-3C94
3C95 <b>des</b>	3800 $\pm 25\%$	$\approx 1870$	$\approx 0$	E18/4/10-3C95
3C96 <b>des</b>	2900 $\pm 25\%$	$\approx 1410$	$\approx 0$	E18/4/10-3C96
3F3	100 $\pm 3\%$	$\approx 49$	$\approx 800$	E18/4/10-3F3-A100-E
	160 $\pm 3\%$	$\approx 78$	$\approx 420$	E18/4/10-3F3-A160-E
	250 $\pm 5\%$	$\approx 123$	$\approx 220$	E18/4/10-3F3-A250-E
	315 $\pm 8\%$	$\approx 154$	$\approx 170$	E18/4/10-3F3-A315-E
	2700 $\pm 25\%$	$\approx 1320$	$\approx 0$	E18/4/10-3F3
3F35 <b>des</b>	2200 $\pm 25\%$	$\approx 1070$	$\approx 0$	E18/4/10-3F35
3F4 <b>des</b>	100 $\pm 3\%$	$\approx 49$	$\approx 800$	E18/4/10-3F4-A100-E
	160 $\pm 3\%$	$\approx 78$	$\approx 420$	E18/4/10-3F4-A160-E
	250 $\pm 5\%$	$\approx 123$	$\approx 220$	E18/4/10-3F4-A250-E
	315 $\pm 8\%$	$\approx 154$	$\approx 170$	E18/4/10-3F4-A315-E
	1550 $\pm 25\%$	$\approx 760$	$\approx 0$	E18/4/10-3F4
3F45 <b>prot</b>	1550 $\pm 25\%$	$\approx 760$	$\approx 0$	E18/4/10-3F45
3E6	13500 $+40/-30\%$	$\approx 6600$	$\approx 0$	E18/4/10-3E6

## Planar E cores and accessories

E18/4/10

**Core halves for use in combination with a plate (PLT)**

$A_L$  measured in combination with a plate (PLT), clamping force for  $A_L$  measurements,  $20 \pm 10$  N, using a PCB coil containing 4 layers of 8 tracks each, total height 1.6 mm.

GRADE	$A_L^0$ (nH)	$\mu_e$	AIR GAP ( $\mu\text{m}$ )	TYPE NUMBER
3C90	100 $\pm 3\%$	$\approx 41$	$\approx 870$	E18/4/10-3C90-A100-P
	160 $\pm 3\%$	$\approx 65$	$\approx 470$	E18/4/10-3C90-A160-P
	250 $\pm 5\%$	$\approx 102$	$\approx 240$	E18/4/10-3C90-A250-P
	315 $\pm 8\%$	$\approx 129$	$\approx 170$	E18/4/10-3C90-A315-P
	3680 $\pm 25\%$	$\approx 1500$	$\approx 0$	E18/4/10-3C90
3C92 <b>des</b>	2690 $\pm 25\%$	$\approx 1100$	$\approx 0$	E18/4/10-3C92
3C93 <b>des</b>	3100 $\pm 25\%$	$\approx 1270$	$\approx 0$	E18/4/10-3C93
3C94	100 $\pm 3\%$	$\approx 41$	$\approx 870$	E18/4/10-3C94-A100-P
	160 $\pm 3\%$	$\approx 65$	$\approx 470$	E18/4/10-3C94-A160-P
	250 $\pm 5\%$	$\approx 102$	$\approx 240$	E18/4/10-3C94-A250-P
	315 $\pm 8\%$	$\approx 129$	$\approx 170$	E18/4/10-C94-A315-P
	3680 $\pm 25\%$	$\approx 1500$	$\approx 0$	E18/4/10-3C94
3C95 <b>des</b>	4340 $\pm 25\%$	$\approx 1780$	$\approx 0$	E18/4/10-3C95
3C96 <b>des</b>	3250 $\pm 25\%$	$\approx 1320$	$\approx 0$	E18/4/10-3C96
3F3	100 $\pm 3\%$	$\approx 41$	$\approx 870$	E18/4/10-3F3-A100-P
	160 $\pm 3\%$	$\approx 65$	$\approx 470$	E18/4/10-3F3-A160-P
	250 $\pm 5\%$	$\approx 102$	$\approx 240$	E18/4/10-3F3-A250-P
	315 $\pm 8\%$	$\approx 129$	$\approx 170$	E18/4/10-3F3-A315-P
	3100 $\pm 25\%$	$\approx 1270$	$\approx 0$	E18/4/10-3F3
3F35 <b>des</b>	2500 $\pm 25\%$	$\approx 1020$	$\approx 0$	E18/4/10-3F35
3F4 <b>des</b>	100 $\pm 3\%$	$\approx 41$	$\approx 870$	E18/4/10-3F4-A100-P
	160 $\pm 3\%$	$\approx 65$	$\approx 470$	E18/4/10-3F4-A160-P
	250 $\pm 5\%$	$\approx 102$	$\approx 240$	E18/4/10-3F4-A250-P
	315 $\pm 8\%$	$\approx 129$	$\approx 170$	E18/4/10-3F4-A315-P
	1800 $\pm 25\%$	$\approx 740$	$\approx 0$	E18/4/10-3F4
3F45 <b>prot</b>	1800 $\pm 25\%$	$\approx 740$	$\approx 0$	E18/4/10-3F45
3E6	15500 +40/-30%	$\approx 6400$	$\approx 0$	E18/4/10-3E6

