

# DATA SHEET

## CHIP RESISTORS

Packing



**PACKING**

**TAPE AND REEL SPECIFICATIONS**

All tape and reel specifications are in accordance with "IEC 60286-3". Basic dimensions are given in Figs 1, 2 and 5, and Tables 1, 2 and 3.

**PAPER/PE TAPE**

**ADVANTAGE - PE TAPE**

- Better anti-moisture
- Less fiber
- Meet "ISO 14000" environmental regulation

**MATERIAL CHARACTERISTIC - PE TAPE**

PE is a polymer material commonly used for food containers, plastic bags and toys, so safe for human being. In addition, it is recyclable

conform "ISO14000" environmental packing and America F.D.A restrain regulation.

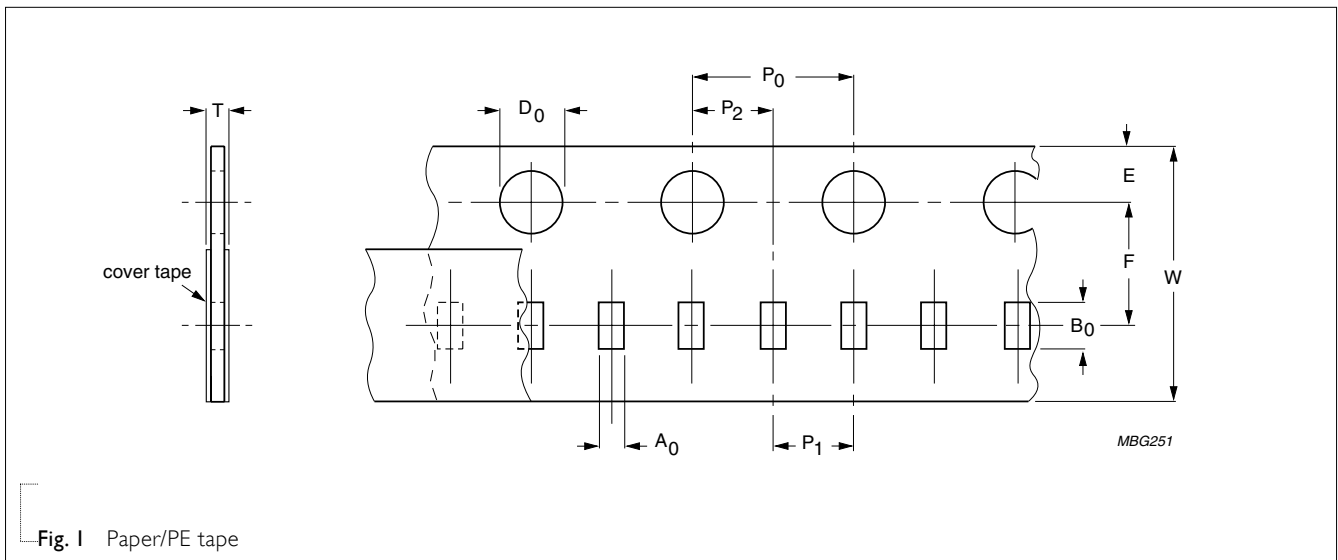


Fig. 1 Paper/PE tape

Table 1 Dimensions of paper/PE tape for relevant chip resistors size; see Fig.1

PRODUCT SIZE	SYMBOL										Unit: mm
CODE	A <sub>0</sub>	B <sub>0</sub>	W	E	F	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	ØD <sub>0</sub>	T	
0201	0.35 ±0.10	0.65 ±0.10	8.0 ±0.20	1.75 ±0.10	3.5 ±0.05	4.0 ±0.10	2.0 ±0.05	2.0 ±0.05	1.5 +0.1/-0	0.35 ±0.10	
0402	0.65 ±0.10	1.15 ±0.10	8.0 ±0.20	1.75 ±0.10	3.5 ±0.05	4.0 ±0.10	2.0 ±0.05	2.0 ±0.05	1.5 +0.1/-0	0.53 ±0.10	
0603	1.10 ±0.10	1.90 ±0.10	8.0 ±0.20	1.75 ±0.10	3.5 ±0.05	4.0 ±0.10	4.0 ±0.05	2.0 ±0.05	1.5 +0.1/-0	0.70 ±0.10	
0805	1.65 ±0.10	2.40 ±0.10	8.0 ±0.20	1.75 ±0.10	3.5 ±0.05	4.0 ±0.10	4.0 ±0.05	2.0 ±0.05	1.5 +0.1/-0	0.85 ±0.10	
