

# 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-ETP1, tin (Sn 7-10 µm) plated, Nickel (Ni 1-3 µm) plated
Solderability	"IEC 60068-2-58", Part 2, Test Ta, method 1
Taping method	"IEC 60286-3", "EIA 481-1" and "EIA 481-2"

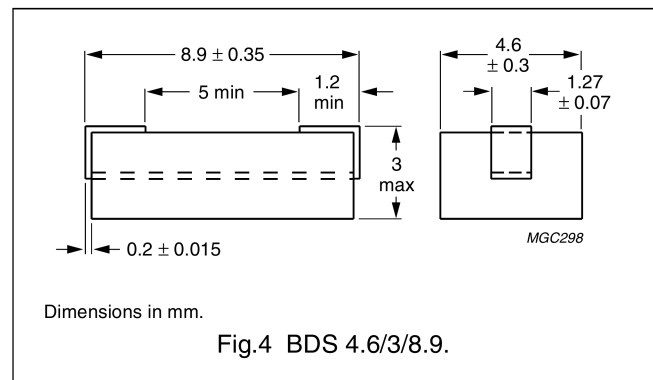
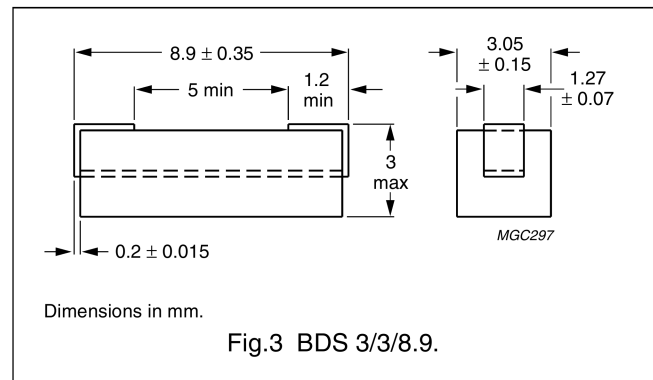
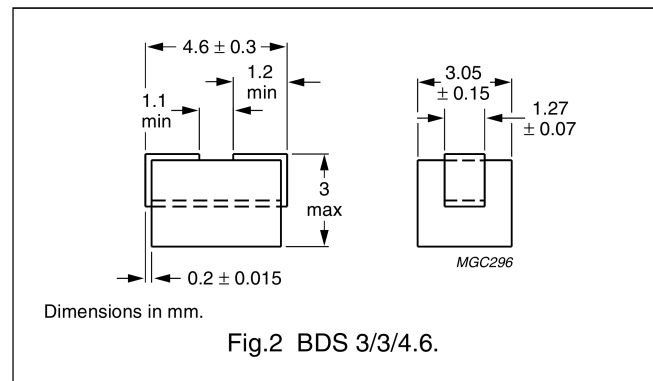
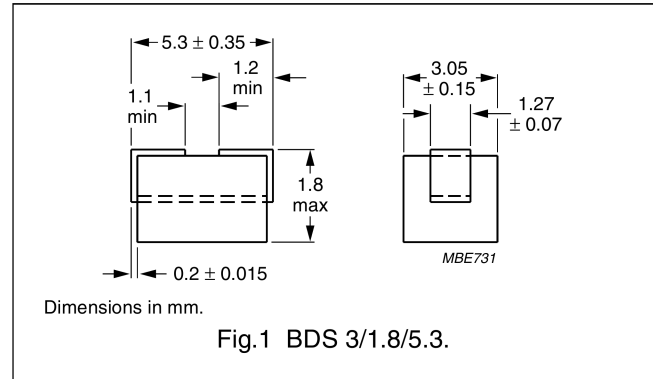
**Grades, parameters and type numbers**