## Planar E cores and accessories

E18/4/10

## Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at				
	H = 250 A/m; f = 10 kHz; T = 100 °C	f = 100 kHz; $\hat{B}$ = 100 mT; T = 100 °C	f = 100 kHz; $\hat{B}$ = 200 mT; T = 25 °C	f = 100 kHz; $\hat{B}$ = 200 mT; T = 100 °C	f = 400 kHz; $\hat{B}$ = 50 mT; T = 100 °C	f = 500 kHz; $\hat{B}$ = 50 mT; T = 100 °C
E+E18-3C90	≥320	≤ 0.105	–	–	–	–
E+PLT18-3C90	≥320	≤ 0.095	–	–	–	–
E+E18-3C92	≥370	≤ 0.085	–	≤ 0.6	–	–
E+PLT18-3C92	≥370	≤ 0.075	–	≤ 0.5	–	–
E+E18-3C93	≥320	≤ 0.085 <sup>(1)</sup>	–	≤ 0.6 <sup>(1)</sup>	–	–
E+PLT18-3C93	≥320	≤ 0.075 <sup>(1)</sup>	–	≤ 0.5 <sup>(1)</sup>	–	–
E+E18-3C94	≥320	≤ 0.085	–	≤ 0.6	–	–
E+PLT18-3C94	≥320	≤ 0.075	–	≤ 0.5	–	–
E+E18-3C95	≥320	–	≤ 0.53	≤ 0.5	–	–
E+PLT18-3C95	≥320	–	≤ 0.44	≤ 0.42	–	–
E+E18-3C96	≥320	≤ 0.065	–	≤ 0.45	≤ 0.18	≤ 0.35
E+PLT18-3C96	≥320	≤ 0.06	–	≤ 0.4	≤ 0.15	≤ 0.3
E+E18-3F3	≥300	≤ 0.11	–	–	≤ 0.19	–
E+PLT18-3F3	≥300	≤ 0.09	–	–	≤ 0.16	–
E+E18-3F35	≥300	–	–	–	≤ 0.09	≤ 0.13
E+PLT18-3F35	≥300	–	–	–	≤ 0.08	≤ 0.12

