APPLICATION NOTE

Tape and Reel Information – RF Modules

Production quantities of Skyworks RF Modules are shipped in standard tape and reel format. The enclosed information provides the formats and dimensions for the currently popular sizes.
Revision History

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<th>Description</th>
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<tr>
<td>A</td>
<td>April 24, 2002</td>
<td>Add: 4 x 4mm and 8 x 10 mm Tape and Reel Drawings</td>
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<td>B</td>
<td>May 10, 2002</td>
<td>Add: ESD information</td>
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<td>C</td>
<td>July 12, 2002</td>
<td>Add: Table 2</td>
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<td>D</td>
<td>August 12, 2004</td>
<td>Revise: Section 1.0; Figures 3, 5, 9, 11, 13, 15</td>
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<td>Add: Section 2.0; Figures 1, 2, 4, 6, 7, 8, 10, 12, 14, 16, 17</td>
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<tr>
<td>E</td>
<td>October 6, 2004</td>
<td>Delete: Shipping Tray Information (Refer to Application Note: Shipping Tray Information – RF Modules, Document Number 200079A)</td>
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<td>Add: Figure 7 (9 x 10 mm Body Size)</td>
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<td>F</td>
<td>April 18, 2005</td>
<td>Add: Figures 1, 3, 5, 6, 7, 8, 11, 12, 15, 18, 20</td>
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<td>G</td>
<td>June 20, 2006</td>
<td>Add: Figure 3 (3 x 5 mm Body Size); Figure 4 (3 x 6 mm Body Size); References</td>
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<td>Revise: Section 1.0; Figure 2 (pocket depth)</td>
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<td>H</td>
<td>December 7, 2007</td>
<td>Revise: Figures 13, 22</td>
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<td>Add: Figures 5, 8-11, 14, 15, 18, 20, 21, 23, 29</td>
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<td>I</td>
<td>June 9, 2008</td>
<td>Revise: Figures 2, 4, 5, 8, 10, 15, 16, 19, 20, 21, 22, 23, 29, 30, 35, 37; Add: Figures 13, 18, 20, 26, 28</td>
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References

Skyworks Solutions, Inc. Specification: Tape & Reel Materials Used For Shipping & Handling Semiconductor Packages, Document Number GP01-D232

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Kostat® is registered trademark of Kostat, Inc.

ESD Standards EIA 481, EIA541, JESD625A

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1.0 Carrier Tapes

Production quantities of Skyworks RF products can be delivered in standard tape-and-reel format for attachment in a production solder-reflow environment. Carrier tapes identified in this Application Note may be manufactured of either polycarbonate or polystyrene material. The material used for each individual carrier tape is identified under NOTES on each tape and reel drawing. Skyworks tape and reel material complies with ESD standards EIA481, EIA541, and JESD625-A.

The diagrams within this Application Note provide information regarding tape materials, dimensions, adherence to industry standards, and part numbers for placing orders. Carrier tape diagrams are arranged by part size (in millimeters) from the smallest to the largest and each part size is stated by its smallest dimension first. For example, the sequence of part sizes in Figures 1 through Figure 33 begins with the size 2.44 x 4.5 mm, followed by 3 x 3 mm, 3 x 5 mm, and so on through 13 x 13 mm in Figure 34. Any tape carrier diagram within this document may be quickly located from the List of Figures on page 1. Figure 22 illustrates the orientation of the carrier tape to the supply reel and the direction of the tape as it feeds from the reel.

1.1 Carrier Tapes – Black Conductive Polycarbonate

Black conductive polycarbonate carrier tapes possess electrical and tribo-electrical properties that help protect static-sensitive components with an effective balance of the carrier’s electrostatic shielding and electrostatic decay properties. The electrically conductive polycarbonate carrier tape shows a nominal surface resistivity in the pocket of $\geq 10^4 \, \Omega/\text{square}$ and $\leq 10^8 \, \Omega/\text{square}$, which minimizes $dV/dt$ 50 to afford ESD protection to devices in Classes I through III. These properties of the black polycarbonate carrier are appropriate for packaging electro-statically sensitive components.

1.2 Carrier Tapes – Black Conductive Polystyrene

Black conductive polystyrene carrier tapes possess electrical and tribo-electrical properties that help protect static-sensitive components with an effective balance of the carrier’s electrostatic shielding and electrostatic decay properties. The electrically static dissipative polystyrene carrier shows a nominal surface resistivity of $10^{10} \, \Omega/\text{square}$, which minimizes $dV/dt$ to afford ESD protection to devices in Classes I through III. These properties of the black polystyrene carrier are appropriate for packaging electro-statically sensitive components.

2.0 Electrostatic Discharge (ESD) Sensitivity

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<th>Voltage Range</th>
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<td>Human Body Model</td>
<td>I</td>
<td>&gt; 0 V–1,999 V</td>
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<tr>
<td></td>
<td>II</td>
<td>2,000 V–3,999 V</td>
</tr>
<tr>
<td></td>
<td>III</td>
<td>4,000 V–15,999 V</td>
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Table 2. Static Shielding Foil Moisture Vapor Barrier Bag

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<th>Electrical Properties</th>
<th>Method</th>
<th>Units</th>
<th>Typical Value</th>
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<td>Surface Resistance</td>
<td>EOS/ESD S11.11</td>
<td>ohms</td>
<td>In 1.0E+11</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Out 1.0E+11</td>
</tr>
<tr>
<td>Static Decay</td>
<td>FTMS 101C/METHOD 4046</td>
<td>Sec.</td>
<td>+ 0.01</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>– 0.01</td>
</tr>
<tr>
<td>Energy Test</td>
<td>EOS/ESD S11.31</td>
<td>nano-Joules</td>
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NOTES:
1. CARRIER TAPES MUST MEET ALL REQUIREMENTS OF SKYWORKS GP01–D232 PROCUREMENT SPEC FOR TAPE AND REEL SHIPPING.
2. CARRIER TAPE SHALL BE BLACK CONDUCTIVE POLYCARBONATE.
3. COVER TAPE SHALL BE TRANSPARENT CONDUCTIVE PRESSURE-SENSITIVE ADHESIVE (PSA) MATERIAL W/ 9.2 mm WIDTH.
4. ESD-SURFACE RESISTIVITY SHALL BE ≤ 1 X 10^8 OHMS/SQUARE PER EIA, JEDEC TNR SPECIFICATION.
5. Ao & Bo MEASUREMENT POINT TO BE 0.3 mm FROM BOTTOM POCKET.
6. ALL DIMENSIONS ARE IN MILLIMETERS.
7. PART NO.: SOT-89-D (PLEASE INDICATE ON PURCHASE ORDER).
8. NUMBER OF PARTS per 13 inch (DIAMETER) x 16 mm REEL: 3000.