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

**Note**

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

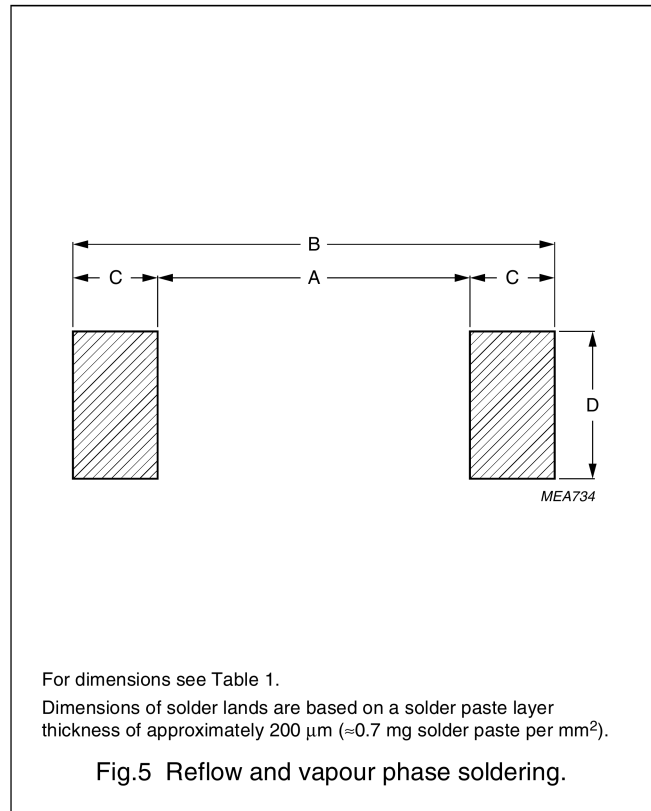
**Mechanical data**



**RECOMMENDED DIMENSIONS OF SOLDER