

# 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 is safe for human beings. In addition, it is recyclable.
- Conform to “ISO14000” environmental packing and American F.D.A restraint regulations.

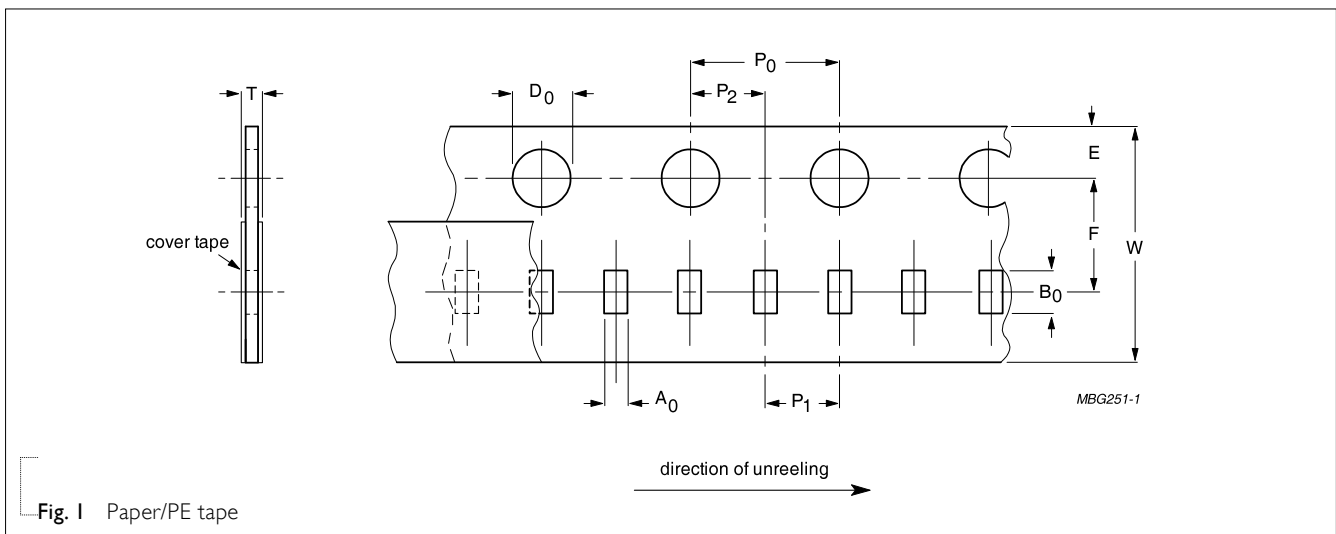


Fig. 1 Paper/PE tape

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

PRODUCT SIZE CODE	SYMBOL										Unit: mm
	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	
0075	0.17±0.02	0.32±0.02	4.0±0.05	0.90±0.05	1.80±0.02	2.0±0.04	1.0±0.02	1.0±0.02	0.8±0.04	0.14±0.02	
0100	0.24±0.03	0.45±0.03	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	0.33±0.10	
0201	0.38±0.05	0.70±0.05	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 <sup>(1)</sup>	
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 <sup>(3)</sup>	
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	
2 × 0201 (4P2R)	0.71±0.05	0.9±0.10	8.0±0.10	1.75±0.10	3.5±0.05	4.0±0.05	2.0±0.1 0	2.0±0.05	1.55±0.1	0.43±0.10	
2 × 0201 M <sup>(2)</sup> (4P2R)	0.71±0.05	0.9±0.10	8.0±0.10	1.75±0.10	3.5±0.05	4.0±0.05	2.0±0.1 0	2.0±0.05	1.55±0.1	0.33±0.10	
4 × 0201 (8P4R)	0.71±0.05	1.57±0.10	8.0±0.10	1.75±0.1	3.5±0.05	4.0±0.05	2.0±0.1 0	2.0±0.05	1.55±0.1	0.43±0.10	
4 × 0201 M <sup>(2)</sup> (8P4R)	0.71±0.05	1.57±0.10	8.0±0.10	1.75±0.1	3.5±0.05	4.0±0.05	2.0±0.1 0	2.0±0.05	1.55±0.1	0.33±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	