ADVANTEK CARRIER TAPE

Figure 1. Carrier Tape Body Size: 2.44 x 4.5 x 1.5 mm – SOT-89
**NOTES:**

1. CARRIER TAPES MUST MEET ALL REQUIREMENTS OF SKYWORKS GP01–D232 PROCUREMENT SPEC FOR TAPE AND REEL SHIPPING.
2. CARRIER TAPE SHALL BE BLACK CONDUCTIVE POLYCARBONATE OR POLYSTYRENE.
3. COVER TAPE SHALL BE TRANSPARENT CONDUCTIVE PRESSURE-SENSITIVE ADHESIVE (PSA) MATERIAL W/ 9.3 mm WIDTH.
4. ESD-SURFACE RESISTIVITY SHALL BE $\leq 1 \times 10^{10}$ OHMS/SQUARE PER EIA, JEDEC TNR SPECIFICATION.
5. 10 SPROCKET HOLE PITCH CUMULATIVE TOLERANCE: ±0.2 mm
6. Ao & Bo MEASURED ON PLANE 0.3 mm ABOVE THE BOTTOM OF THE POCKET.
7. ALL DIMENSIONS ARE IN MILLIMETERS.
8. PART NO.: KS-1208-208 REV. 00 (PLEASE INDICATE ON PURCHASE ORDER).
9. NUMBER OF PARTS per 13 inch (DIAMETER) x 12 mm REEL: 4500.

**KOSTAT CARRIER TAPE**

**Figure 2. Carrier Tape Body Size: 3 x 3 x 1.4 / 1.4 mm – Overmold MCM / RFLGA**

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101568I • Skyworks Proprietary Information. • Products and product information are subject to change without notice. • June 9, 2008
NOTES:
1. CARRIER TAPES MUST MEET ALL REQUIREMENTS OF SKYWORKS GP01–D232 PROCUREMENT SPEC FOR TAPE AND REEL SHIPPING.
2. CARRIER TAPE SHALL BE BLACK CONDUCTIVE POLYSTYRENE.
3. COVER TAPE SHALL BE TRANSPARENT CONDUCTIVE PRESSURE-SENSITIVE ADHESIVE (PSA) MATERIAL W/ 9.3 mm WIDTH.
4. ESD-SURFACE RESISTIVITY SHALL BE ≤ 1 X 10¹⁰ OHMS/SQUARE PER EIA, JEDEC TNR SPECIFICATION.
5. Po / P1, 10 PITCHES CUMULATIVE TOLERANCE ON TAPE: ±0.2 mm
6. Ao & Bo MEASUREMENT POINT TO BE 0.3 mm FROM BOTTOM POCKET.
7. ALL DIMENSIONS ARE IN MILLIMETERS.
8. PART NO.: eC3-MCM0305-12-8-F1-L REV. 0 (PLEASE INDICATE ON PURCHASE ORDER).
9. NUMBER OF PARTS per 13 inch (DIAMETER) x 12 mm REEL: 4500.

Figure 3. Carrier Tape Body Size: 3 x 5 x 1.0 mm – Overmold MCM
NOTES:
1. CARRIER TAPES MUST MEET ALL REQUIREMENTS OF SKYWORKS GP01–D232 PROCUREMENT SPEC FOR TAPE AND REEL SHIPPING.
2. CARRIER TAPE SHALL BE BLACK CONDUCTIVE POLYSTYRENE.
3. COVER TAPE SHALL BE TRANSPARENT CONDUCTIVE PRESSURE-SENSITIVE ADHESIVE (PSA) MATERIAL W/ 9.3 mm WIDTH.
4. ESD-SURFACE RESISTIVITY SHALL BE $\leq 1 \times 10^{10}$ OHMS/SQUARE PER EIA, JEDC TNR SPECIFICATION.
5. Po / P1, 10 PITCHES CUMULATIVE TOLERANCE ON TAPE: ±0.2 mm
6. Ao & Bo MEASUREMENT POINT TO BE 0.3 mm FROM BOTTOM POCKET.
7. ALL DIMENSIONS ARE IN MILLIMETERS.
8. PART NO.: eC3-MCM0306-12-8-F1-L REV. 0 (PLEASE INDICATE ON PURCHASE ORDER).
9. NUMBER OF PARTS per 13 inch (DIAMETER) x 12 mm REEL: 4500.

**ePAK CARRIER TAPE**

*Figure 4. Carrier Tape Body Size: 3 x 6 x 1.2 mm – Overmold MCM*
NOTES:
1. CARRIER TAPES MUST MEET ALL REQUIREMENTS OF SKYWORKS GP01–D232 PROCUREMENT SPEC FOR TAPE AND REEL SHIPPING.
2. CARRIER TAPE SHALL BE BLACK CONDUCTIVE POLYSTYRENE.
3. COVER TAPE SHALL BE TRANSPARENT CONDUCTIVE PRESSURE SENSITIVE ADHESIVE (PSA) MATERIAL W/ 13.3 mm WIDTH.
4. ESD-SURFACE RESISTIVITY SHALL BE ≤ 1 X 10^10 OHMS/SQUARE PER EIA, JEDEC TNR SPECIFICATION.
5. Po / P1 10 PITCHES CUMULATIVE TOLERANCE ON TAPE: ±0.2 mm.
6. Ao & Bo MEASUREMENT POINT TO BE 0.3 mm FROM BOTTOM POCKET.
7. ALL DIMENSIONS ARE IN MILLIMETERS.
8. PART NO.: eC3-MCM3x8-16-8-F1-L REV. O (PLEASE INDICATE ON PURCHASE ORDER.)
9. NUMBER OF PARTS per 13 inch (DIAMETER) x 12 mm REEL: 2500.

ePAK CARRIER TAPE

Figure 5. Carrier Tape Body Size: 3 x 8 x 1.2 mm – Overmold MCM
NOTES:
1. CARRIER TAPES MUST MEET ALL REQUIREMENTS OF SKYWORKS GP01–D232 PROCUREMENT SPEC FOR TAPE AND REEL SHIPPING.
2. CARRIER TAPE SHALL BE BLACK CONDUCTIVE POLYCARBONATE OR POLYSTYRENE.
3. COVER TAPE SHALL BE TRANSPARENT CONDUCTIVE PRESSURE-SENSITIVE ADHESIVE (PSA) MATERIAL W/ 9.3 mm WIDTH.
4. ESD-SURFACE RESISTIVITY SHALL BE ≤ 1 X 10¹⁰ OHMS/SQUARE PER EIA, JEDEC TNR SPECIFICATION.
5. Po / P1, 10 PITCHES CUMULATIVE TOLERANCE ON TAPE: ±0.2 mm.
6. Ao & Bo MEASUREMENT POINT TO BE 0.3 FROM BOTTOM POCKET.
7. ALL DIMENSIONS ARE IN MILLIMETERS.
8. PART NO.: eC3-MCM3.5x3.5-12-8-F1-L (PLEASE INDICATE ON PURCHASE ORDER).
9. NUMBER OF PARTS per 13 inch (DIAMETER) x 12 mm REEL: 2500.