1. Measured at 140 °C.

## Properties of core sets under power conditions (continued)

GRADE	B (mT) at	CORE LOSS (W) at			
	H = 250 A/m; f = 10 kHz; T = 100 °C	f = 500 kHz; $\hat{B}$ = 100 mT; T = 100 °C	f = 1 MHz; $\hat{B}$ = 30 mT; T = 100 °C	f = 1 MHz; $\hat{B}$ = 50 mT; T = 100 °C	f = 3 MHz; $\hat{B}$ = 10 mT; T = 100 °C
E+E18-3F35	≥300	≤ 1.0	–	–	–
E+PLT18-3F35	≥300	≤ 0.9	–	–	–
E+E18-3F4	≥250	–	≤ 0.3	–	≤ 0.45
E+PLT18-3F4	≥250	–	≤ 0.24	–	≤ 0.39
E+E18-3F45	≥250	–	≤ 0.22	≤ 0.82	≤ 0.38
E+PLT18-3F45	≥250	–	≤ 0.18	≤ 0.67	≤ 0.32

**MOUNTING INFORMATION**

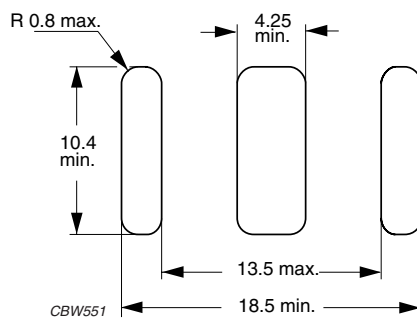
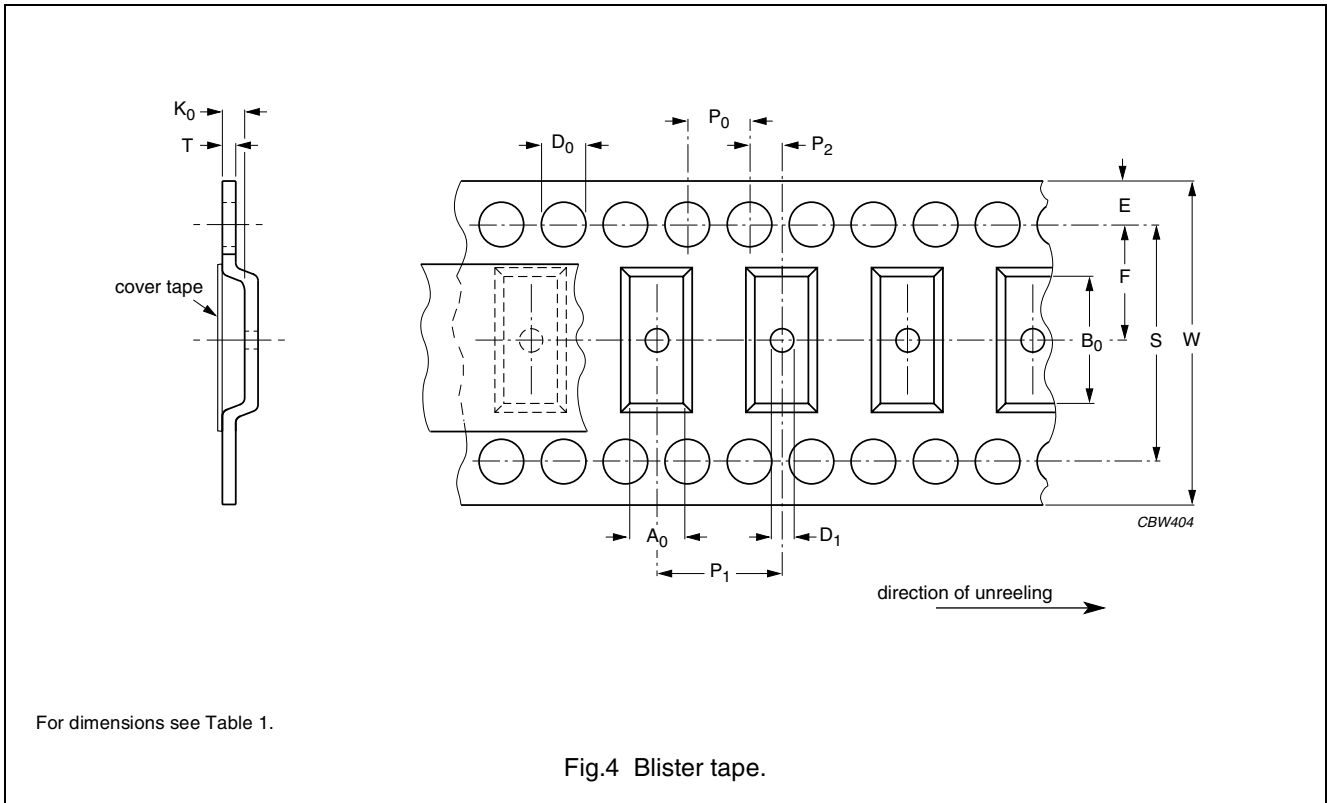


