DATA SHEET

SMD beads

EMI-suppression products

Supersedes data of February 2002   2004 Sep 01

FERROXCUBE

A YAGEO COMPANY

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SMD BEADS FOR EMI SUPPRESSION

General data

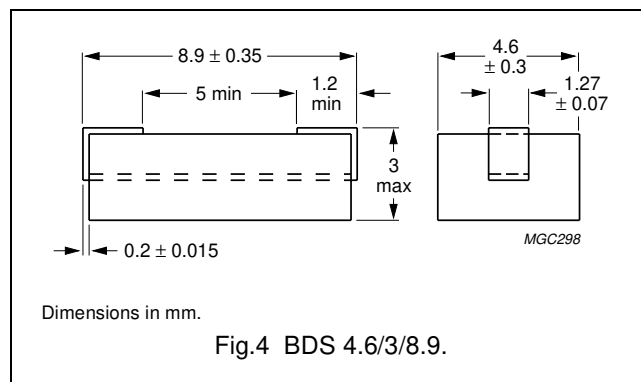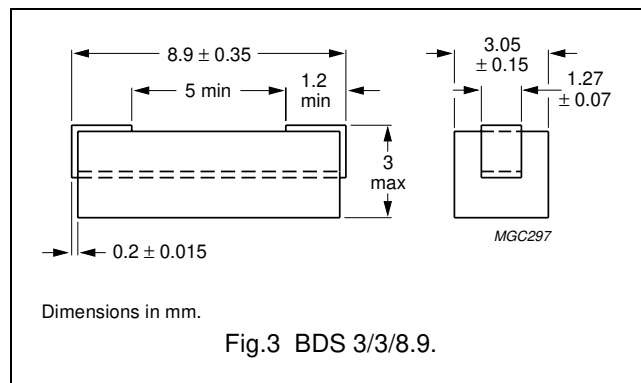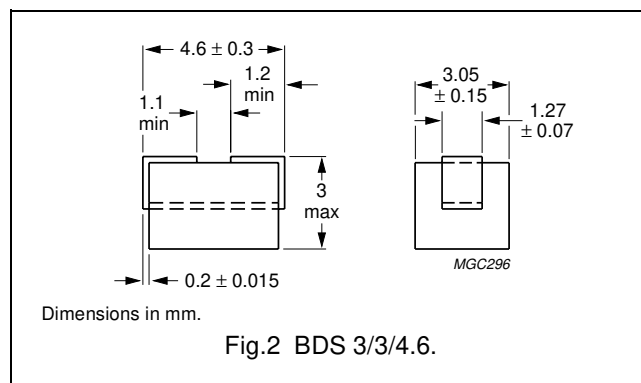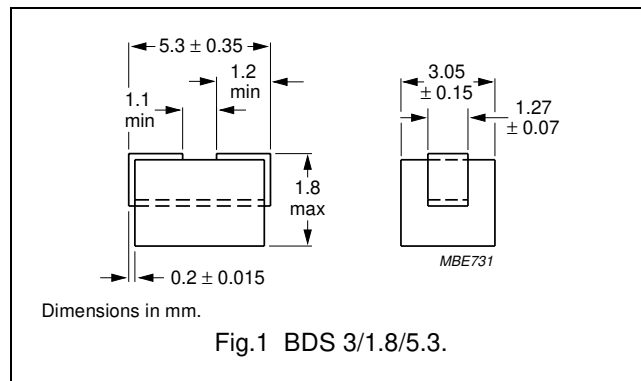| ITEM	SPECIFICATION
Strip material	copper (Cu), tin-lead (SnPb) plated, lead-free (Sn) available on request.
Solderability	*"IEC 60068-2-58"*, Part 2, Test Ta, method 1
Taping method	*"IEC 60286-3"* , *"EIA 481-1"* and *"EIA 481-2"*

Grades, parameters and type numbers

GRADE	$\|Z_{typ}\|$[1] (Ω)	at f (MHz)	TYPE NUMBER
BDS 3/1.8/5.3; mass ≈0.1 g [2]			
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	
BDS 3/3/4.6; mass ≈0.15 g [2]			
3S1	25	3	BDS3/3/4.6-3S1
	45	10	
	35	25	
4S2	30	25	BDS3/3/4.6-4S2
	50	100	
	55	300	
BDS 3/3/8.9; mass ≈0.3 g [3]			
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	
BDS 4.6/3/8.9; mass ≈0.5 g [3]			
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 mΩ.