**ePAK CARRIER TAPE**

**Figure 6.** Carrier Tape Body Size: 3.5 x 3.5 x 1.4 mm – MCM
Section B – B

Section A – A

Notes:
1. Carrier tapes must meet all requirements of Skyworks GP01-D232 procurement spec for tape and reel shipping.
2. Carrier tape shall be black conductive polycarbonate or polystyrene.
3. Cover tape shall be transparent conductive pressure-sensitive adhesive (PSA) material w/ 9.3 mm width.
4. ESD-surface resistivity shall be ≤ 1 x 10<sup>8</sup> ohms/square per EIA, JEDEC TNR specification.
5. All dimensions are in millimeters.
6. Part No.: US019881 (Please indicate on purchase order).
7. Number of parts per 13 inch (Diameter) x 12 mm reel: 2500.

3M Carrier Tape

Figure 7. Carrier Tape Body Size: 3.9 x 4.9 x 1.4 mm – 8L SOIC / 16L SSOP
NOTE:
1. CARRIER TAPES MUST MEET ALL REQUIREMENTS OF SKYWORKS GP01–D232 PROCUREMENT SPEC FOR TAPE AND REEL SHIPPING.
2. CARRIER TAPE SHALL BE BLACK CONDUCTIVE POLYCARBONATE OR POLYSTYRENE.
3. COVER TAPE SHALL BE TRANSPARENT CONDUCTIVE PRESSURE SENSITIVE ADHESIVE (PSA) MATERIAL W/ 9.3 mm WIDTH.
4. ESD–SURFACE RESISTIVITY SHALL BE ≤ 1 × 10¹⁰ OHMS/SQUARE PER EIA, JEDEC TNR SPECIFICATION.
5. 10–SPOCKET HOLE PITCH CUMULATIVE TOLERANCE: ±0.2 mm
6. Ao & Bo MEASURED ON PLANE 0.3 mm ABOVE THE BOTTOM OF THE POCKET.
7. ALL DIMENSIONS ARE IN MILLIMETERS.
8. PART NO.: KS-1208-40 REV. 03 (PLEASE INDICATE ON PURCHASE ORDER).
9. NUMBER OF PARTS per 13 inch (DIAMETER) x 12 mm REEL: 4500.

KOSTAT CARRIER TAPE

Figure 8. Carrier Tape Body Size: 4 x 4 x 1.4 mm – Overmold MCM / RFLGA
NOTES:
1. CARRIER TAPES MUST MEET ALL REQUIREMENTS OF SKYWORKS GP01–D232 PROCUREMENT SPEC FOR TAPE AND REEL SHIPPING.
2. CARRIER TAPE SHALL BE BLACK CONDUCTIVE POLYSTYRENE.
3. COVER TAPE SHALL BE TRANSPARENT CONDUCTIVE PRESSURE-SENSITIVE ADHESIVE (PSA) MATERIAL W/ 9.3 mm WIDTH.
4. ESD-SURFACE RESISTIVITY SHALL BE ≤ 1 X 10^10 OHMS/SQUARE PER EIA, JEDEC TN1 SPECIFICATION.
5. Po / P1, 10 PITCHES CUMULATIVE TOLERANCE ON TAPE: ±0.2 mm.
6. Ao & Bo MEASUREMENT POINT TO BE 0.3 mm FROM BOTTOM POCKET.
7. ALL DIMENSIONS ARE IN MILLIMETERS.
8. PART NO.: eC3-LGA4x4.5-12-8-F1-L REV. 0 (PLEASE INDICATE ON PURCHASE ORDER).
9. NUMBER OF PARTS per 13 inch (DIAMETER) x 12 mm REEL: 2500.

Figure 9. Carrier Tape Body Size: 4 x 4.5 x 1.4 mm – Overmold RFLGA
NOTES:
1. CARRIER TAPES MUST MEET ALL REQUIREMENTS OF SKYWORKS GP01–D232 PROCUREMENT SPEC FOR TAPE AND REEL SHIPPING.
2. CARRIER TAPE SHALL BE BLACK CONDUCTIVE POLYSTYRENE.
3. COVER TAPE SHALL BE TRANSPARENT CONDUCTIVE PRESSURE-SENSITIVE ADHESIVE (PSA) MATERIAL W/ 13.3 mm WIDTH.
4. ESD-SURFACE RESISTIVITY SHALL BE ≤ 1 X 10¹⁰ OHMS/SQUARE PER EIA, JEDEC TNR SPECIFICATION.
5. Po / P1, 10 PITCHES CUMULATIVE TOLERANCE ON TAPE: ±0.2 mm.
6. Ao & Bo MEASUREMENT POINT TO BE 0.3 FROM BOTTOM SPROCKET
7. ALL DIMENSIONS ARE IN MILLIMETERS.
8. PART NO.: eC3-MCM4X7-16-8-F1-L REV. 0. (PLEASE INDICATE ON PURCHASE ORDER).
9. NUMBER OF PARTS per 13 inch (DIAMETER) x 12 mm REEL: 4500.

**ePAK CARRIER TAPE**

**Figure 10. Carrier Tape Body Size: 4 x 7 x 1.2 mm – Overmold MCM**
NOTES:
1. CARRIER TAPES MUST MEET ALL REQUIREMENTS OF SKYWORKS GP01–D232 PROCUREMENT SPEC FOR TAPE AND REEL SHIPPING.
2. CARRIER TAPE SHALL BE BLACK CONDUCTIVE POLYCARBONATE NON-BAKEABLE MATERIAL.
3. COVER TAPE SHALL BE TRANSPARENT CONDUCTIVE HEAT-SENSITIVE ADHESIVE (HSA) MATERIAL W/ 13.3 mm WIDTH.
4. ESD-SURFACE RESISTIVITY SHALL BE $\geq 1 \times 10^5 \leq 1 \times 10 \text{ OHMS/SQUARE}$ PER EIA, JEDEC TNR SPECIFICATION.
5. ALL DIMENSIONS ARE IN MILLIMETERS.
6. PART NO.: TSSP16-B (PLEASE INDICATE ON PURCHASE ORDER).
7. NUMBER OF PARTS per 13 inch (DIAMETER) x 16 mm REEL: 3000.