1206	1.90 ±0.10	3.50 ±0.10	8.0 ±0.20	1.75 ±0.10	3.5 ±0.05	4.0 ±0.10	4.0 ±0.05	2.0 ±0.05	1.5 +0.1/-0	0.85 ±0.10	
1210	2.80 ±0.10	3.50 ±0.10	8.0 ±0.20	1.75 ±0.10	3.5 ±0.05	4.0 ±0.10	4.0 ±0.05	2.0 ±0.05	1.5 +0.1/-0	0.85 ±0.10	
0404/ 2 × 0402	1.20 ±0.10	1.20 ±0.10	8.0 ±0.20	1.75 ±0.10	3.5 ±0.05	4.0 ±0.10	2.0 ±0.05	2.0 ±0.05	1.5 +0.1/-0	0.53 ±0.10	
2 × 0603 (4P2R)	2.00 ±0.10	2.00 ±0.10	8.0 ±0.20	1.75 ±0.10	3.5 ±0.05	4.0 ±0.10	4.0 ±0.10	2.0 ±0.05	1.5 +0.1/-0	0.85 ±0.05	
4 × 0402	1.20 ±0.10	2.20 ±0.10	8.0 ±0.20	1.75 ±0.10	3.5 ±0.05	4.0 ±0.10	2.0 ±0.05	2.0 ±0.05	1.5 +0.1/-0	0.70 ±0.10	
4 × 0603	2.00 ±0.10	3.50 ±0.10	8.0 ±0.20	1.75 ±0.10	3.5 ±0.05	4.0 ±0.10	4.0 ±0.05	2.0 ±0.05	1.5 +0.1/-0	0.85 ±0.10	
0616 (16P8R)	1.80 ±0.20	4.40 ±0.20	12.0 ±0.30	1.75 ±0.10	5.5 ±0.05	4.0 ±0.10	4.0 ±0.05	2.0 ±0.05	1.5 +0.1/-0	0.70 ±0.10	
0612 (10P8R)	2.00 ±0.10	3.50 ±0.10	8.0 ±0.20	1.75 ±0.10	3.5 ±0.05	4.0 ±0.10	4.0 ±0.05	2.0 ±0.05	1.5 +0.1/-0	0.85 ±0.10	

EMBOSED/BLISTER TAPE

**ENVIRONMENTAL CONSIDERATIONS**

- Cover tape, carrier tape and reel do not contain environmentally harmful PVC materials.
- Cover tape and reel are antistatic.
- Because the carrier tape is made of polycarbonate, a homogeneous material (monoplastic), it is ideally suited for recycling.
- Compared to other PVC-free materials polycarbonate shows excellent stiffness and very little deformation with temperature.

