

# DATA SHEET

**SMD beads**  
EMI-suppression products

Supersedes data of September 2004

2008 Sep 01

**SMD BEADS FOR EMI SUPPRESSION**

**General data**

ITEM	SPECIFICATION
Strip material	copper (Cu), tin (Sn) plated
Solderability	"IEC 60068-2-58", Part 2, Test Ta, method 1
Taping method	"IEC 60286-3", "EIA 481-1" and "EIA 481-2"

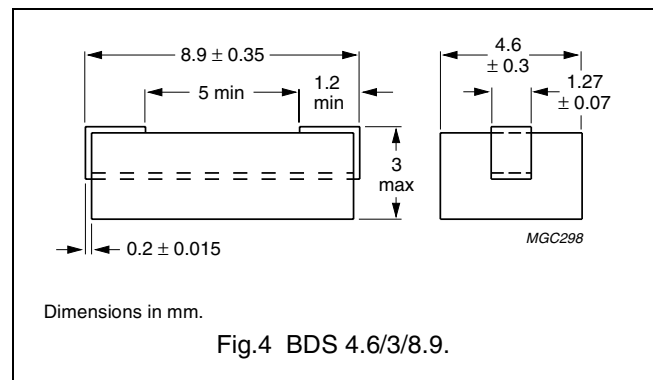
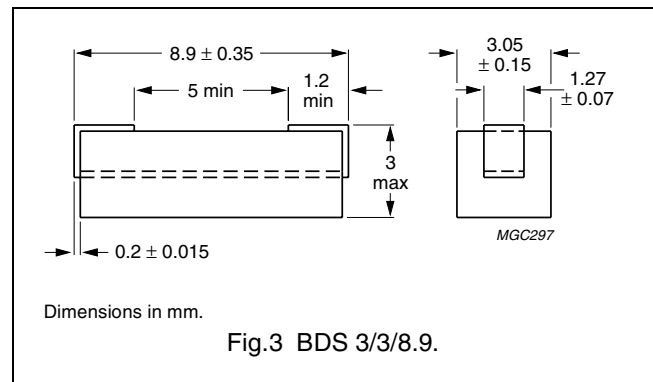
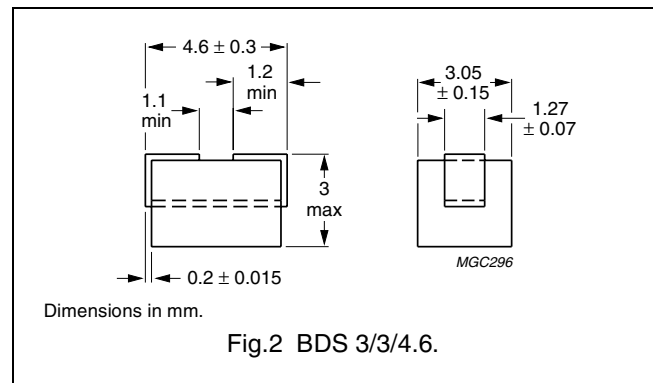
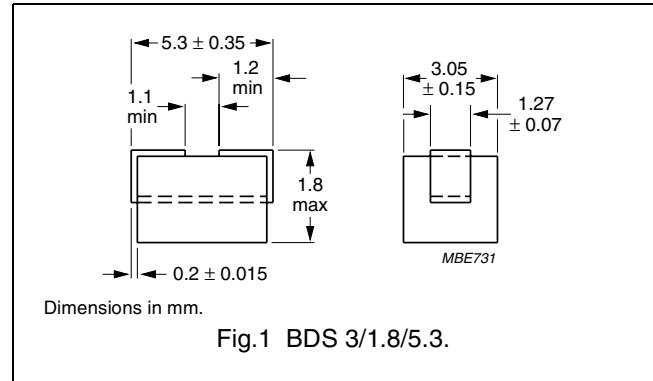
**Grades, parameters and type numbers**

