

SKYWORKS™

101568C
July 18, 2002

Tape and Reel

Application Note

Product Affected: Power Amplifier Modules

TAPE and REEL INFORMATION

Production quantities of Power Amplifier Modules (PAM) are shipped in standard tape and reel formats. The following illustrations show the various formats with tape and reel dimensions for current module sizes.



Electrostatic Discharge Sensitivity

The electrical and triboelectrical properties of 3M™ Conductive 3000 Polycarbonate Carrier have been engineered to help provide protection of static-sensitive components through an effective balance between the electrostatic shielding and electrostatic decay properties of the carrier. The 3M 3000 Polycarbonate Carrier is electrically conductive, exhibiting a nominal surface resistivity in the pocket of $\geq 10^4 \Omega/\text{square}$ and $\leq 10^8 \Omega/\text{square}$. The surface resistance of 3000 minimizes dV/dt , affording ESD protection to devices in Classes I through III. 3M 3000 Polycarbonate Carrier also exhibits triboelectrical properties, which may be appropriate for packaging electrostatically-sensitive components.

Table 1. Classes of ESDS Parts

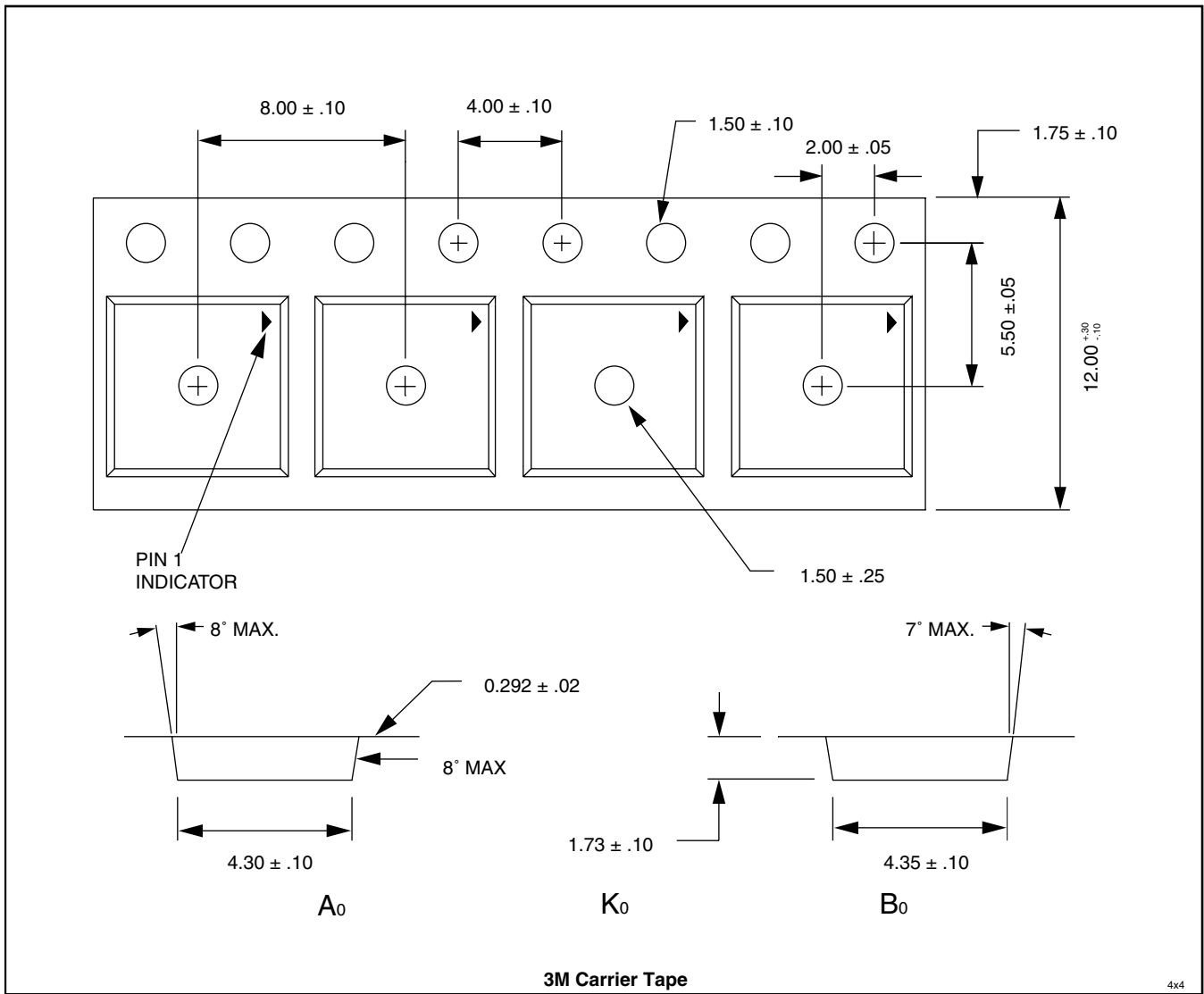
ESD Model	ESD Class	(Voltage Range)
HBM	I	> 0 V–1,999 V
	II	2,000 V–3,999 V
	III	4000 V–15,999 V