**EMBOSED/BLISTER TAPE**

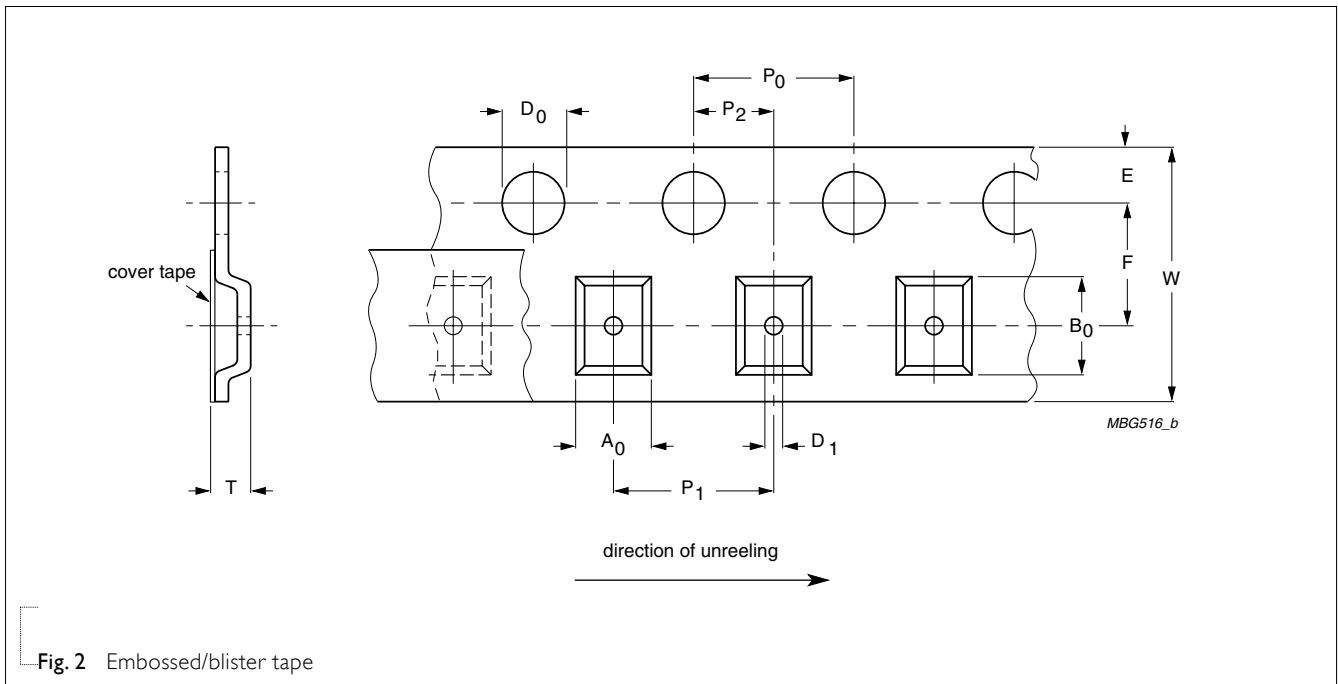
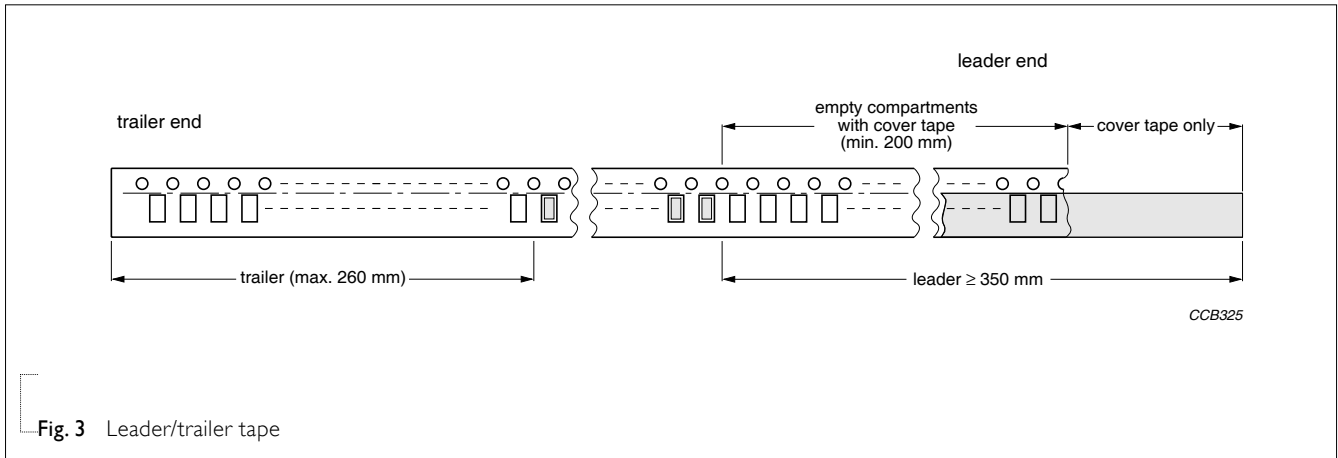


Fig. 2 Embossed/blister tape

Table 2 Dimensions of embossed/blister tape for relevant chip resistors size; see Fig.2