ADVANTEK CARRIER TAPE

Figure 11. Carrier Tape Body Size: 4.4 x 6.5 x 1.0 mm – 16L TSSOP
NOTES:
1. CARRIER TAPES MUST MEET ALL REQUIREMENTS OF SKYWORKS GP01–D232 PROCUREMENT SPEC FOR TAPE AND REEL SHIPPING.
2. CARRIER TAPE SHALL BE BLACK CONDUCTIVE POLYCARBONATE OR POLYSTYRENE.
3. COVER TAPE SHALL BE TRANSPARENT CONDUCTIVE PRESSURE-SENSITIVE ADHESIVE (PSA) MATERIAL W/ 9.3 mm WIDTH.
4. ESD–SURFACE RESISTIVITY SHALL BE ≤ 1 X 10^8 OHMS/SQUARE PER EIA, JEDECS TNR SPECIFICATION.
5. ALL DIMENSIONS ARE IN MILLIMETERS.
6. PART NO.: US044571 (PLEASE INDICATE ON PURCHASE ORDER).
7. NUMBER OF PARTS per 13 inch (DIAMETER) x 12 mm REEL: 2500.

3M CARRIER TAPE

Figure 12. Carrier Tape Body Size: 4.4 x 6.5 x 1.0 mm – 20L TSSOP
SECTION B – B

SECTION A – A

NOTES:
1. CARRIER TAPES MUST MEET ALL REQUIREMENTS OF SKYWORKS GP01–D232 PROCUREMENT SPEC FOR TAPE AND REEL SHIPPING.
2. CARRIER TAPE SHALL BE BLACK CONDUCTIVE POLYCARBONATE OR POLYSTYRENE.
3. COVER TAPE SHALL BE TRANSPARENT CONDUCTIVE PRESSURE-SENSITIVE ADHESIVE (PSA) MATERIAL W/ 13.3 mm WIDTH.
4. ESD-SURFACE RESISTIVITY SHALL BE ≤ 1 X 10^8 OHMS/SQUARE PER EIA, JEDEC TNR SPECIFICATION.
5. ALL DIMENSIONS ARE IN MILLIMETERS.
6. PART NO.: US045391 (PLEASE INDICATE ON PURCHASE ORDER).
7. NUMBER OF PARTS per 13 inch (DIAMETER) x 16 mm REEL: 2500.

3M CARRIER TAPE

Figure 13. Carrier Tape  Body Size: 4.4 x 9.7 x 0.9 mm – 28L TSSOP
NOTES:
1. CARRIER TAPES MUST MEET ALL REQUIREMENTS OF SKYWORKS GP01–D232 PROCUREMENT SPEC FOR TAPE AND REEL SHIPPING.
2. CARRIER TAPE SHALL BE BLACK CONDUCTIVE POLYSTYRENE, NON-BAKEABLE MATERIAL.
3. COVER TAPE SHALL BE TRANSPARENT CONDUCTIVE HEAT-SENSITIVE ADHESIVE (HSA) MATERIAL W/ 9.2 mm WIDTH.
4. ESD-SURFACE RESISTIVITY SHALL BE ≥ 1 X 10^5 ~ ≤ 1 X 10^10 OHMS/SQUARE PER EIA, JEDEC TNR SPECIFICATION.
5. ALL DIMENSIONS ARE IN MILLIMETERS.
6. PART NO.: ML0505–Å (PLEASE INDICATE ON PURCHASE ORDER).
7. NUMBER OF PARTS per 13 inch (DIAMETER) x 12 mm REEL: 5000.

ADVANTEK CARRIER TAPE

Figure 14. Carrier Tape Body Size: 5 x 5 x 1.0 mm – Overmold MLF
NOTES:
1. CARRIER TAPES MUST MEET ALL REQUIREMENTS OF SKYWORKS GP01–D232 PROCUREMENT SPEC FOR TAPE AND REEL SHIPPING.
2. CARRIER TAPE SHALL BE BLACK CONDUCTIVE POLYSTYRENE.
3. COVER TAPE SHALL BE TRANSPARENT CONDUCTIVE PRESSURE-SENSITIVE ADHESIVE (PSA) MATERIAL W/ 9.3 mm WIDTH.
4. ESD-SURFACE RESISTIVITY SHALL BE ≤ 1 X 10¹⁰ OHMS/SQUARE PER EIA, JEDEC TNR SPECIFICATION.
5. Po / P1 10 PITCHES CUMULATIVE ON TAPE: ±0.2 mm.
6. Ao & Bo MEASUREMENT POINT TO BE 0.3 mm FROM BOTTOM POCKET.
7. ALL DIMENSIONS ARE IN MILLIMETERS.
8. PART NO.: eC3-LGA0505-12-8-F1-L REV. 0. (PLEASE INDICATE ON PURCHASE ORDER).
9. NUMBER OF PARTS per 13 inch (DIAMETER) x 12 mm REEL: 4000.

Figure 15. Carrier Tape Body Size: 5 x 5 x 1.3 / 1.0 mm – Overmold MCM / RFLGA
**NOTES:**

1. CARRIER TAPES MUST MEET ALL REQUIREMENTS OF SKYWORKS GP01–D232 PROCUREMENT SPEC FOR TAPE AND REEL SHIPPING.
2. CARRIER TAPE SHALL BE BLACK CONDUCTIVE POLYSTYRENE.
3. COVER TAPE SHALL BE TRANSPARENT CONDUCTIVE PRESSURE-SENSITIVE ADHESIVE (PSA) MATERIAL W/ 9.3 mm WIDTH.
4. ED-SURFACE RESISTIVITY SHALL BE \( \leq 1 \times 10^{10} \) OHMS/SQUARE PER EIA, JEDEC TNR SPECIFICATION.
5. Po / P1 10 PITCHES CUMULATIVE TOLERANCE ON TAPE: \( \pm 0.2 \) mm.
6. Ao & Bo MEASUREMENT POINT TO BE 0.3 mm FROM BOTTOM POCKET.
7. ALL DIMENSIONS ARE IN MILLIMETERS.
8. PART NO.: eC3-MCM5x6x1.5-12-8-F1-L Rev. 0 (PLEASE INDICATE ON PURCHASE ORDER).
9. NUMBER OF PARTS per 13 inch (DIAMETER) X 12 mm REEL: 4000.