3. DC resistance <1.0 mΩ

Mechanical data

Dimensions in mm.

Fig.1 BDS 3/1.8/5.3.

Dimensions in mm.

Fig.2 BDS 3/3/4.6.

Dimensions in mm.

Fig.3 BDS 3/3/8.9.

Dimensions in mm.

Fig.4 BDS 4.6/3/8.9.

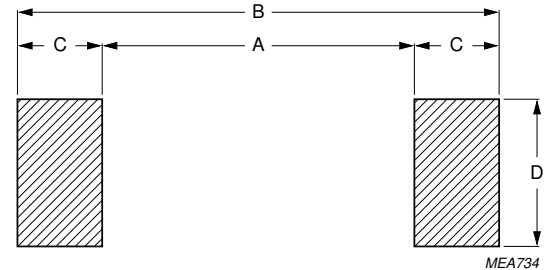# EMI-suppression products

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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

MEA734

For dimensions see Table 1.

Dimensions of solder lands are based on a solder paste layer
thickness of approximately 200 μm ($\approx$0.7 mg solder paste per mm^2).

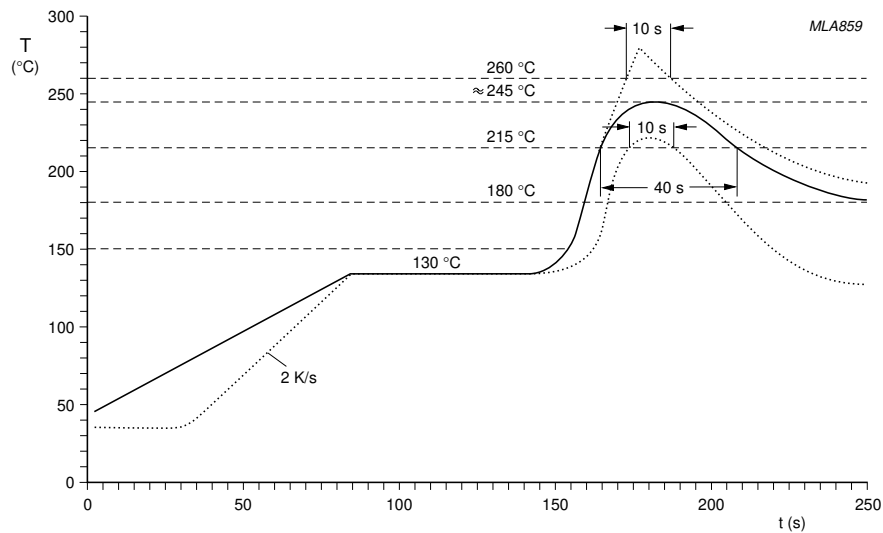Fig.5 Reflow and vapour phase soldering.

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

MEA735
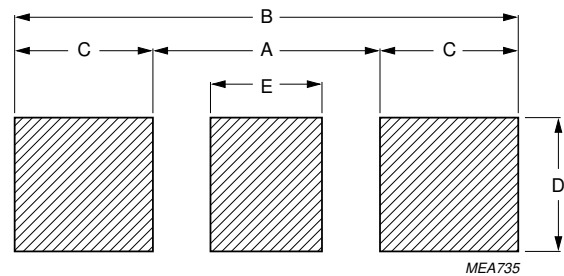
For dimensions see Table 2.
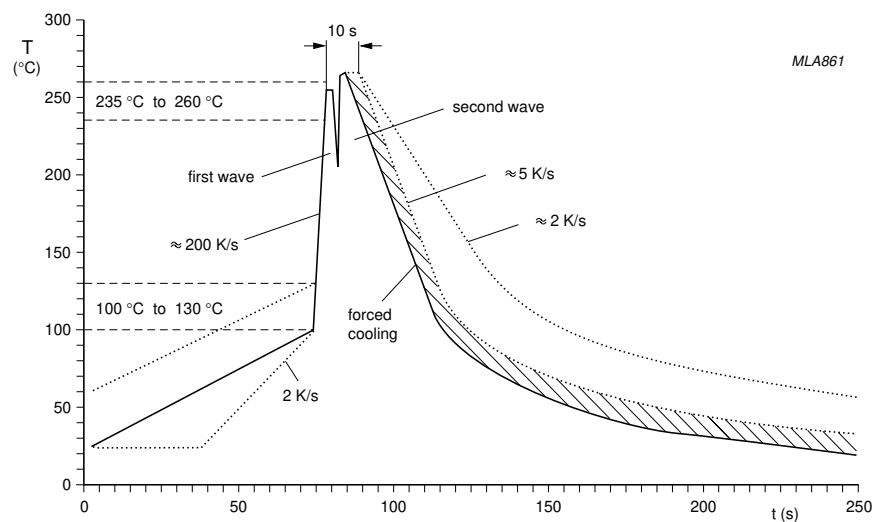
Fig.6 Wave soldering.