Fig.3 Recommended PCB cut-out for glued planar E18/4/10 cores.

**BLISTER TAPE AND REEL DIMENSIONS** prot



**Table 1** Physical dimensions of blister tape; see Fig.4

SIZE	DIMENSIONS (mm)
$A_0$	$10.5 \pm 0.2$
$B_0$	$18.7 \pm 0.2$
$K_0$	$4.5 \pm 0.2$
$T$	$0.3 \pm 0.05$
$W$	$32.0 \pm 0.3$
$E$	$1.75 \pm 0.1$
$F$	$14.2 \pm 0.1$
$D_0$	$1.5 \pm 0.1$
$D_1$	$\geq 2.0$
$P_0$	$4.0 \pm 0.1$
$P_1$	$16.0 \pm 0.1$
$P_2$	$2.0 \pm 0.1$
$S$	$28.4 \pm 0.1$

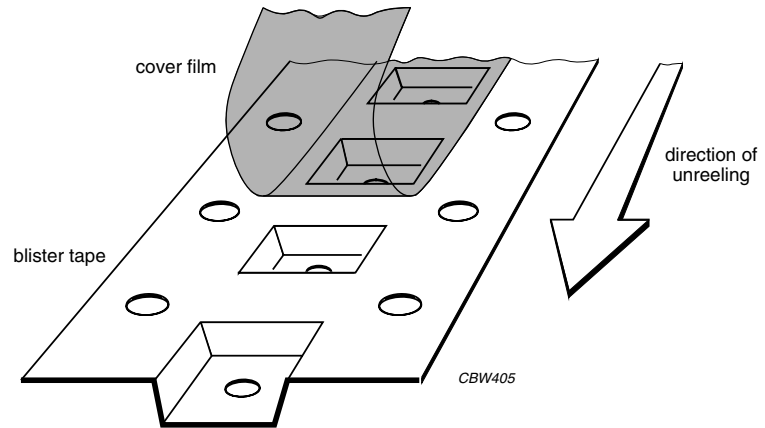
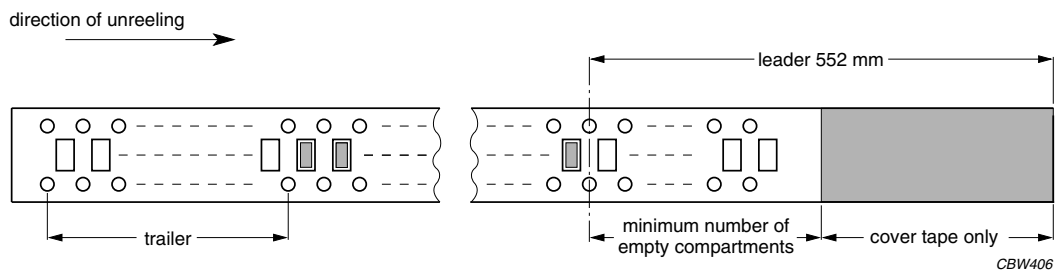