Table 2. Static Shielding Foil Moisture Vapor Barrier Bag

Electrical Properties	Method	Units	Typical Value
Surface Resistance	EOS/ESD S11.11	ohms	In 1.0E+11
			Out 1.0E+11
Static Decay	FTMS 101C/METHOD 4046	Sec.	+ 0.01 – 0.01
Energy Test	EOS/ESD S11.31	nano-Joules	10



Figure 1. Tape and Reel Format – 4 mm x 4 mm



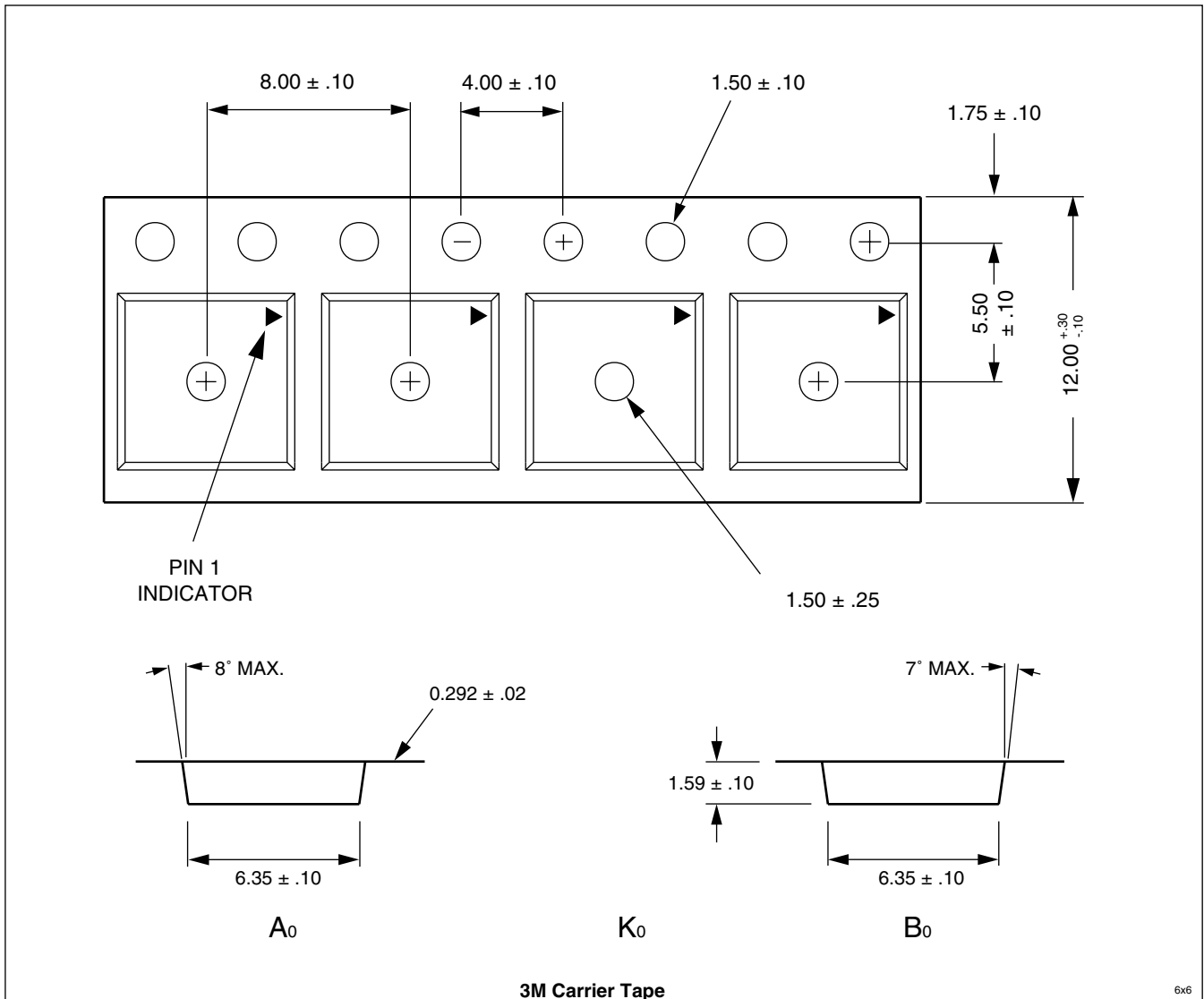
NOTES:

1. Carrier tape material: Black conductive polycarbonate
2. Carrier tape part No.: 3M060001
3. Cover tape material: Conductive Pressure Sensitive Adhesive (PSA)
4. Cover tape width: 9.3 mm
5. Number of parts per 330 mm (diameter) x 12 mm reel: 2500
6. All diagram dimensions in millimeters

101568_005



Figure 2. Tape and Reel Format – 6 mm x 6 mm



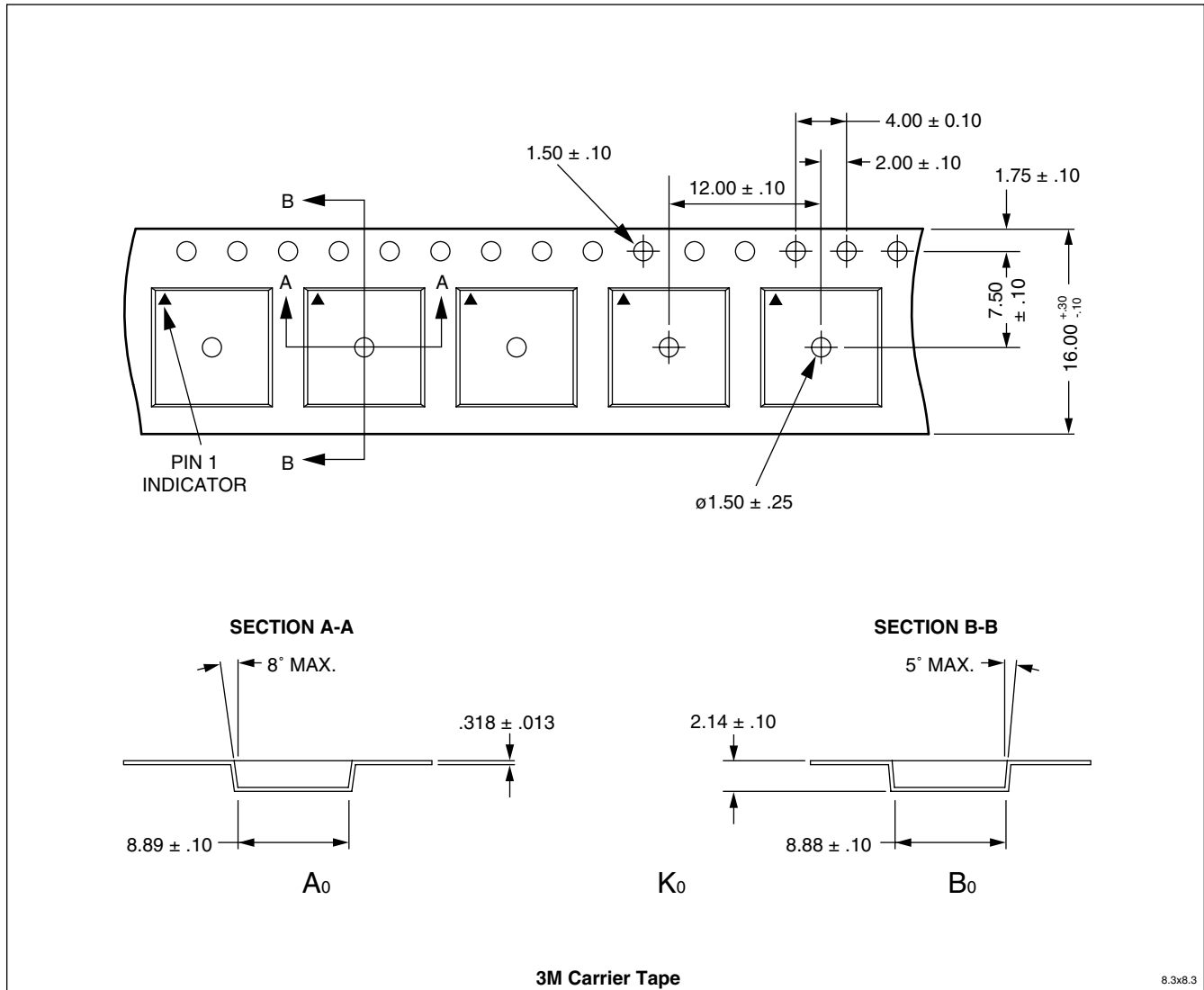
NOTE(S):