GRADE	$ Z_{typ} ^{(1)}$ ( $\Omega$ )	at f (MHz)	TYPE NUMBER
<b>BDS 3/1.8/5.3; mass <math>\approx 0.1</math> g<sup>(2)</sup></b>			
3S1	28	10	BDS 3/1.8/5.3-3S1
	33	25	
	25	100	
4S2	25	25	BDS 3/1.8/5.3-4S2
	38	100	
	45	300	
<b>BDS 3/3/4.6; mass <math>\approx 0.15</math> g<sup>(2)</sup></b>			
3S1	25	3	BDS3/3/4.6-3S1
	45	10	
	35	25	
4S2	30	25	BDS3/3/4.6-4S2
	50	100	
	55	300	
<b>BDS 3/3/8.9; mass <math>\approx 0.3</math> g<sup>(3)</sup></b>			
3S1	55	3	BDS 3/3/8.9-3S1
	80	10	
	55	25	
4S2	65	25	BDS 3/3/8.9-4S2
	100	100	
	110	300	
<b>BDS 4.6/3/8.9; mass <math>\approx 0.5</math> g<sup>(3)</sup></b>			
4S2	65	25	BDS 4.6/3/8.9-4S2
	100	100	
	110	300	

**Note**

1. Typical values,  $|Z|_{min}$  is  $-20\%$ .
2. DC resistance  $< 0.6$  m $\Omega$ .
3. DC resistance  $< 1.0$  m $\Omega$

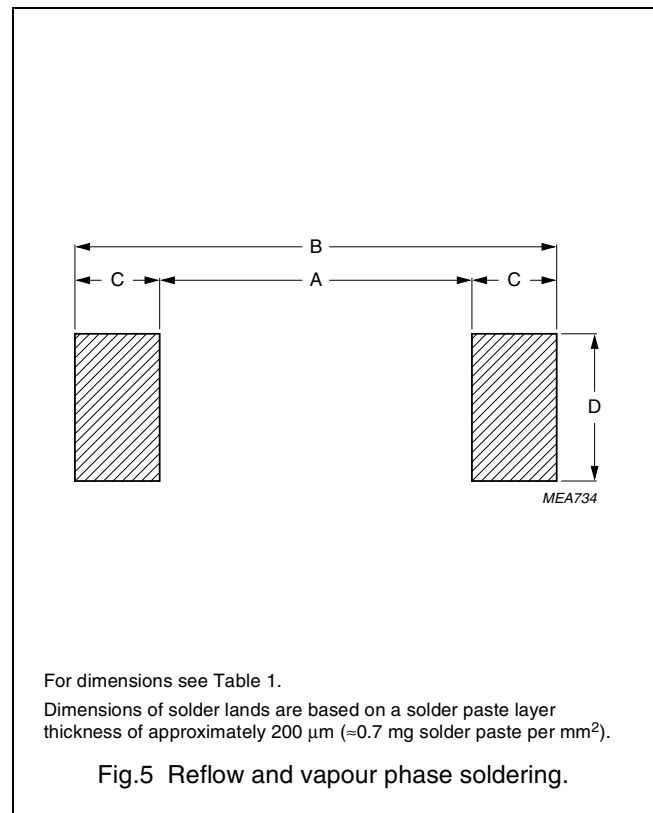
**Mechanical data**



**RECOMMENDED DIMENSIONS OF SOLDER LANDS**

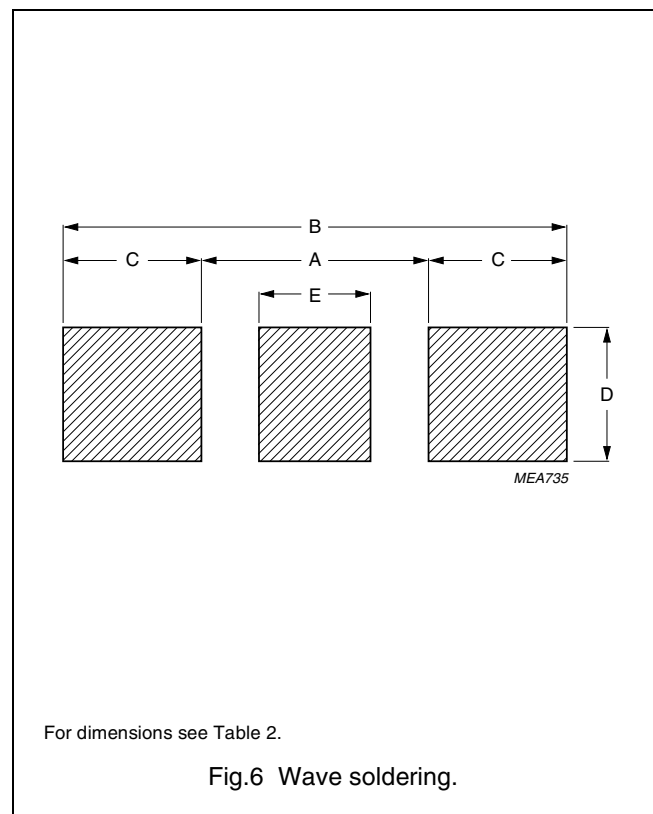
**Table 1** Reflow soldering

SIZE	DIMENSIONS (mm)			
	A	B	C	D
BDS 3/1.8/5.3	2.8	7.2	2.2	3.3
BDS 3/3/4.6	2.8	6.4	1.8	3.3
BDS 3/3/8.9	7.0	10.8	1.9	3.3
BDS 4.6/3/8.9	7.0	10.8	1.9	3.3