PRODUCT SIZE CODE	SYMBOL										Unit: mm
	$A_0$	$B_0$	$W$	$E$	$F$	$P_0$	$P_1$	$P_2$	$\varnothing D_0$	$\varnothing D_1$	
1218	$3.50 \pm 0.20$	$4.80 \pm 0.20$	$12 \pm 0.20$	$1.75 \pm 0.10$	$5.5 \pm 0.05$	$4.0 \pm 0.10$	$4.0 \pm 0.10$	$2.0 \pm 0.05$	$1.5 + 0.1/-0$	$1.50 + 0.25/-0$	$1.0 \pm 0.10$
2010	$2.80 \pm 0.20$	$5.40 \pm 0.20$	$12 \pm 0.20$	$1.75 \pm 0.10$	$5.5 \pm 0.05$	$4.0 \pm 0.10$	$4.0 \pm 0.10$	$2.0 \pm 0.05$	$1.5 + 0.1/-0$	$1.50 + 0.25/-0$	$1.0 \pm 0.10$
2512	$3.50 \pm 0.20$	$6.70 \pm 0.20$	$12 \pm 0.20$	$1.75 \pm 0.10$	$5.5 \pm 0.05$	$4.0 \pm 0.10$	$4.0 \pm 0.10$	$2.0 \pm 0.05$	$1.5 + 0.1/-0$	$1.50 + 0.25/-0$	$1.0 \pm 0.10$
1220 (8P4R)	$3.20 \pm 0.20$	$5.60 \pm 0.20$	$12 \pm 0.20$	$1.75 \pm 0.10$	$5.5 \pm 0.05$	$4.0 \pm 0.10$	$4.0 \pm 0.10$	$2.0 \pm 0.05$	$1.5 + 0.1/-0$	$1.50 + 0.25/-0$	$1.0 \pm 0.10$
1225 (10P8R)	$3.50 \pm 0.20$	$6.70 \pm 0.20$	$12 \pm 0.20$	$1.75 \pm 0.10$	$5.5 \pm 0.05$	$4.0 \pm 0.10$	$4.0 \pm 0.10$	$2.0 \pm 0.05$	$1.5 + 0.1/-0$	$1.50 + 0.25/-0$	$1.0 \pm 0.10$

**LEADER/TRAILER TAPE SPECIFICATION**



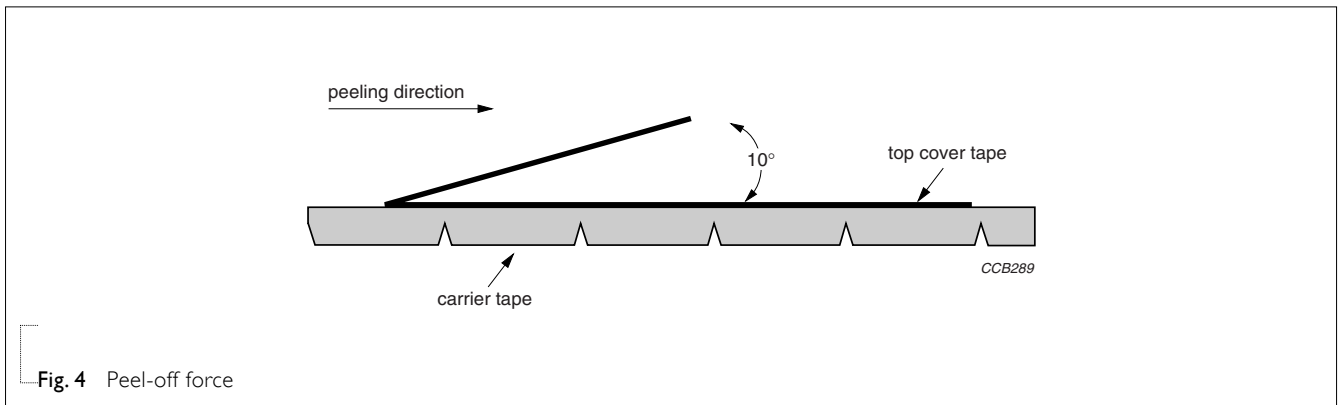
**Fig. 3** Leader/trailer tape

**TAPING REQUIREMENTS**

- Resistance side faces up.
- Component is free and not sticking to top and/or bottom tape.
- Component should be easy to remove from carrier tape and the chip cavity should have no mechanical damage.

**PEEL-OFF FORCE**

Peel-off forces of both paper/PE and embossed/blister tapes are in accordance with "IEC 60286-3"; that is, at a peel-off speed of 300 ±30 mm/minute, 0.2 N to 1.0 N for 8 mm tape and 0.1 N to 1.3 N for tape larger than 8 mm. The peel-off angle should be between 165° and 180°.