1. Carrier tape material: Black conductive polycarbonate
2. Carrier tape part number: 3M048801
3. Cover tape material: Conductive Pressure Sensitive Adhesive (PSA)
4. Cover tape width: 9.3 mm
5. Number of parts per 330 mm (diameter) x 12 mm wide reel: 2500
6. All diagram dimensions in millimeters

101568_001



Figure 3. Tape and Reel Format – 8.3 mm x 8.3 mm



8.3x8.3

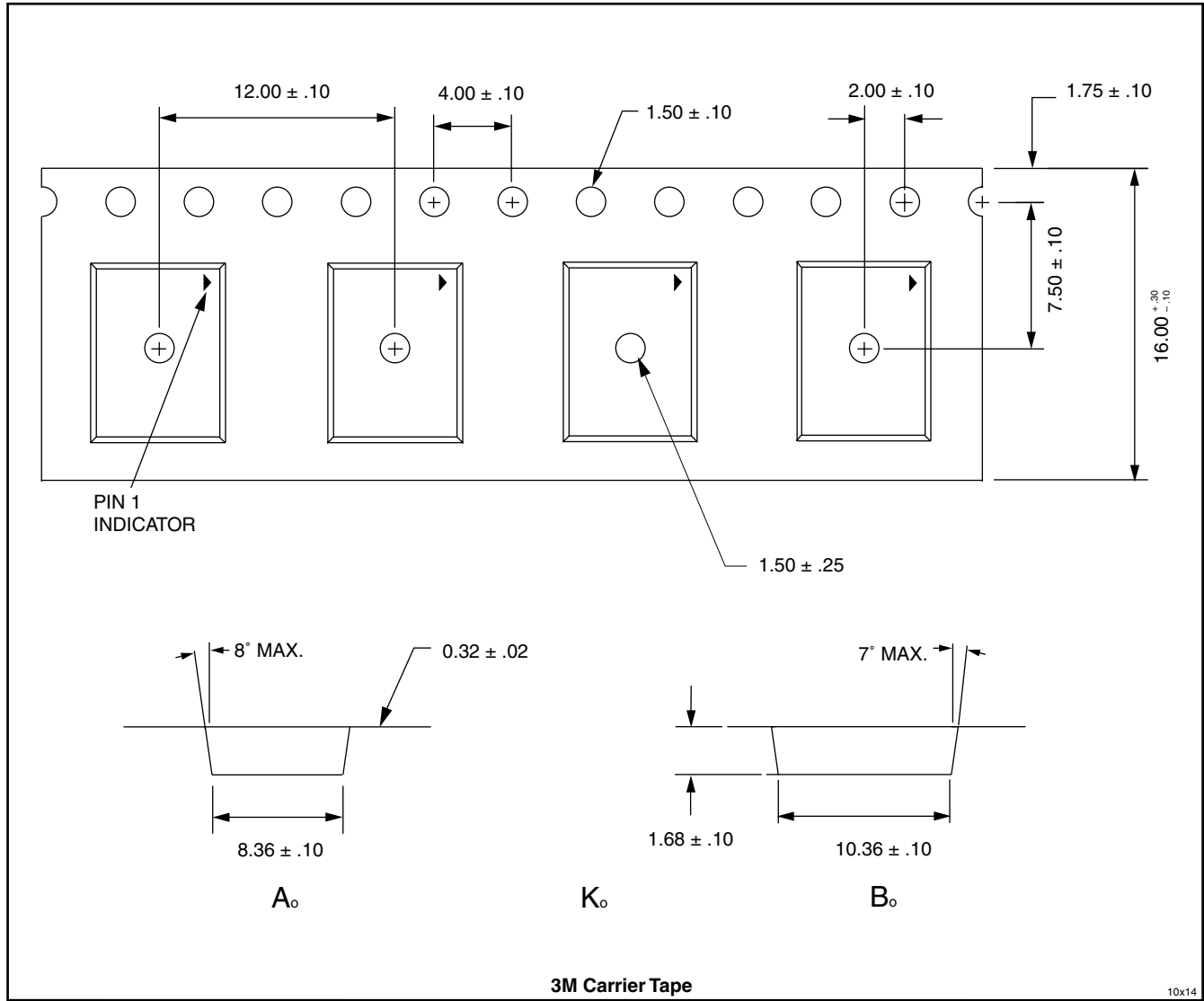
NOTE(S):

1. Carrier tape material: Black conductive polycarbonate
2. Carrier tape part number: US 039 321
3. Cover tape material: Conductive Pressure Sensitive Adhesive (PSA)
4. Cover tape width: 13.3 mm
5. Number of parts per 330 mm (diameter) x 16 mm wide reel: 2000
6. All diagram dimensions in millimeters