**NOTE**

1. For size 0201, the typical value of thickness (excluding cover tape) is 0.42 mm for paper tape and 0.33 mm for PE tape.
2. M is reversed type.
3. For size 1206, the typical value of thickness ( excluding cover tape) is 0.75±0.1

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**

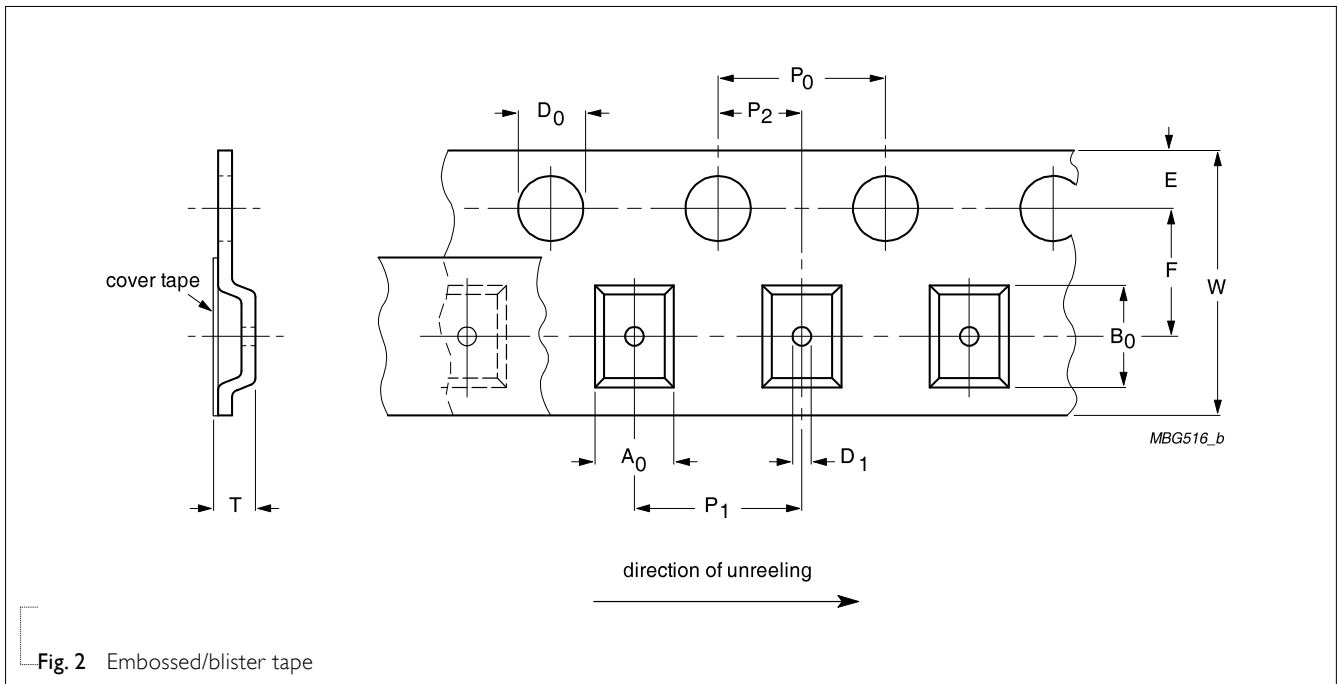
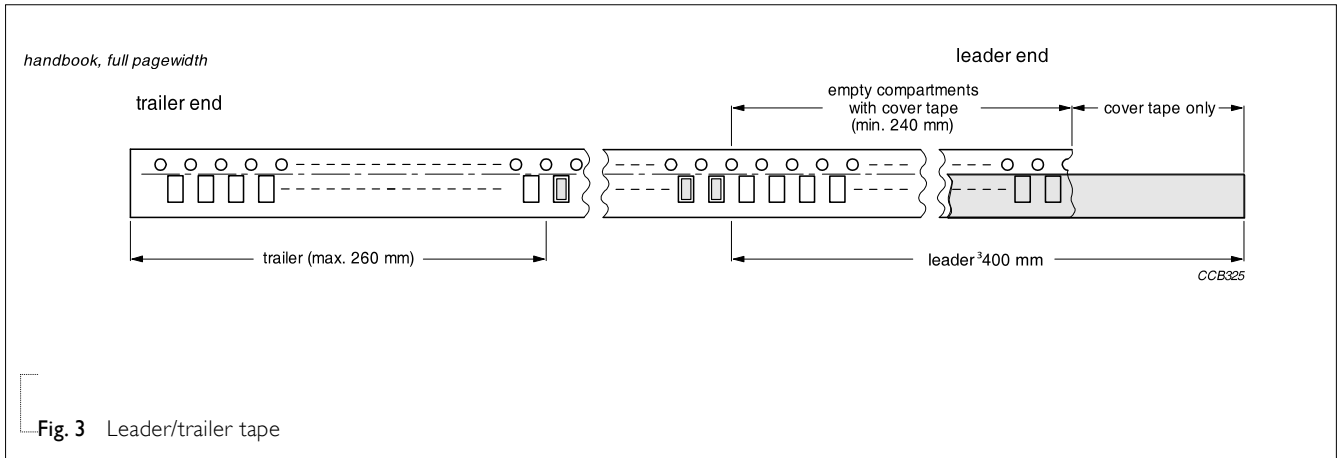