**ePAK CARRIER TAPE**

**Figure 16. Carrier Tape  Body Size: 5 x 6 x 1.4 mm – Overmold MCM**
NOTES:
1. CARRIER TAPES MUST MEET ALL REQUIREMENTS OF SKYWORKS GP01–D232 PROCUREMENT SPEC FOR TAPE AND REEL SHIPPING.
2. CARRIER TAPE SHALL BE BLACK CONDUCTIVE POLYSTYRENE.
3. COVER TAPE SHALL BE TRANSPARENT CONDUCTIVE PRESSURE SENSITIVE ADHESIVE (PSA) MATERIAL W/ 13.3 mm WIDTH.
4. ESD-SURFACE RESISTIVITY SHALL BE $\leq 1 \times 10^{10}$ OHMS/SQUARE PER EIA, JEDEC TNR SPECIFICATION.
5. Po / P1 10 PITCHES CUMULATIVE TOLERANCE ON TAPE: ±0.2 mm.
6. Ao & Bo MEASUREMENT POINT TO BE 0.3 mm FROM BOTTOM POCKET.
7. ALL DIMENSIONS ARE IN MILLIMETERS.
8. PART NO.: eC3-MCM5x8-16-8-F1-L REV. 0 (PLEASE INDICATE ON PURCHASE ORDER.)
9. NUMBER OF PARTS per 13 inch (DIAMETER) x 16 mm REEL: 2500.

ePAK CARRIER TAPE

Figure 17. Carrier Tape Body Size: 5 x 8 x 1.4 mm – Overmold MCM
NOTES:
1. CARRIER TAPES MUST MEET ALL REQUIREMENTS OF SKYWORKS GP01–D232 PROCUREMENT SPEC FOR TAPE AND REEL SHIPPING.
2. CARRIER TAPE SHALL BE BLACK CONDUCTIVE POLYSTYRENE.
3. COVER TAPE SHALL BE TRANSPARENT CONDUCTIVE PRESSURE SENSITIVE ADHESIVE (PSA) MATERIAL W/ 13.3 mm WIDTH.
4. ESD-SURFACE RESISTIVITY SHALL BE ≤ 1 X 10^10 OHMS/SQUARE PER EIA, JEDEC TNR SPECIFICATION.
5. Po / P1 10 Pitches Cumulative Tolerance ON TAPE: ±0.2 mm.
6. Ao & Bo Measurement Point TO BE 0.3 mm FROM BOTTOM POCKET.
7. ALL DIMENSIONS ARE IN MILLIMETERS.
8. PART NO.: eC3-MCM5.42x9.04-16-8-F1-L REV. 0 (PLEASE INDICATE ON PURCHASE ORDER.)
9. NUMBER OF PARTS per 13 inch (DIAMETER) x 16 mm REEL: 2500.

Figure 18. Carrier Tape Body Size: 5.42 x 9.04 x 1.2 mm – Overmold MCM
NOTES:
1. PIN 1 ORIENTATION SHALL BE "TOP LEFT" ONLY FOR RFLGA & MCM PRODUCTS LISTED BELOW:
   SKY73022-21  SKY73022-31
   SKY73023-21  SKY73023-31
2. PIN 1 ORIENTATION SHALL BE "TOP RIGHT" FOR ALL 6 x 6 mm RFLGA & MCM PRODUCTS EXCEPT THOSE LISTED IN NOTE 1 ABOVE.
3. CARRIER TAPES MUST MEET ALL REQUIREMENTS OF SKYWORKS GP01–D232 PROCUREMENT SPEC FOR TAPE AND REEL SHIPPING.
4. CARRIER TAPE SHALL BE BLACK CONDUCTIVE POLYSTYRENE.
5. COVER TAPE SHALL BE TRANSPARENT CONDUCTIVE PRESSURE-SENSITIVE ADHESIVE (PSA) MATERIAL W/ 9.3 mm WIDTH.
6. ESD-SURFACE RESISTIVITY SHALL BE ≤ 1 × 10^10 OHMS/SQUARE PER EIA, JEDEC TNR SPECIFICATION.
7. Po / P1 10 PITCHES CUMULATIVE TOLERANCE ON TAPE: ±0.2 mm.
8. Ao & Bo MEASUREMENT POINT TO BE 0.3 mm FROM BOTTOM POCKET.
9. ALL DIMENSIONS ARE IN MILLIMETERS.
10. PART NO.: eC3-MCM0606-12-8-F1-L (PLEASE INDICATE ON PURCHASE ORDER).
11. NUMBER OF PARTS per 13 inch (DIAMETER) x 12 mm REEL: 3000.

Figure 19. Carrier Tape  Body Size: 6 x 6 x 1.4 mm – Overmold MCM / RFLGA (1 of 2)
Notes:
1. PIN 1 ORIENTATION SHALL BE "TOP LEFT" ONLY FOR RFLGA & MCM PRODUCTS LISTED BELOW:
   - SKY65205-11
   - SKY65208-11
   - SKY65215-11
2. PIN 1 ORIENTATION SHALL BE "TOP RIGHT" FOR ALL 6 x 6 mm RFLGA & MCM PRODUCTS EXCEPT THOSE LISTED IN NOTE 1 ABOVE.
3. CARRIER TAPES MUST MEET ALL REQUIREMENTS OF SKYWORKS GP01–D232 PROCUREMENT SPEC FOR TAPE AND REEL SHIPPING.
4. CARRIER TAPE SHALL BE BLACK CONDUCTIVE POLYSTYRENE.
5. COVER TAPE SHALL BE TRANSPARENT CONDUCTIVE PRESSURE-SENSITIVE ADHESIVE (PSA) MATERIAL W/ 9.3 mm WIDTH.
6. ESD-SURFACE RESISTIVITY SHALL BE ≤ 1 x 10^10 OHMS/SQUARE PER EIA, JEDEC TNR SPECIFICATION.
7. Po / P1 10 PITCHES CUMULATIVE TOLERANCE ON TAPE: ±0.2 mm.
8. Ao & Bo MEASUREMENT POINT TO BE 0.3 mm FROM BOTTOM POCKET.
9. ALL DIMENSIONS ARE IN MILLIMETERS.
10. PART NO.: eC3-MCM0606-12-B-F1-L REV. 0 (PLEASE INDICATE ON PURCHASE ORDER).
11. NUMBER OF PARTS per 13 inch (DIAMETER) x 12 mm REEL: 3000.

**ePAK CARRIER TAPE**

Figure 20. Carrier Tape  Body Size: 6 x 6 x 1.75 mm – Overmold MCM / RFLGA (2 of 2)
NOTES:
1. PIN 1 ORIENTATION SHALL BE "TOP LEFT" FOR ALL 6 x 6 mm RFLGA PRODUCTS & ONLY THE 6 x 6 mm MCM PRODUCTS LISTED BELOW:
   SKY77535-XX  SKY77536-XX  SKY77537-XX  SKY77538-XX
2. PIN 1 ORIENTATION SHALL BE "TOP RIGHT" FOR ALL 6 x 6 mm MCM PRODUCTS EXCEPT THOSE LISTED IN NOTE 1 ABOVE.
3. CARRIER TAPES MUST MEET ALL REQUIREMENTS OF SKYWORKS GP01–D232 PROCUREMENT SPEC FOR TAPE AND REEL SHIPPING.
4. CARRIER TAPE SHALL BE BLACK CONDUCTIVE POLYSTYRENE.
5. COVER TAPE SHALL BE TRANSPARENT CONDUCTIVE PRESSURE-SENSITIVE ADHESIVE (PSA) MATERIAL W/ 13.3 mm WIDTH.
6. ESD-SURFACE RESISTIVITY SHALL BE ≤ 1 X 10^10 OHMS/SQUARE PER EIA, JEDEC TNR SPECIFICATION.
7. Po / P1, 10 PITCHES CUMULATIVE TOLERANCE ON TAPE: ±0.2 mm.
8. Ao & Bo MEASUREMENT POINT TO BE 0.3 mm FROM BOTTOM POCKET.
9. ALL DIMENSIONS ARE IN MILLIMETERS.
10. PART NO.: eC3-LGA6x7-16-8-F1-L REV. 0 (PLEASE INDICATE ON PURCHASE ORDER).
11. NUMBER OF PARTS per 13 inch (DIAMETER) x 16 mm REEL: 2500.