LANDS**

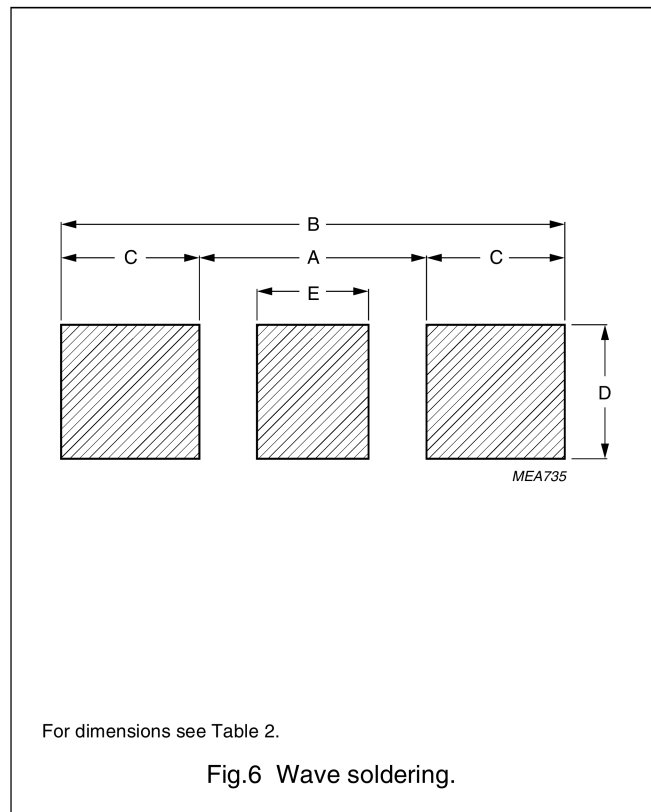
**Table 1** Reflow soldering

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

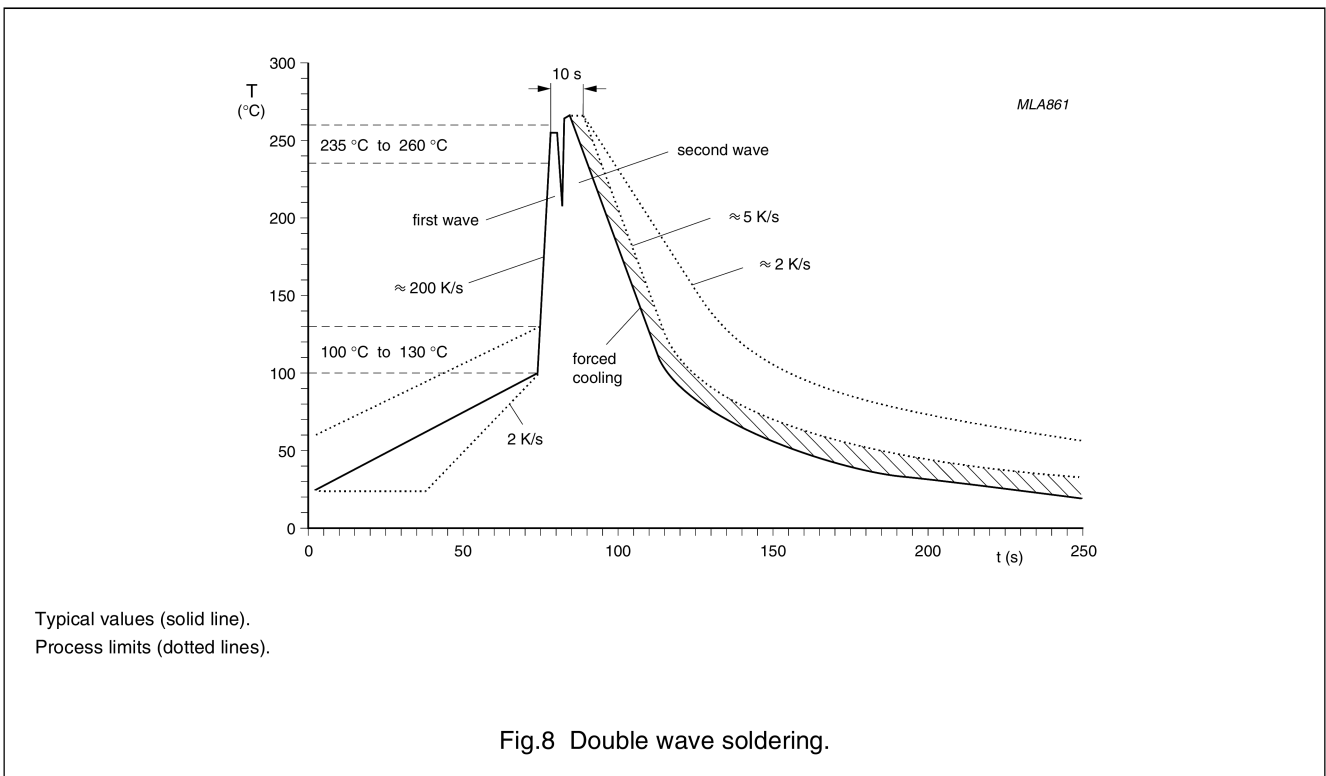
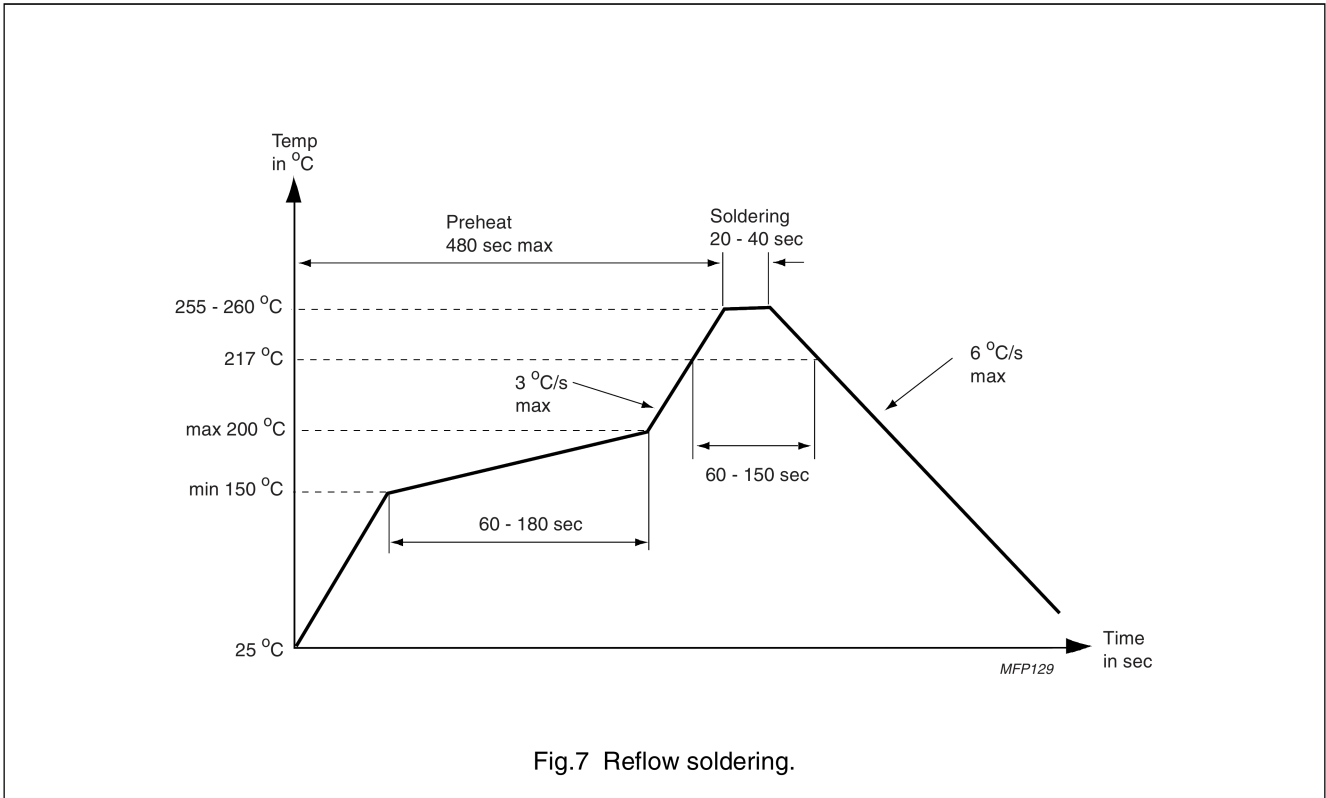