Fig. 2 Embossed/blister tape

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

PRODUCT SIZE CODE	SYMBOL										Unit: mm
	A <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>	ØD <sub>1</sub>	
1218	3.50 ±0.20	4.80 ±0.20	12 ±0.20	1.75 ±0.10	5.5 ±0.05	4.0 ±0.10	4.0 ±0.10	2.0 ±0.05	1.5 +0.1/-0	1.50 +0.25/-0	1.0 ±0.10
2010	2.80 ±0.20	5.40 ±0.20	12 ±0.20	1.75 ±0.10	5.5 ±0.05	4.0 ±0.10	4.0 ±0.10	2.0 ±0.05	1.5 +0.1/-0	1.50 +0.25/-0	1.0 ±0.10
2512	3.50 ±0.20	6.70 ±0.20	12 ±0.20	1.75 ±0.10	5.5 ±0.05	4.0 ±0.10	4.0 ±0.10	2.0 ±0.05	1.5 +0.1/-0	1.50 +0.25/-0	1.0 ±0.10
1220 (8P4R)	3.20 ±0.20	5.60 ±0.20	12 ±0.20	1.75 ±0.10	5.5 ±0.05	4.0 ±0.10	4.0 ±0.10	2.0 ±0.05	1.5 +0.1/-0	1.50 +0.25/-0	1.0 ±0.10
1225 (10P8R)	3.50 ±0.20	6.70 ±0.20	12 ±0.20	1.75 ±0.10	5.5 ±0.05	4.0 ±0.10	4.0 ±0.10	2.0 ±0.05	1.5 +0.1/-0	1.50 +0.25/-0	1.0 ±0.10

**LEADER/TRAILER TAPE SPECIFICATION**

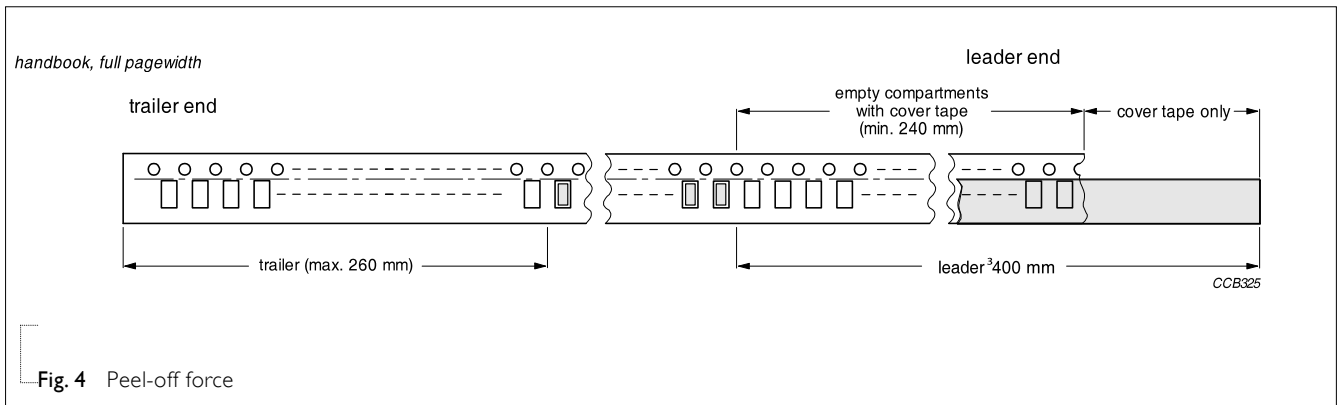


**TAPING REQUIREMENTS**

- 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 ±10 mm/minute, 0.1 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°.