Figure 21. Carrier Tape  Body Size: 6 x 7 x 1.0 mm – Overmold MCM / RFLGA
NOTES:
1. CARRIER TAPES MUST MEET ALL REQUIREMENTS OF SKYWORKS GP01–D232 PROCUREMENT SPEC FOR TAPE AND REEL SHIPPING.
2. CARRIER TAPE SHALL BE BLACK CONDUCTIVE POLYSTYRENE.
3. COVER TAPE SHALL BE TRANSPARENT CONDUCTIVE PRESSURE SENSITIVE ADHESIVE (PSA) MATERIAL W/13.3 mm WIDTH.
4. ESD-SURFACE RESISTIVITY SHALL BE \(\leq 1 \times 10^{10}\) OHMS/SQUARE PER EIA, JEDEC TNR SPECIFICATION.
5. \(Po / P1, 10\) PITCHES CUMULATIVE TOLERANCE ON TAPE: ±0.2 mm.
6. \(Ao \& Bo\) MEASUREMENT POINT TO BE 0.3 mm FROM BOTTOM POCKET.
7. ALL DIMENSIONS ARE IN MILLIMETERS.
8. PART NO.: eC3-MCM0608-16-8-F1-L REV. 0. PLEASE INDICATE ON PURCHASE ORDER.
9. NUMBER OF PARTS per 13 inch (DIAMETER) x 16 mm wide REEL: 4000.

Figure 22. Carrier Tape  Body Size: 6 x 8 x 1.4 mm – Overmold MCM
NOTES:

1. CARRIER TAPES MUST MEET ALL REQUIREMENTS OF SKYWORKS GP01–D232 PROCUREMENT SPEC FOR TAPE AND REEL SHIPPING.
2. CARRIER TAPE SHALL BE BLACK CONDUCTIVE POLYSTYRENE.
3. COVER TAPE SHALL BE TRANSPARENT CONDUCTIVE PRESSURE-SENSITIVE ADHESIVE (PSA) MATERIAL W/ 21.3 mm WIDTH.
4. ESD-SURFACE RESISTIVITY SHALL BE ≤ 1 X 10^10 OHMS/SQUARE PER EIA, JEDEC TNR SPECIFICATION.
5. Po / P1, 10 PITCHES CUMULATIVE TOLERANCE ON TAPE: ±0.2 mm.
6. Ao & Bo MEASUREMENT POINT TO BE 0.3 mm FROM BOTTOM POCKET.
7. ALL DIMENSIONS ARE IN MILLIMETERS.
8. PART NO.: eC3-MCM6x11-24-12-F1-L REV. 0 (PLEASE INDICATE ON PURCHASE ORDER).
9. NUMBER OF PARTS per 13 inch (DIAMETER) x 21 mm REEL: 2500.

Figure 23. Carrier Tape Body Size: 6 x 11 x 1.4 mm – Overmold MCM
**NOTES:**

1. CARRIER TAPES MUST MEET ALL REQUIREMENTS OF SKYWORKS GP01–D232 PROCUREMENT SPEC FOR TAPE AND REEL SHIPPING.
2. CARRIER TAPE SHALL BE BLACK CONDUCTIVE POLYSTYRENE.
3. COVER TAPE SHALL BE TRANSPARENT CONDUCTIVE PRESSURE-SENSITIVE ADHESIVE (PSA) MATERIAL W/ 21.3 mm WIDTH.
4. ESD-SURFACE RESISTIVITY SHALL BE ≤ 1 X 10^10 OHMS/SQUARE PER EIA, JEDEC TNR SPECIFICATION.
5. Po / P1 10 PITCHES CUMULATIVE TOLERANCE ON TAPE: ±0.2 mm.
6. Ao & Bo MEASUREMENT POINT TO BE 0.3 mm FROM BOTTOM POCKET.
7. ALL DIMENSIONS ARE IN MILLIMETERS.
8. PART NO.: eC3-MCM6x12-24-12-F1-L REV. 0 (PLEASE INDICATE ON PURCHASE ORDER).
9. NUMBER OF PARTS per 13 inch (DIAMETER) x 24 mm REEL: 2000.

**Figure 24. Carrier Tape Body Size: 6 x 12 x 1.4 mm – Overmold MCM**
NOTES:
1. CARRIER TAPES MUST MEET ALL REQUIREMENTS OF SKYWORKS GP01–D232 PROCUREMENT SPEC FOR TAPE AND REEL SHIPPING.
2. CARRIER TAPE SHALL BE BLACK CONDUCTIVE POLYSTYRENE.
3. COVER TAPE SHALL BE TRANSPARENT CONDUCTIVE PRESSURE-SENSITIVE ADHESIVE (PSA) MATERIAL W/ 13.3 mm WIDTH.
4. ESD-SURFACE RESISTIVITY SHALL BE ≤ 1 × 10^10 OHMS/SQUARE PER EIA, JEDEC TNR SPECIFICATION.
5. Po / P1, 10 PITCHES CUMULATIVE TOLERANCE ON TAPE: ±0.2 mm
6. Ao & Bo MEASUREMENT POINT TO BE 0.3 mm FROM BOTTOM POCKET.
7. ALL DIMENSIONS ARE IN MILLIMETERS.
8. PART NO.: eC3-LGA0707-16-12-F1-L REV. 0 (PLEASE INDICATE ON PURCHASE ORDER).
9. NUMBER OF PARTS per 13 inch (DIAMETER) x 16 mm REEL: 2000.

Figure 25. Carrier Tape  Body Size: 7 x 7 x 1.3 / 1.0 mm – Overmold BCC++ / MCM / RFLGA
NOTES:
1. CARRIER TAPES MUST MEET ALL REQUIREMENTS OF SKYWORKS GP01–D232 PROCUREMENT SPEC FOR TAPE AND REEL SHIPPING.
2. CARRIER TAPE SHALL BE BLACK CONDUCTIVE POLYSTYRENE.
3. COVER TAPE SHALL BE TRANSPARENT CONDUCTIVE PRESSURE-SENSITIVE ADHESIVE (PSA) MATERIAL W/ 13.3 mm WIDTH.
4. ESD-SURFACE RESISTIVITY SHALL BE ≤ 1 X 10^10 OHMS/SQUARE PER EIA, JEDEC TNR SPECIFICATION.
5. Po / P1, 10 PITCHES CUMULATIVE TOLERANCE ON TAPE: ±0.2 mm.
6. Ao & Bo MEASUREMENT POINT TO BE 0.3 mm FROM BOTTOM POCKET.
7. ALL DIMENSIONS ARE IN MILLIMETERS.
8. PART NO.: eC3-MCM7x7.5-16-12-F1-L REV. 0 (PLEASE INDICATE ON PURCHASE ORDER).
9. NUMBER OF PARTS per 13 inch (DIAMETER) x 16 mm REEL: 2000.