**Fig. 4** Peel-off force

**REEL SPECIFICATION**

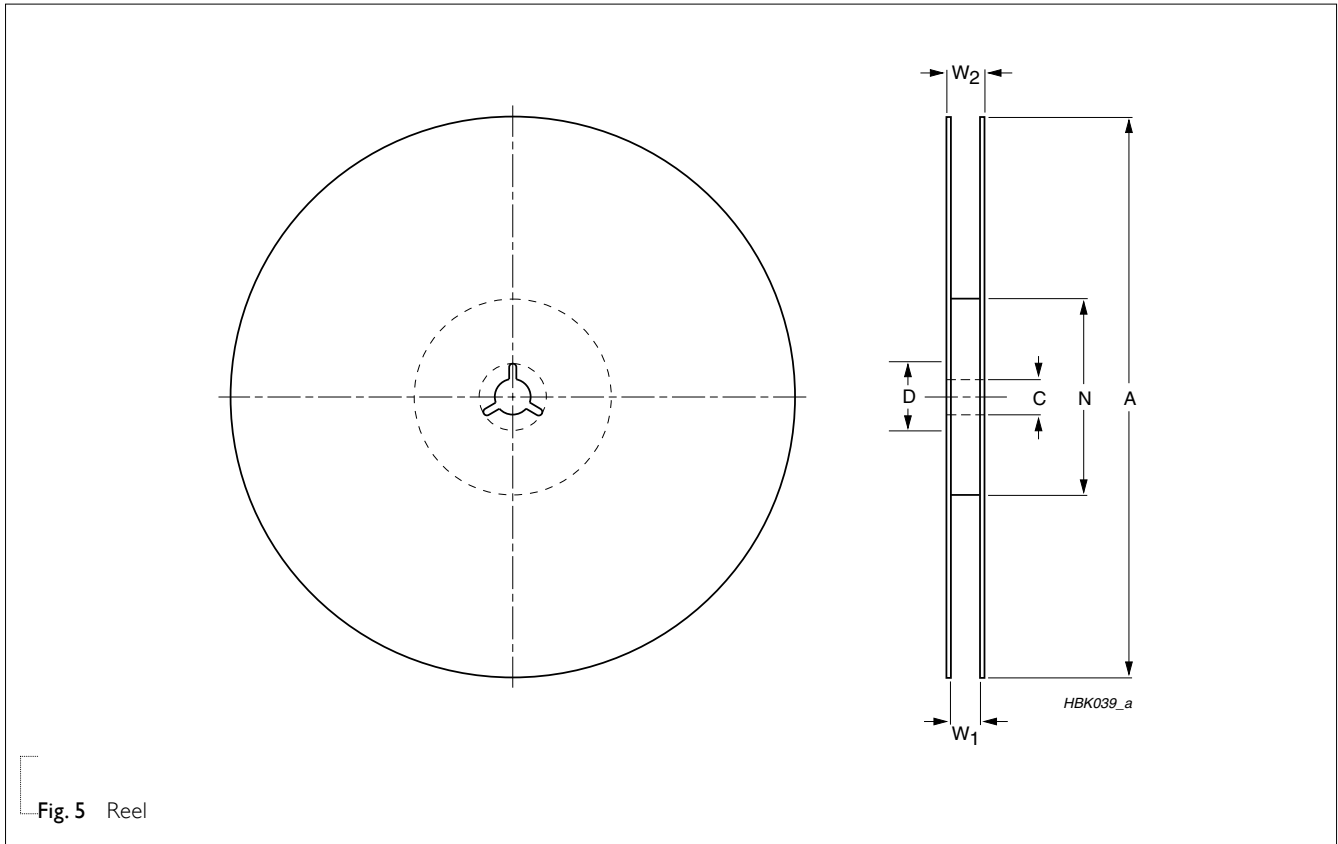


Fig. 5 Reel

Table 3 Dimensions of reel specification for relevant chip resistors size; see Fig.5

PRODUCT SIZE CODE	QUANTITY PER REEL	REEL SIZE		SYMBOL						unit: mm
		8 mm tape width	12 mm tape width	A	N	C	D	W <sub>1</sub>	W <sub>2</sub> max.	
0201	10,000	7" (Ø178 mm)	---	180 +0/-3	60 +1/-0	13.0 ±0.2		9.0 ±0.2	12.0 ±0.2	
	20,000	10" (Ø254 mm)	---	254 +0/-3	100 ±0.5	13.0 ±0.2		9.8 ±0.5	13.0 ±0.5	
	50,000	13" (Ø330 mm)	---	330 +0/-3		13.5 ±0.5		10.0 ±0.5	14.0 ±0.5	
0402	10,000	7" (Ø178 mm)	---	180 +0/-3	60 +1/-0	13.0 ±0.2		9.0 ±0.2	12.0 ±0.2	
	20,000	10" (Ø254 mm)	---	254 +0/-3	100 ±0.5	13.0 ±0.2		9.8 ±0.5	13.0 ±0.5	
	50,000	13" (Ø330 mm)	---	330 +0/-3		13.5 ±0.5		10.0 ±0.5	14.0 ±0.5	
0603/ 0805/1206	5,000	7" (Ø178 mm)	---	180 +0/-3	60 +1/-0	13.0 ±0.2		9.0 ±0.2	12.0 ±0.2	
	10,000	10" (Ø254 mm)	---	254 +0/-3	100 ±0.5	13.0 ±0.2	21.0 ±0.8	9.8 ±0.5	13.0 ±0.5	
	20,000	13" (Ø330 mm)	---	330 +0/-3		13.5 ±0.5		10.0 ±0.5	14.0 ±0.5	
1210	5,000	7" (Ø178 mm)	---	180 +0/-3	60 +1/-0	13.0 ±0.2		9.0 ±0.2	12.0 ±0.2	
	20,000	13" (Ø330 mm)	---	330 +0/-3	100 ±0.5	13.5 ±0.5		10.0 ±0.5	14.0 ±0.5	
1218	4,000	---	7" (Ø178 mm)	180 +0/-3						
2010	4,000	---	7" (Ø178 mm)	180 +0/-3	60 +1/-0	13.5 ±0.5		13.6 ±0.5	16.5 ±0.5	
2512	4,000	---	7" (Ø178 mm)	180 +0/-3						