**REEL SPECIFICATION**

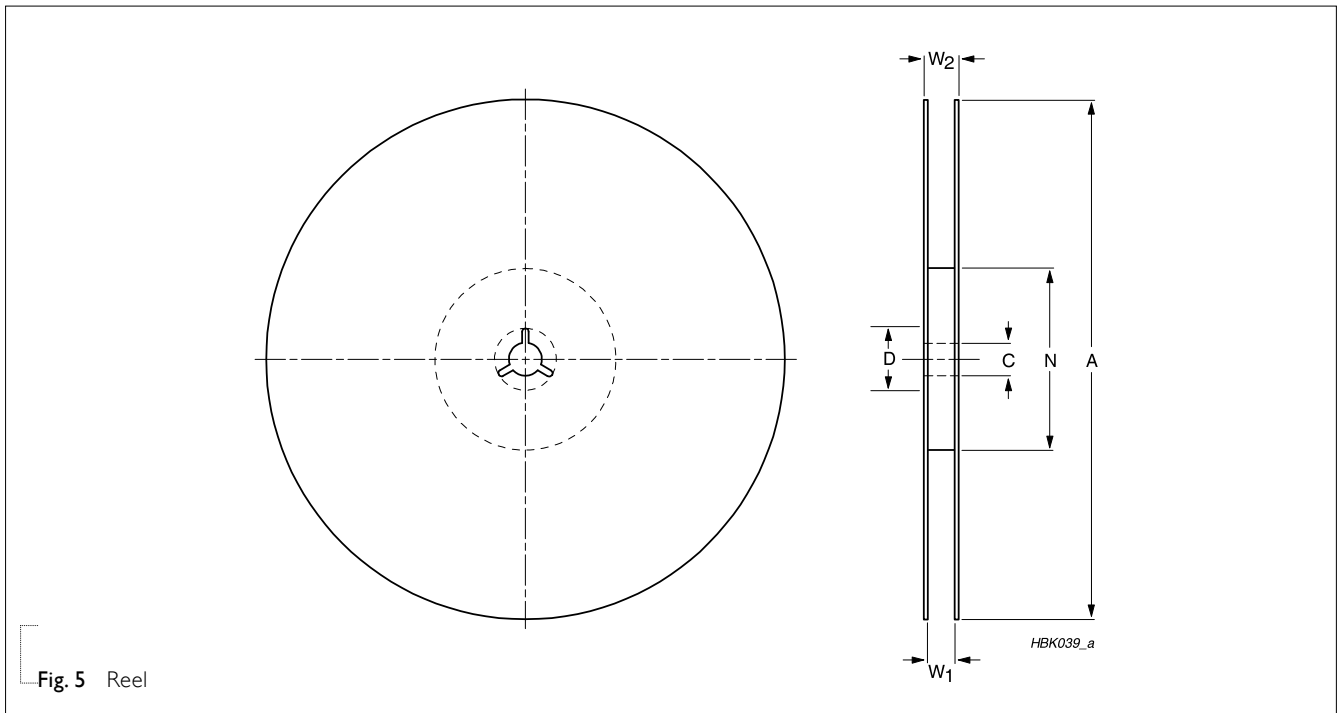


Fig. 5 Reel

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 max.</sub>
0075	20,000		---						
	20,000	7" (Ø178 mm)	---	180 +0/-3	60 +1/-0	13.0 ±0.2		9.0 ±0.2	12.0 ±0.2
0100	40,000		---						
	80,000	13" (Ø330 mm)	---	330 +0/-3	100 ±0.5	13.5 ±0.5		10.0 ±0.5	14.0 ±0.5
0201	10,000								
	15,000	7" (Ø178 mm)	---	180 +0/-3	60 +1/-0	13.0 ±0.2		9.0 ±0.2	12.0 ±0.2
	20,000								
0402	50,000	13" (Ø330 mm)	---	330 +0/-3	100 ±0.5	13.5 ±0.5		10.0 ±0.5	14.0 ±0.5
	10,000								
	20,000	7" (Ø178 mm)	---	180 +0/-3	60 +1/-0	13.0 ±0.2		9.0 ±0.2	12.0 ±0.2
0603/ 0805/1206	20,000	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
	50,000	13" (Ø330 mm)	---	330 +0/-3		13.5 ±0.5		10.0 ±0.5	14.0 ±0.5
	5,000	7" (Ø178 mm)	---	180 +0/-3	60 +1/-0	13.0 ±0.2		9.0 ±0.2	12.0 ±0.2
1210	10,000	10" (Ø254 mm)	---	254 +0/-3	100 ±0.5	13.0 ±0.2		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
	5,000	7" (Ø178 mm)	---	180 +0/-3	60 +1/-0	13.0 ±0.2		9.0 ±0.2	12.0 ±0.2
1218	20,000	13" (Ø330 mm)	---	330 +0/-3	100 ±0.5	13.5 ±0.5		10.0 ±0.5	14.0 ±0.5
	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 4** 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	130 ±0.2		9.0 ±0.2	12.0 ±0.2
2 × 0201 & 2 × 0201 M (4P2R)	YC102	10,000	7" (Ø178 mm)	—	180 +0/-3	60 +1/-0	130 ±0.2		9.0 ±0.2	12.0 ±0.2
4 × 0201 & 4 × 0201 M (8P4R)	YC104	10,000	7" (Ø178 mm)	—	180 +0/-3	60 +1/-0	130 ±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	130 ±0.2		9.0 ±0.2	12.0 ±0.2