**Table 2** Wave soldering

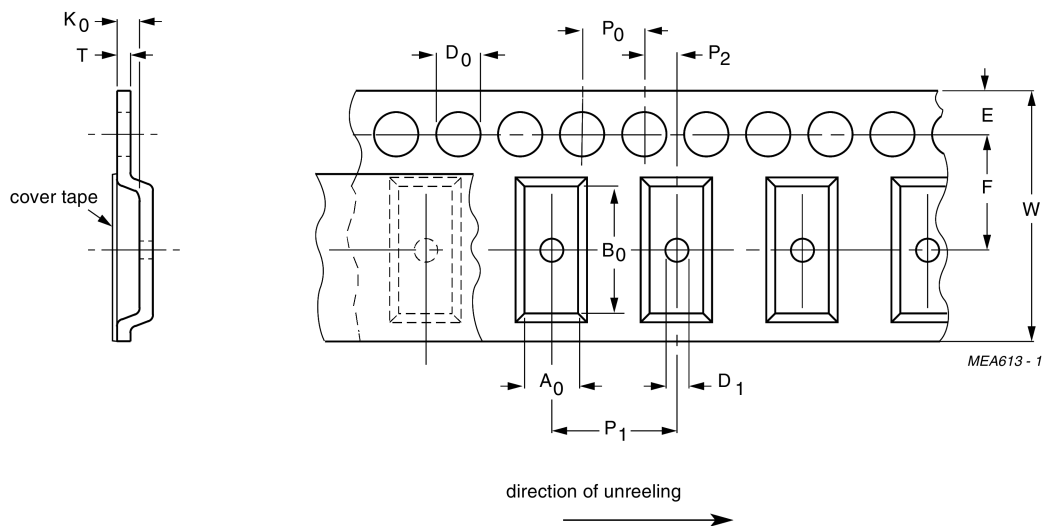
SIZE	DIMENSIONS (mm)				
	A	B	C	D	E
BDS 3/1.8/5.3	2.0	7.2	2.6	3.0	0.8
BDS 3/3/4.6	2.0	6.4	2.2	3.0	0.8
BDS 3/3/8.9	6.0	12.2	3.1	3.0	2.5
BDS 4.6/3/8.9	6.0	12.2	3.1	3.0	2.5