**Table 3** Dimensions of reel specification for relevant chip resistor size; see Fig.5 (continued)

PRODUCT SIZE CODE	TYPE	QUANTITY PER REEL	REEL SIZE		SYMBOL				unit: mm	
			8 mm tape width	12 mm tape width	A	N	C	D	W <sub>1</sub>	W <sub>2 max.</sub>
0404	ATV321	10,000	7" (Ø178 mm)	—	180 +0/-3	60 +1/-0	13.0 ±0.2		9.0 ±0.2	12.0 ±0.2
2 × 0402 (4P2R)	YC/TC122	10,000	7" (Ø178 mm)	—	180 +0/-3	60 +1/-0	13.0 ±0.2		9.0 ±0.2	12.0 ±0.2
		50,000	13" (Ø330 mm)	—	330 +0/-3	100 ±0.5	13.5 ±0.5		10.0 ±0.5	14.0 ±0.5
4 × 0402 (8P4R)	YC/TC124	10,000	7" (Ø178 mm)	—	180 +0/-3	60 +1/-0	13.0 ±0.2		9.0 ±0.2	12.0 ±0.2
		40,000	13" (Ø330 mm)	—	330 +0/-3	100 ±0.5	13.5 ±0.5		10.0 ±0.5	14.0 ±0.5
2 × 0603 (4P2R)	YC/TC162	10,000	7" (Ø178 mm)	—	180 +0/-3	60 +1/-0	13.0 ±0.2		9.0 ±0.2	12.0 ±0.2
4 × 0603 (8P4R)	YC/TC164	5,000	7" (Ø178 mm)	—	180 +0/-3	60 +1/-0	13.0 ±0.2	21.0 ±0.8	9.0 ±0.2	12.0 ±0.2
		20,000	13" (Ø330 mm)	—	330 +0/-3	100 ±0.5	13.5 ±0.5		10.0 ±0.5	14.0 ±0.5
1220 (8P4R)	YC324	4,000	—	7" (Ø178 mm)	180 +0/-3	60 +1/-0	13.5 ±0.5		13.6 ±0.5	16.5 ±0.5
0616 (16P8R)	YC248	5,000	7" (Ø178 mm)	—	180 +0/-3	60 +1/-0	13.0 ±0.2		9.0 ±0.2	12.0 ±0.2
0612 (10P8R)	YC158	5,000	7" (Ø178 mm)	—	180 +0/-3	60 +1/-0	13.0 ±0.2		9.0 ±0.2	12.0 ±0.2
		20,000	13" (Ø330 mm)	—	330 +0/-3	100 ±0.5	13.5 ±0.5		10.0 ±0.5	14.0 ±0.5
1225 (10P8R)	YC358	4,000	—	7" (Ø178 mm)	180 +0/-3	60 +1/-0	13.5 ±0.5		13.6 ±0.5	16.5 ±0.5

REVISION HISTORY

REVISION	DATE	CHANGE NOTIFICATION	DESCRIPTION
Version 6	Apr 03, 2008	-	- Size 2 x 0603 extended and updated in PE tape and reel specification - Updated Fig. 3 for leader/trailer tape specification
Version 5	Nov 16, 2004	-	- PE tape added - Bulk-case removed. - Yageo /Phycomp brand combined
Version 4	Jul 25, 2003	-	- Updated company logo
Version 3	Jul 16, 2001	-	- 0201 packing information added
Version 2	May 30, 2001	-	- Converted to Phycomp brand