**Table 2** Wave soldering

SIZE	DIMENSIONS (mm)				
	A	B	C	D	E
BDS 3/1.8/5.3	2.0	7.2	2.6	3.0	0.8
BDS 3/3/4.6	2.0	6.4	2.2	3.0	0.8
BDS 3/3/8.9	6.0	12.2	3.1	3.0	2.5
BDS 4.6/3/8.9	6.0	12.2	3.1	3.0	2.5



Soldering profiles

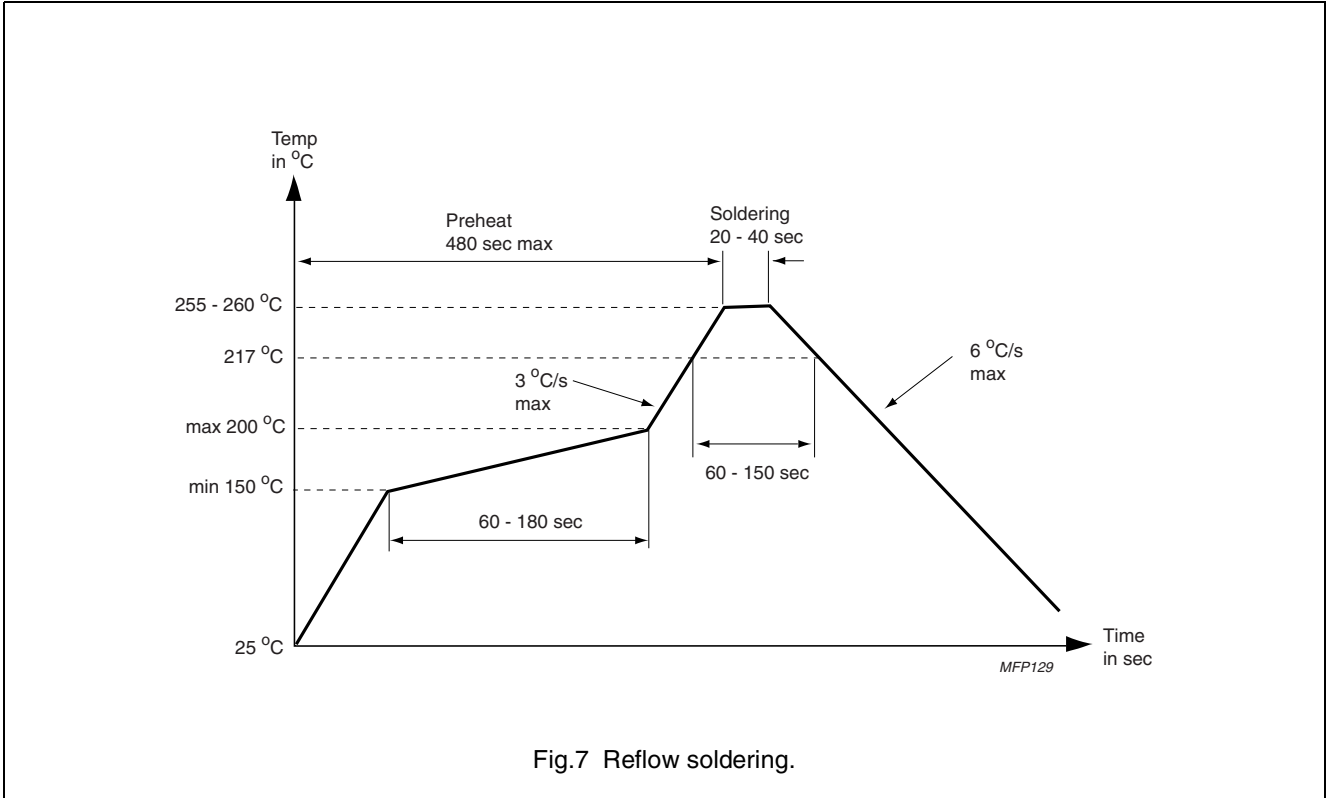
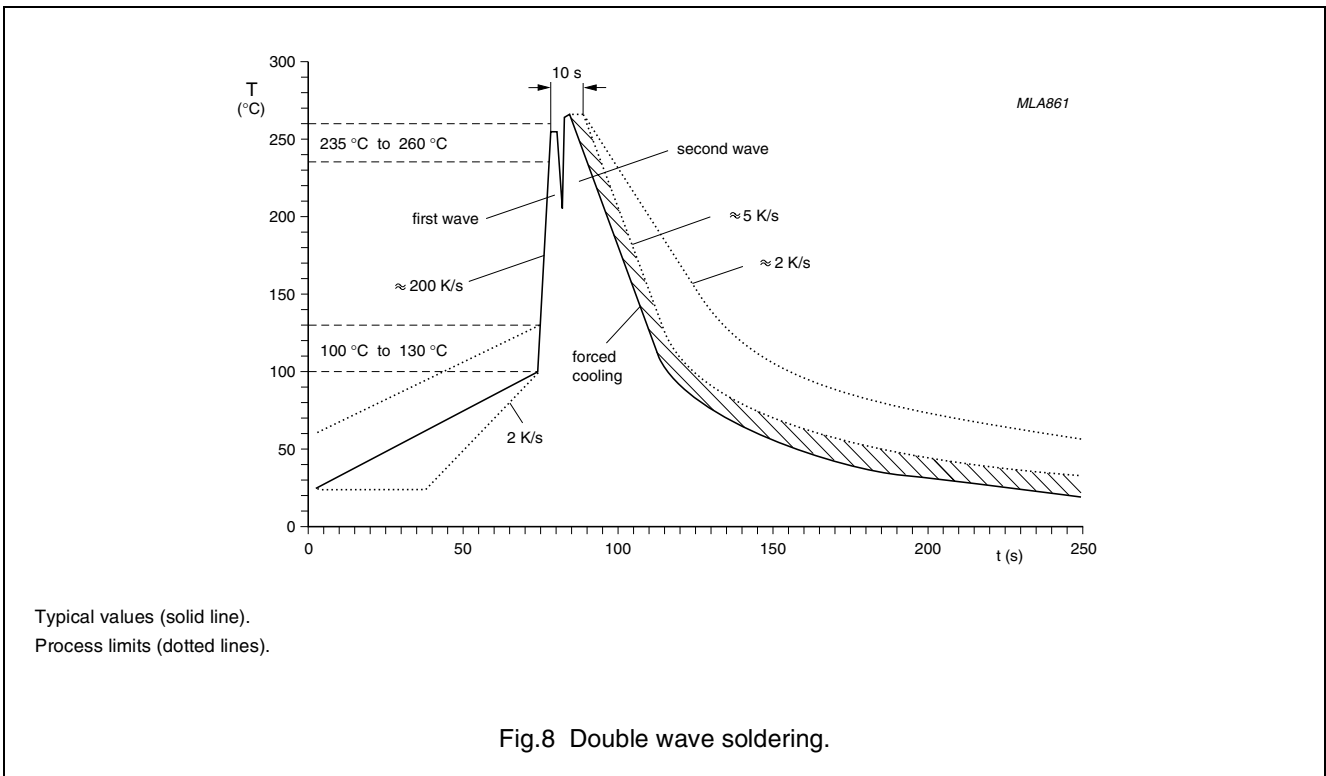