		50,000	13" (Ø330 mm)	—	330 +0/-3	100 ±0.5	135 ±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	130 ±0.2		9.0 ±0.2	12.0 ±0.2
		40,000	13" (Ø330 mm)	—	330 +0/-3	100 ±0.5	135 ±0.5	21.0 ±0.8	10.0 ±0.5	14.0 ±0.5
2 × 0603 (4P2R)	YC/TC162	10,000	7" (Ø178 mm)	—	180 +0/-3	60 +1/-0	130 ±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	130 ±0.2		9.0 ±0.2	12.0 ±0.2
		20,000	13" (Ø330 mm)	—	330 +0/-3	100 ±0.5	135 ±0.5		10.0 ±0.5	14.0 ±0.5
1220 (8P4R)	YC324	4,000	—	7" (Ø178 mm)	180 +0/-3	60 +1/-0	135 ±0.5		13.6 ±0.5	16.5 ±0.5
0616 (16P8R)	YC248	4,000	—	7" (Ø178 mm)	180 +0/-3	60 +1/-0	130 ±0.5		13.6 ±0.5	16.5 ±0.5
0612 (10P8R)	YC158	5,000	7" (Ø178 mm)	—	180 +0/-3	60 +1/-0	130 ±0.2		9.0 ±0.2	12.0 ±0.2
		20,000	13" (Ø330 mm)	—	330 +0/-3	100 ±0.5	135 ±0.5		10.0 ±0.5	14.0 ±0.5
1225 (10P8R)	YC358	4,000	—	7" (Ø178 mm)	180 +0/-3	60 +1/-0	135 ±0.5		13.6 ±0.5	16.5 ±0.5

**REVISION HISTORY**

REVISION	DATE	CHANGE NOTIFICATION	DESCRIPTION
Version 12	Aug. 9, 2016	-	- Modify the taping spec A0 and B0 of 0201
Version 11	Jan. 26, 2016	-	- Dimensions update
Version 10	Apr. 21, 2015	-	- 0075 packing information added
Version 9	Feb. 19, 2014	-	- 0100, 2 x 0201, 4 x 0201 packing information added
Version 8	Jan 20, 2011	-	- Packing specifications for size 0201 updated - Taping reel -10" reel for size 0201 removed
Version 7	Dec 21, 2010	-	- Extended quantity per reel for size 0201 and 0402
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