101568_002



Figure 4. Tape and Reel Format – 8 mm x 10 mm



10x14

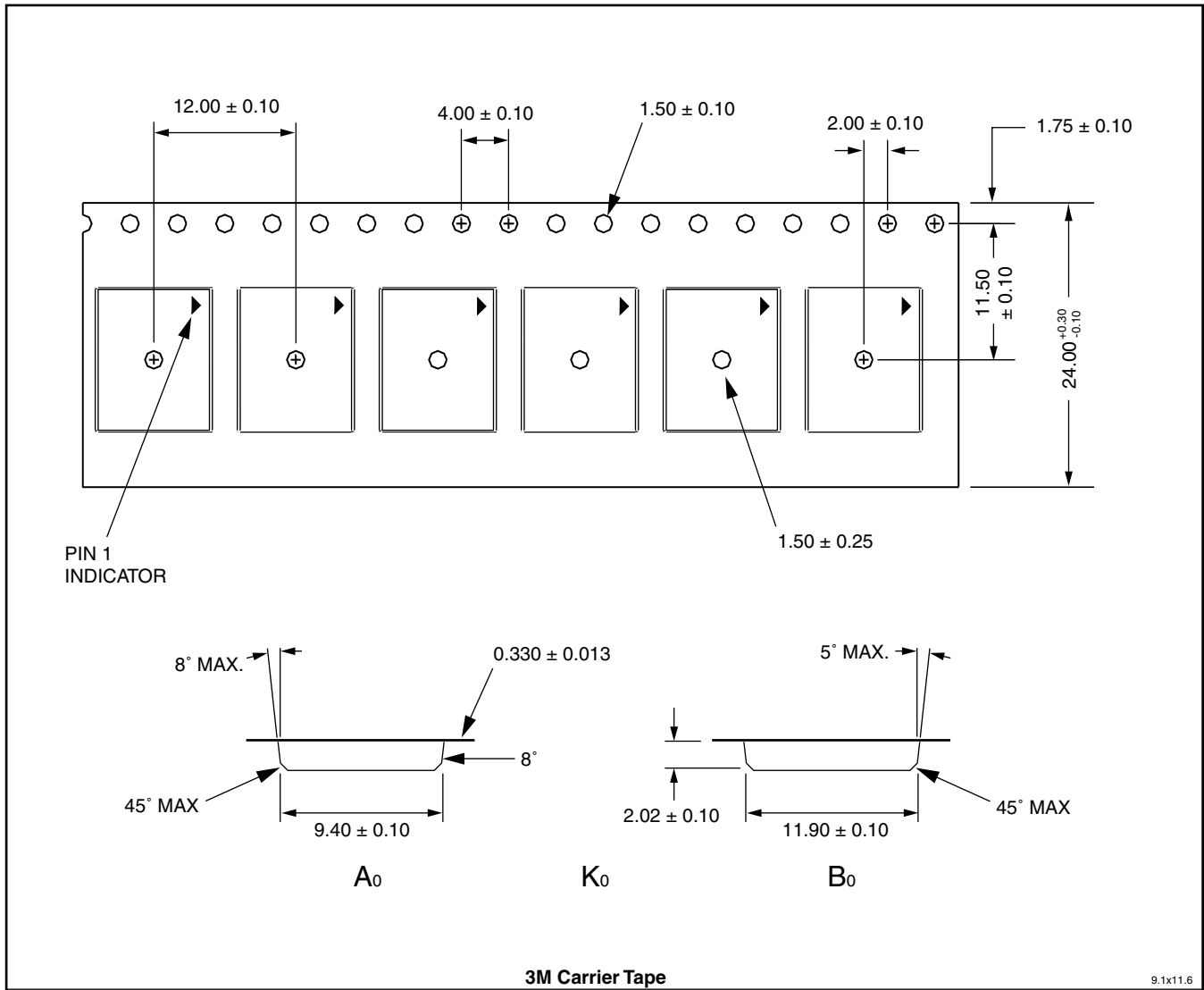
NOTES:

1. Carrier tape material: Black conductive polycarbonate.
2. Carrier tape part No.: 3M068051
3. Cover tape material: Conductive Pressure Sensitive Adhesive (PSA)
4. Cover tape width: 13.3 mm
5. Number of parts per 330 mm (diameter) x 16 mm reel: 2000
6. All diagram dimensions in millimeters