Figure 26. Carrier Tape Body Size: 7 x 7.5 x 1.4 mm – Overmold MCM
NOTES:
1. CARRIER TAPES MUST MEET ALL REQUIREMENTS OF SKYWORKS GP01–D232 PROCUREMENT SPEC FOR TAPE AND REEL SHIPPING.
2. CARRIER TAPE SHALL BE BLACK CONDUCTIVE POLYSTYRENE.
3. COVER TAPE SHALL BE TRANSPARENT CONDUCTIVE PRESSURE-SENSITIVE ADHESIVE (PSA) MATERIAL W/ 21.3 mm WIDTH.
4. ESD-SURFACE RESISTIVITY SHALL BE ≤ 1 X 10^10 OHMS/SQUARE PER EIA, JEDEC TJN SPECIFICATION.
5. Po / P1, 10 PITCHES CUMULATIVE TOLERANCE ON TAPE: ±0.2 mm.
6. Ao & Bo MEASUREMENT POINT TO BE 0.3 mm FROM BOTTOM POCKET.
7. ALL DIMENSIONS ARE IN MILLIMETERS.
8. PART NO.: eC3-MCM7x11-24-12-F1-L REV. 0 (PLEASE INDICATE ON PURCHASE ORDER).
9. NUMBER OF PARTS per 13 inch (DIAMETER) x 24 mm REEL: 2000.

Figure 27. Carrier Tape Body Size: 7 x 11 x 1.4 mm – Overmold MCM
NOTES:
1. PIN 1 ORIENTATION SHALL BE “TOP LEFT” ONLY FOR ALL PRODUCTS WITH 7.5 x 7.5 mm BODY SIZE LISTED BELOW:
   SKY77345
2. PIN 1 ORIENTATION SHALL BE “TOP RIGHT” FOR ALL PRODUCTS WITH 7.5 x 7.5 mm BODY SIZE EXCEPT ITEM LISTED IN NOTE 1.
3. CARRIER TAPES MUST MEET ALL REQUIREMENTS OF SKYWORKS GP01-D232 PROCUREMENT SPEC FOR TAPE AND REEL SHIPPING.
4. CARRIER TAPE SHALL BE BLACK CONDUCTIVE POLYSTYRENE.
5. COVER TAPE SHALL BE TRANSPARENT CONDUCTIVE PRESSURE-SENSITIVE ADHESIVE (PSA) MATERIAL W/ 13.3 WIDTH.
6. ESD-SURFACE RESISTIVITY SHALL BE ≤ 1 x 10^10 OHMS/SQUARE PER EIA, JEDEC TNR SPECIFICATION.
7. P0/P1, 10 PITCHES CUMULATIVE TOLERANCE ON TAPE: ±0.2 mm.
8. Ao & Bo MEASUREMENT POINT TO BE 0.3 mm FROM BOTTOM POCKET.
9. ALL DIMENSIONS ARE IN MILLIMETERS.
10. PART NO.: eC3-MCM7.5x7.5-16-F1-L REV. 0 (PLEASE INDICATE ON PURCHASE ORDER).
11. NUMBER OF PARTS per 23-inch (DIAMETER) x 16 mm REEL: 2000.

ePAK CARRIER TAPE

Figure 28. Carrier Tape  Body Size: 7.5 x 7.5 x 1.4 mm – Overmold MCM
NOTES:
1. PIN 1 ORIENTATION SHALL BE "TOP LEFT" ONLY FOR THESE RFLGA & MCM PRODUCTS:
   CX74963-XX CX74063-35 SKY77343-XX
   SKY77503-XX SKY77506-XX SKY77512-XX SKY77526-XX
2. PIN 1 ORIENTATION SHALL BE "TOP RIGHT" FOR ALL RFLGA & MCM PRODUCTS EXCEPT ITEMS LISTED IN NOTE 1.
3. CARRIER TAPES MUST MEET ALL REQUIREMENTS OF SKYWORKS GP01–D232 PROCUREMENT SPEC FOR TAPE AND REEL SHIPPING.
4. CARRIER TAPE SHALL BE BLACK CONDUCTIVE POLYSTYRENE.
5. COVER TAPE SHALL BE TRANSPARENT CONDUCTIVE PRESSURE-SENSITIVE ADHESIVE (PSA) MATERIAL W/ 13.3 mm WIDTH.
6. ESD-SURFACE RESISTIVITY SHALL BE ≤ 1 X 10¹⁰ OHMS/SQUARE PER EIA, JEDEC TNR SPECIFICATION.
7. Po / P1, 10 PITCHES CUMULATIVE TOLERANCE ON TAPE: ±0.2 mm.
8. Ao & Bo MEASUREMENT POINT TO BE 0.3 mm FROM BOTTOM POCKET.
9. ALL DIMENSIONS ARE IN MILLIMETERS.
10. PART NO.: eC3-MCM0808-16-12-F1-L REV. 0 (PLEASE INDICATE ON PURCHASE ORDER).
11. NUMBER OF PARTS per 13 inch (DIAMETER) x 16 mm REEL: 2500.

Figure 29. Carrier Tape  Body Size:  8 x 8 x 1.4 / 1.3 / 1.0 mm – Overmold MCM / RFLGA
NOTEs:
1. CARRIER TAPES MUST MEET ALL REQUIREMENTS OF SKYWORKS GP01–D232 PROCUREMENT SPEC FOR TAPE AND REEL SHIPPING.
2. CARRIER TAPE SHALL BE BLACK CONDUCTIVE POLYSTYRENE.
3. COVER TAPE SHALL BE TRANSPARENT CONDUCTIVE PRESSURE-SENSITIVE ADHESIVE (PSA) MATERIAL W/ 13.3 mm WIDTH.
4. ESD-SURFACE RESISTIVITY SHALL BE \( \leq 1 \times 10^{10} \) OHMS/SQUARE PER EIA, JEDEC TNR SPECIFICATION.
5. Po / P1, 10 PITCHES CUMULATIVE TOLERANCE ON TAPE: ±0.2 mm.
6. Ao and Bo MEASUREMENT POINT TO BE 0.3 mm FROM BOTTOM POCKET.
7. ALL DIMENSIONS ARE IN MILLIMETERS.
8. PART NO.: eC3-MCM10x8-16-12-F1-L REV 0 (PLEASE INDICATE ON PURCHASE ORDER).
9. NUMBER OF PARTS per 13 inch (DIAMETER) x 16 mm REEL: 3000.