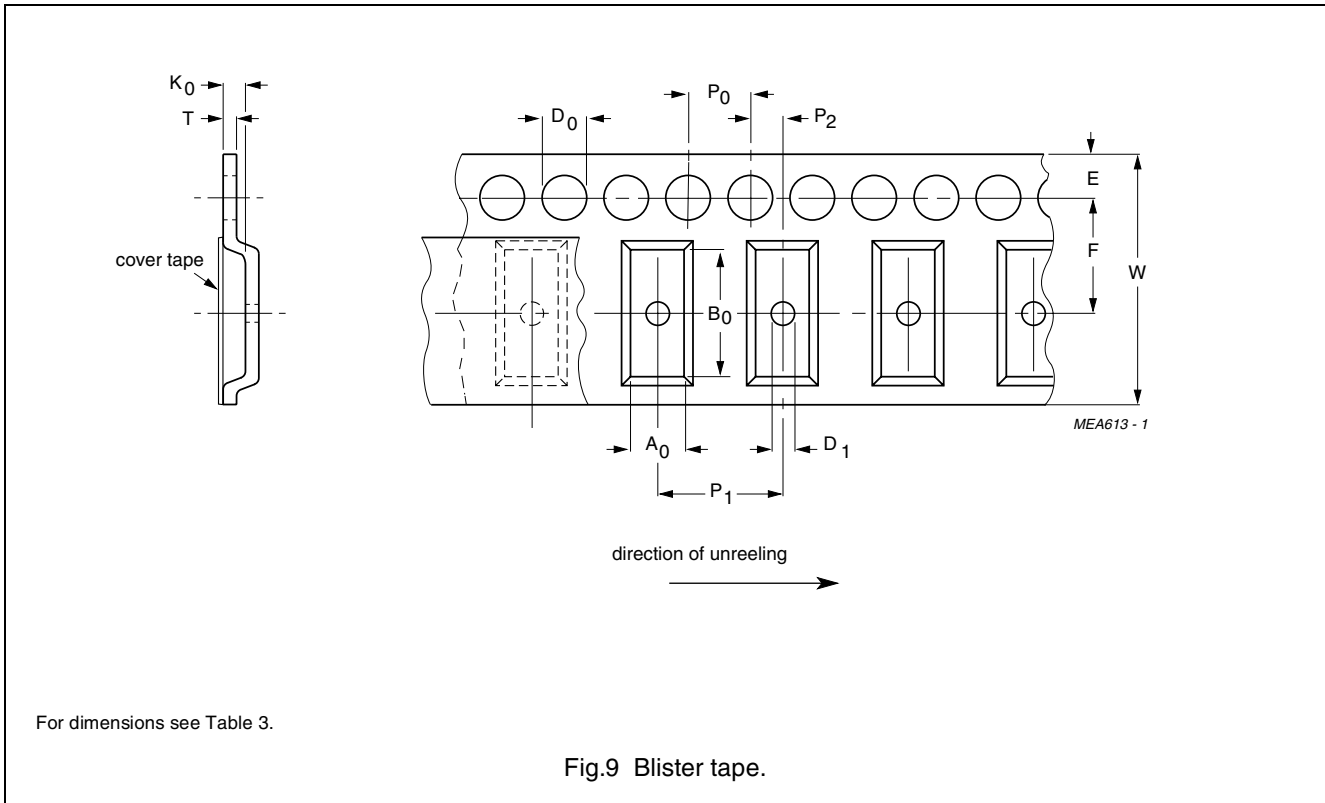
Fig.7 Reflow soldering.