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Soldering profiles
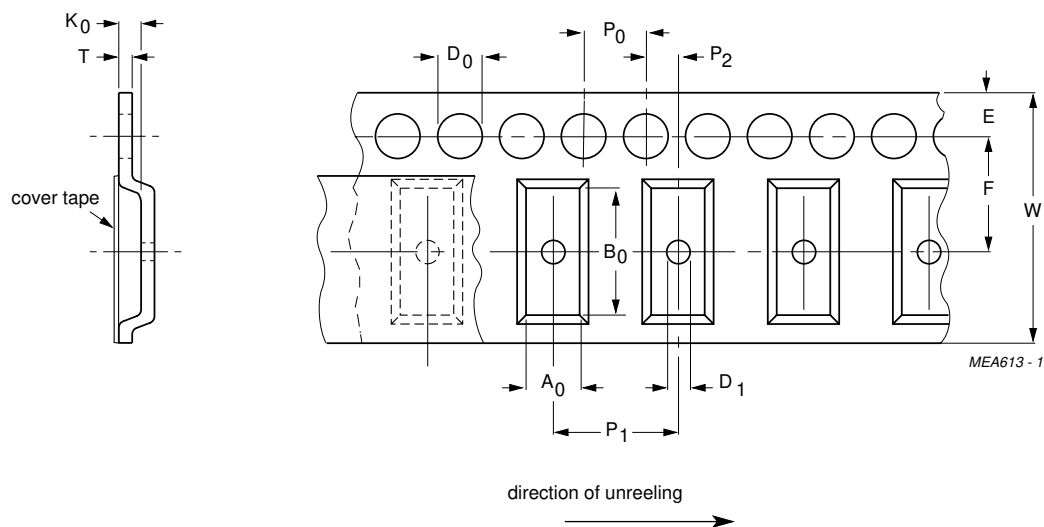

Typical values (solid line).
Process limits (dotted lines).

Fig.7 Reflow soldering.

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

Fig.8 Double wave soldering.

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BLISTER TAPE AND REEL DIMENSIONS

For dimensions see Table 3.

Fig.9 Blister tape.

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_0	3.25 ±0.1	3.45 ±0.1	3.45 ±0.1	5.1 ±0.1
B_0	5.85 ±0.1	5.1 ±0.1	9.4 ±0.1	9.4 ±0.1
K_0	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_0	1.5 +0.1	1.5 +0.1	1.5 +0.1	1.5 +0.1
D_1	≥1.5	≥1.5	≥1.5	≥1.5
P_0	4.0 ±0.1	4.0 ±0.1	4.0 ±0.1	4.0 ±0.1
P_1	8.0 ±0.1	8.0 ±0.1	8.0 ±0.1	8.0 ±0.1
P_2	2.0 ±0.1	2.0 ±0.05	2.0 ±0.1	2.0 ±0.1

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Dimensions in mm.
For dimensions see Table 4.