Soldering profiles



**BLISTER TAPE AND REEL DIMENSIONS**

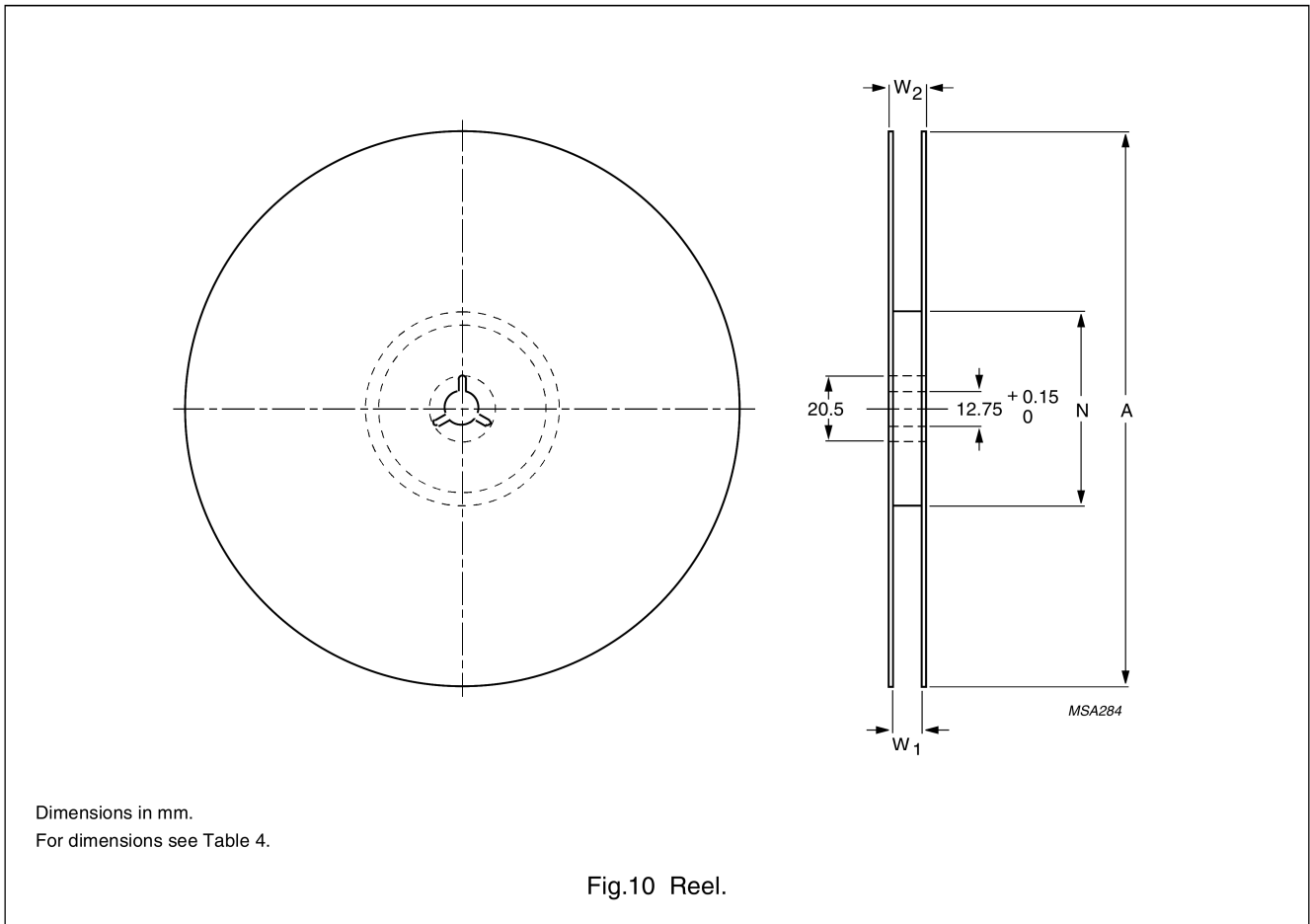


For dimensions see Table 3.

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
$A_0$	$3.25 \pm 0.1$	$3.45 \pm 0.1$	$3.45 \pm 0.1$	$5.1 \pm 0.1$
$B_0$	$5.85 \pm 0.1$	$5.1 \pm 0.1$	$9.4 \pm 0.1$	$9.4 \pm 0.1$
$K_0$	$2.0 \pm 0.1$	$3.1 \pm 0.1$	$3.1 \pm 0.1$	$3.1 \pm 0.1$
$T$	$0.3 \pm 0.05$	$0.25 \pm 10\%$	$0.35 \pm 0.05$	$0.3 \pm 0.05$
$W$	$12.0 \pm 0.3$	$12.0 \pm 0.3$	$16.0 \pm 0.3$	$16.0 \pm 0.3$
$E$	$1.75 \pm 0.1$	$1.75 \pm 0.1$	$1.75 \pm 0.1$	$1.75 \pm 0.1$
$F$	$5.5 \pm 0.05$	$5.5 \pm 0.05$	$7.5 \pm 0.1$	$7.5 \pm 0.1$
$D_0$	$1.5 + 0.1$	$1.5 + 0.1$	$1.5 + 0.1$	$1.5 + 0.1$
$D_1$	$\geq 1.5$	$\geq 1.5$	$\geq 1.5$	$\geq 1.5$
$P_0$	$4.0 \pm 0.1$	$4.0 \pm 0.1$	$4.0 \pm 0.1$	$4.0 \pm 0.1$
$P_1$	$8.0 \pm 0.1$	$8.0 \pm 0.1$	$8.0 \pm 0.1$	$8.0 \pm 0.1$
$P_2$	$2.0 \pm 0.1$	$2.0 \pm 0.05$	$2.0 \pm 0.1$	$2.0 \pm 0.1$



**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

STATUS	INDICATION	DEFINITION
<b>Prototype</b>		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.
<b>Design-in</b>		These products are recommended for new designs.
<b>Preferred</b>		These products are recommended for use in current designs and are available via our sales channels.
<b>Support</b>		These products are <b>not</b> recommended for new designs and may not be available through all of our sales channels. Customers are advised to check for availability.