101568_006



Figure 5. Tape and Reel Format – 9.1 mm x 11.6 mm



3M Carrier Tape

9.1x11.6

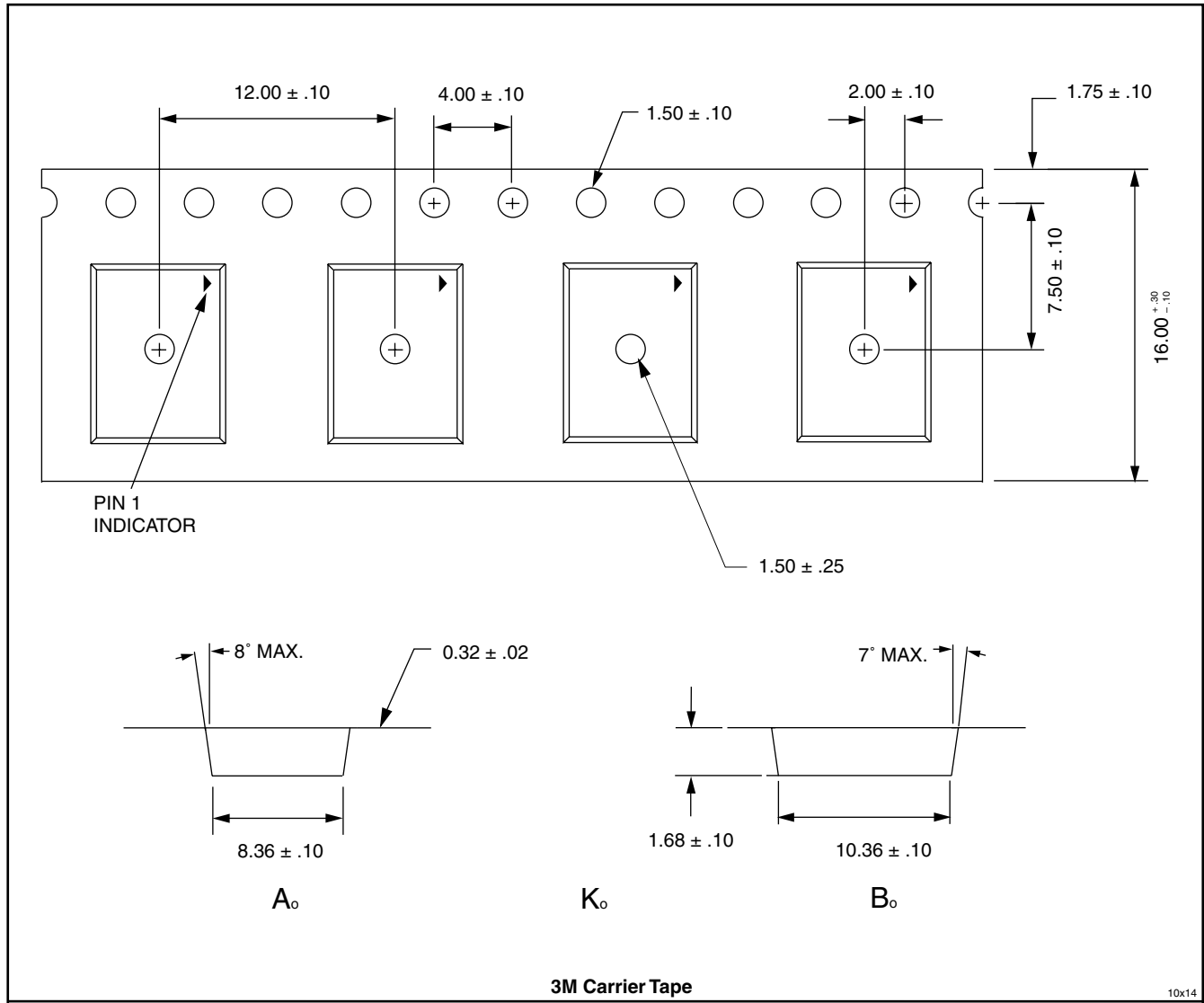
NOTE(S):

1. Carrier tape material: Black conductive polycarbonate
2. Carrier tape part number: US 042 281
3. Cover tape material: Conductive Pressure Sensitive Adhesive (PSA)
4. Cover tape width: 21.3 mm
5. Number of parts per 330 mm (diameter) x 24 mm reel: 2000
6. All diagram dimensions in millimeters

101568_003



Figure 6. Tape and Reel Format – 10 mm x 14 mm



3M Carrier Tape

10x14

NOTES:

1. Carrier tape material: Black conductive polycarbonate.
2. Carrier tape part No.: 3M068051
3. Cover tape material: Conductive Pressure Sensitive Adhesive (PSA)
4. Cover tape width: 13.3 mm
5. Number of parts per 330 mm (diameter) x 16 mm reel: 2000
6. All diagram dimensions in millimeters

101568_006



Revision History

Revision	Level	Date	Description
A		April 24, 2002	Add: 4 x 4mm and 8 x 10 mm Tape and Reel Dwgs
B		May 10, 2002	Add: ESD information
C		July 12, 2002	Add: Table 2

References

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