Typical values (solid line).  
Process limits (dotted lines).

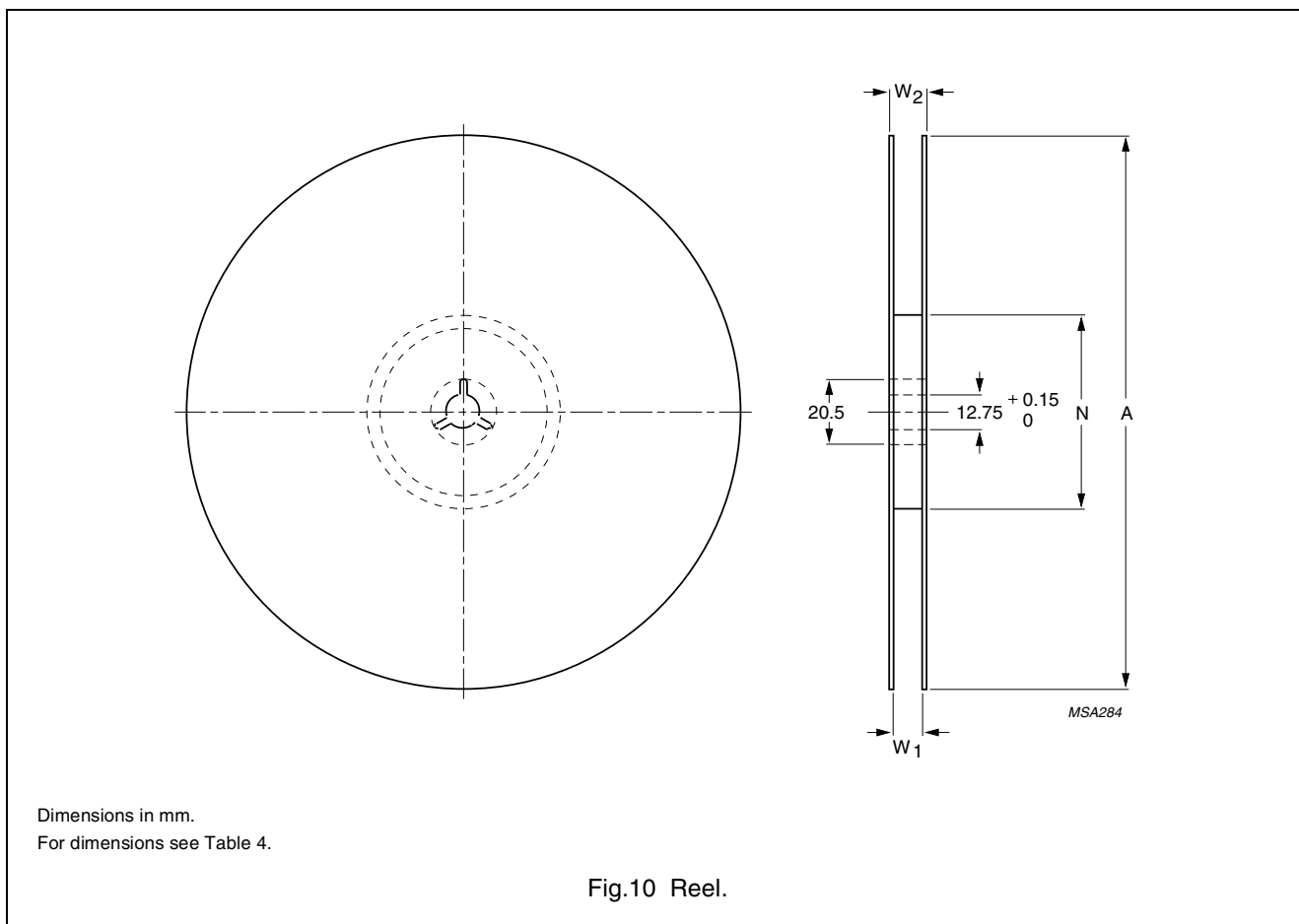
Fig.8 Double wave soldering.

**BLISTER TAPE AND REEL DIMENSIONS**



**Table 3** Physical dimensions of blister tape; see Fig.9

SIZE	DIMENSIONS (mm)			
	BDS3/1.8/5.3	BDS3/3/4.6	BDS3/3/8.9	BDS4.6/3/8.9
A <sub>0</sub>	3.25 ±0.1	3.45 ±0.1	3.45 ±0.1	5.1 ±0.1
B <sub>0</sub>	5.85 ±0.1	5.1 ±0.1	9.4 ±0.1	9.4 ±0.1
K <sub>0</sub>	2.0 ±0.1	3.1 ±0.1	3.1 ±0.1	3.1 ±0.1
T	0.3 ±0.05	0.25 ±10%	0.35 ±0.05	0.3 ±0.05
W	12.0 ±0.3	12.0 ±0.3	16.0 ±0.3	16.0 ±0.3
E	1.75 ±0.1	1.75 ±0.1	1.75 ±0.1	1.75 ±0.1
F	5.5 ±0.05	5.5 ±0.05	7.5 ±0.1	7.5 ±0.1
D <sub>0</sub>	1.5 +0.1	1.5 +0.1	1.5 +0.1	1.5 +0.1
D <sub>1</sub>	≥1.5	≥1.5	≥1.5	≥1.5
P <sub>0</sub>	4.0 ±0.1	4.0 ±0.1	4.0 ±0.1	4.0 ±0.1
P <sub>1</sub>	8.0 ±0.1	8.0 ±0.1	8.0 ±0.1	8.0 ±0.1
P <sub>2</sub>	2.0 ±0.1	2.0 ±0.05	2.0 ±0.1	2.0 ±0.1



**Table 4** Reel dimensions; see Fig.10

SIZE	DIMENSIONS (mm)			
	A	N	W <sub>1</sub>	W <sub>2</sub>
12	330	100 ±5	12.4	≤16.4
16	330	100 ±5	16.4	≤20.4

## EMI-suppression products

## SMD beads




## DATA SHEET STATUS DEFINITIONS

DATA SHEET STATUS	PRODUCT STATUS	DEFINITIONS
Preliminary specification	Development	This data sheet contains preliminary data. Ferroxcube reserves the right to make changes at any time without notice in order to improve design and supply the best possible product.
Product specification	Production	This data sheet contains final specifications. Ferroxcube reserves the right to make changes at any time without notice in order to improve design and supply the best possible product.

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## PRODUCT STATUS DEFINITIONS

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