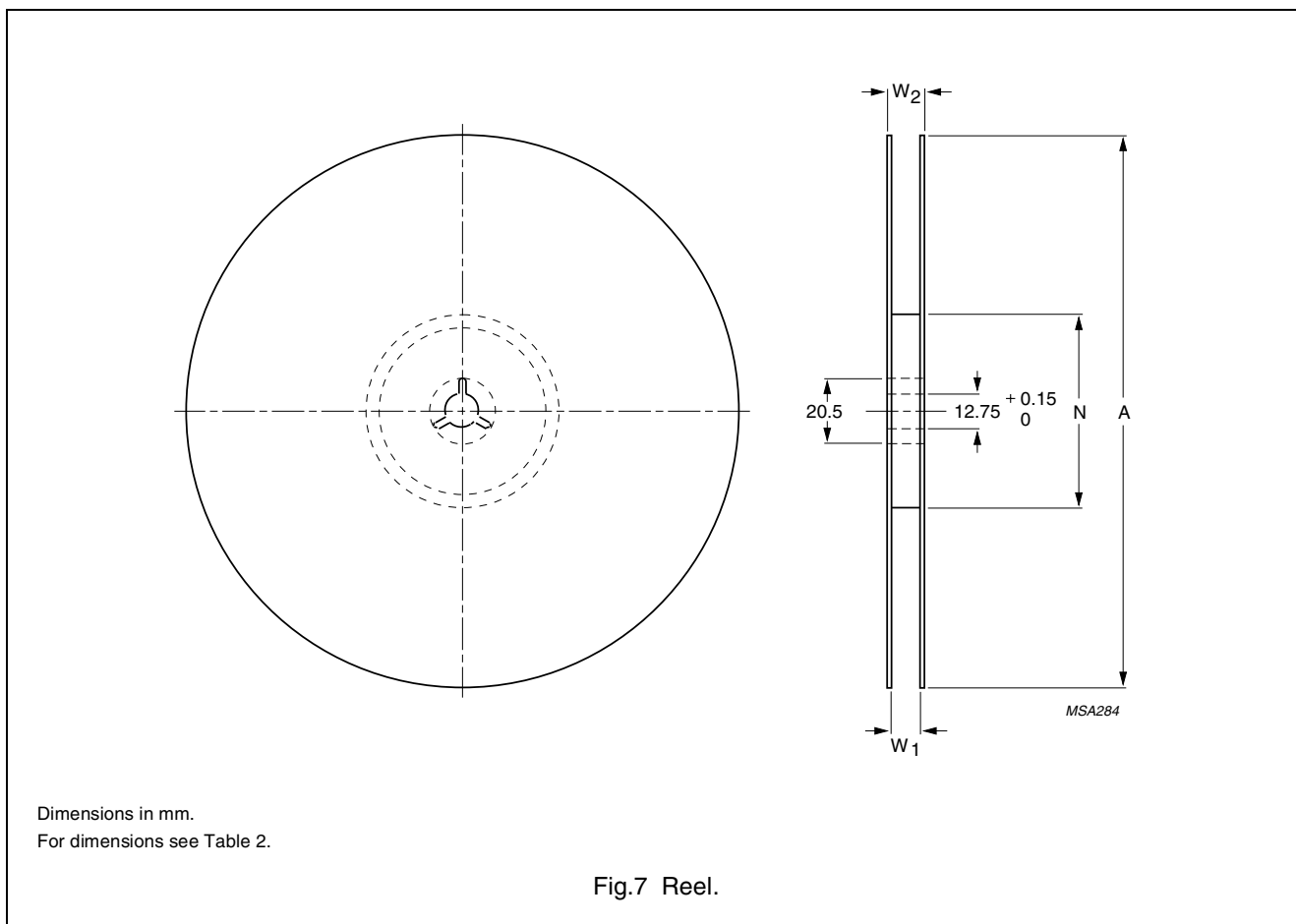
Fig.5 Construction of blister tape.



Leader: length of leader tape is 552 mm minimum covered with cover tape.  
Trailer: 160 mm minimum (secured with tape).  
Storage temperature range for tape: -25 to +45 °C.

Fig.6 Leader/trailer tape.





**Table 2** Reel dimensions; see Fig.7

SIZE	DIMENSIONS (mm)			
	A	N	W <sub>1</sub>	W <sub>2</sub>
32	330	100 ±5	32.4	≤36.4

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**DATA SHEET STATUS DEFINITIONS**

DATA SHEET STATUS	PRODUCT STATUS	DEFINITIONS
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