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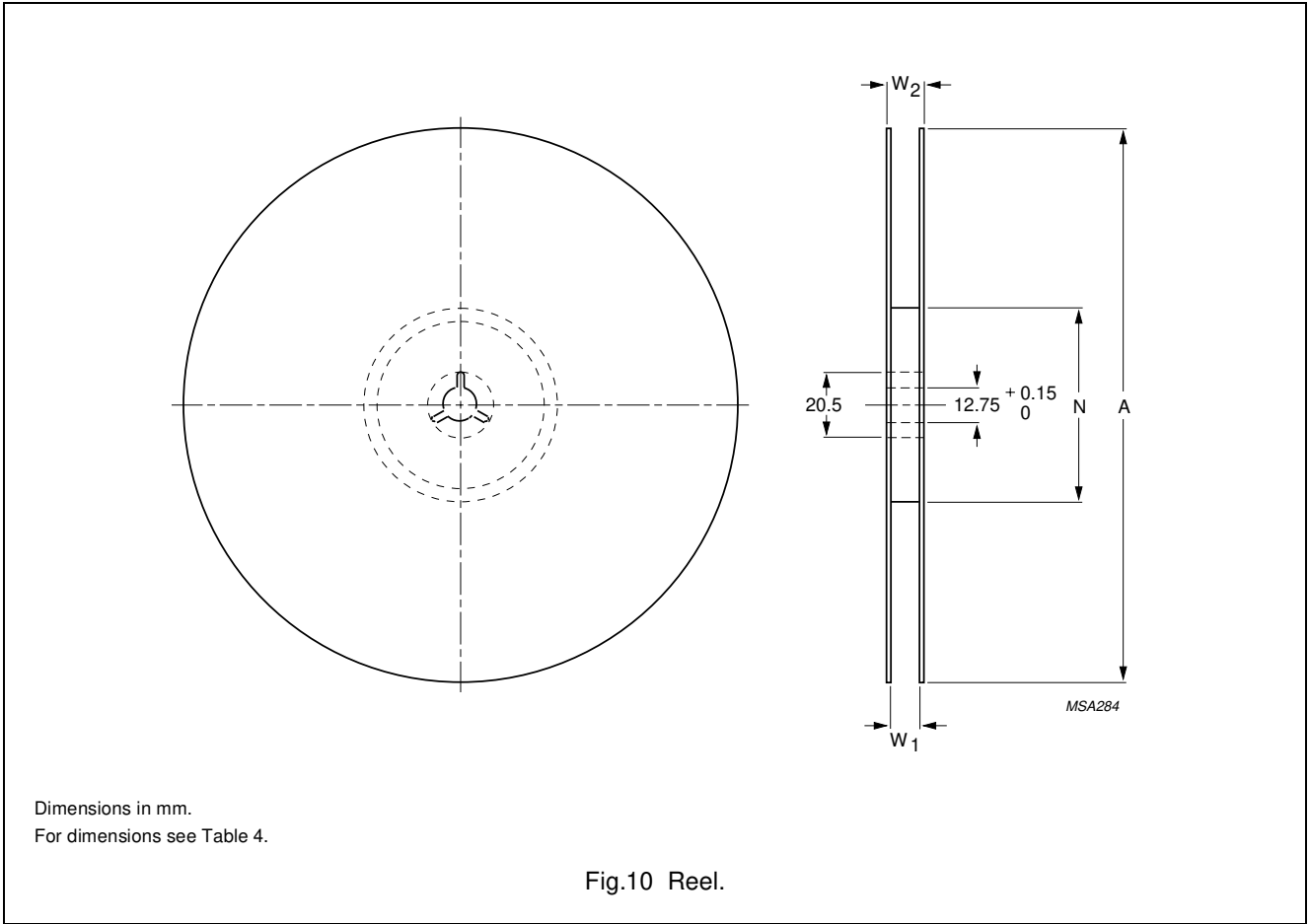
Table 4 Reel dimensions; see Fig.10

SIZE	DIMENSIONS (mm)			
	A	N	W$_1$	W$_2$
12	330	100 ±5	12.4	≤16.4
16	330	100 ±5	16.4	≤20.4

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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

STATUS	INDICATION	DEFINITION
Prototype	**prot**	These are products that have been made as development samples for the purposes of technical evaluation only. The data for these types is provisional and is subject to change.
Design-in	**des**	These products are recommended for new designs.
Preferred		These products are recommended for use in current designs and are available via our sales channels.
Support	**sup**	These products are **not** recommended for new designs and may not be available through all of our sales channels. Customers are advised to check for availability.