**ePAK CARRIER TAPE**

**Figure 30. Carrier Tape Body Size: 8 x 10 x 1.4 mm – Overmold MCM**
NOTES:
1. CARRIER TAPES MUST MEET ALL REQUIREMENTS OF SKYWORKS GP01–D232 PROCUREMENT SPEC FOR TAPE AND REEL SHIPPING.
2. CARRIER TAPE SHALL BE BLACK CONDUCTIVE POLYCARBONATE OR POLYSTYRENE.
3. COVER TAPE SHALL BE TRANSPARENT CONDUCTIVE PRESSURE-SENSITIVE ADHESIVE (PSA) MATERIAL W/ 13.3 mm WIDTH.
4. ESD-SURFACE RESISTIVITY SHALL BE ≤ 1 X 10^8 OHMS/SQUARE PER EIA, JEDIC TNR SPECIFICATION.
5. TOLERANCES: XX = ±0.1
6. ALL DIMENSIONS ARE IN MILLIMETERS.
7. PART NO.: US039321 (PLEASE INDICATE ON PURCHASE ORDER).
8. NUMBER OF PARTS per 13 inch (DIAMETER) x 16 mm REEL: 2000.

3M CARRIER TAPE

Figure 31. Carrier Tape  Body Size: 8.3 x 8.3 x 2.1 mm – Ceramic MCM
NOTES:
1. CARRIER TAPES MUST MEET ALL REQUIREMENTS OF SKYWORKS GP01–D232 PROCUREMENT SPEC FOR TAPE AND REEL SHIPPING.
2. CARRIER TAPE SHALL BE BLACK CONDUCTIVE POLYSTYRENE.
3. COVER TAPE SHALL BE TRANSPARENT CONDUCTIVE PRESSURE-SENSITIVE ADHESIVE (PSA) MATERIAL W/ 21.3 mm WIDTH.
4. ESD-SURFACE RESISTIVITY SHALL BE \( \leq 1 \times 10^{10} \) OHMS/SQUARE PER EIA, JEDEC TNR SPECIFICATION.
5. Po / P1 10 PITCHES CUMULATIVE TOLERANCE ON TAPE: ±0.2 mm
6. Ao & Bo MEASUREMENT POINT TO BE 0.3 mm FROM BOTTOM POCKET.
7. ALL DIMENSIONS ARE IN MILLIMETERS.
8. PART NO.: eC3-LGA909-24-12-F1-L REV. 0 (PLEASE INDICATE ON PURCHASE ORDER).
9. NUMBER OF PARTS per 13 inch (DIAMETER) x 24 mm REEL: 2000.

**ePAK CARRIER TAPE**

Figure 32. Carrier Tape Body Size: 9 x 9 x 1.3 / 1.0 mm – Overmold RFLGA
NOTES:
1. CARRIER TAPES MUST MEET ALL REQUIREMENTS OF SKYWORKS GP01–D232 PROCUREMENT SPEC FOR TAPE AND REEL SHIPPING.
2. CARRIER TAPE SHALL BE BLACK CONDUCTIVE POLYSTYRENE.
3. COVER TAPE SHALL BE TRANSPARENT CONDUCTIVE PRESSURE-SENSITIVE ADHESIVE (PSA) MATERIAL W/ 13.3 mm WIDTH.
4. ESD-SURFACE RESISTIVITY SHALL BE ≤ 1 X 10^{10} OHMS/SQUARE PER EIA, JEDEC TNR SPECIFICATION.
5. TOLERANCES: .XX = ±0.1
6. ALL DIMENSIONS ARE IN MILLIMETERS.
7. PART NO.: KS1612-181 (PLEASE INDICATE ON PURCHASE ORDER).
8. NUMBER OF PARTS per 13 inch (DIAMETER) x 16 mm REEL: 2000.

Figure 33. Carrier Tape Body Size: 9 x 10 x 1.4 mm – Overmold MCM
NOTES:

1. CARRIER TAPES MUST MEET ALL REQUIREMENTS OF SKYWORKS GP01–D232 PROCUREMENT SPEC FOR TAPE AND REEL SHIPPING.
2. CARRIER TAPE SHALL BE BLACK CONDUCTIVE POLYCARBONATE.
3. COVER TAPE SHALL BE TRANSPARENT CONDUCTIVE PRESSURE-SENSITIVE ADHESIVE (PSA) MATERIAL W/ 21.3 mm WIDTH.
4. ESD-SURFACE RESISTIVITY SHALL BE ≤ 1 X 10^10 OHMS/SQUARE PER EIA, JEDEC TNR SPECIFICATION.
5. Po / P1 10 PITCHES CUMULATIVE TOLERANCE ON TAPE: ±0.2.
6. Ao & Bo MEASUREMENT POINT TO BE 0.3 mm FROM BOTTOM POCKET.
7. ALL DIMENSIONS ARE IN MILLIMETERS.
8. PART NO.: eC3-MCM0912-24-F1-L (PLEASE INDICATE ON PURCHASE ORDER).
9. NUMBER OF PARTS per 13 inch (DIAMETER) x 24 mm REEL: 2000.

Figure 34. Carrier Tape Body Size: 9 x 12 x 1.4 mm – Overmold MCM
NOTES:
1. CARRIER TAPES MUST MEET ALL REQUIREMENTS OF SKYWORKS GP01–D232 PROCUREMENT SPEC FOR TAPE AND REEL SHIPPING.
2. CARRIER TAPE SHALL BE BLACK CONDUCTIVE POLYSTYRENE.
3. COVER TAPE SHALL BE TRANSPARENT CONDUCTIVE PRESSURE-SENSITIVE ADHESIVE (PSA) MATERIAL W/ 21.3 mm WIDTH.
4. ESD-SURFACE RESISTIVITY SHALL BE ≤ 1 X 10¹⁰ OHMS/SQUARE PER EIA, JEDEC TNR SPECIFICATION.
5. Po / P1, 10 PITCHES CUMULATIVE TOLERANCE ON TAPE: ±0.2 mm.
6. Ao & Bo MEASUREMENT POINT TO BE 0.3 mm FROM BOTTOM POCKET.
7. ALL DIMENSIONS ARE IN MILLIMETERS.
8. PART NO.: eC3–MCM11.6x9.1x1.4–24–12–F1–L REV. 0 (PLEASE INDICATE ON PURCHASE ORDER).
9. NUMBER OF PARTS per 13 inch (DIAMETER) x 24 mm REEL: 2000.

**Figure 35. Carrier Tape Body Size: 9.1 x 11.6 x 1.4 mm – Overmold MCM**
NOTES:
1. CARRIER TAPES MUST MEET ALL REQUIREMENTS OF SKYWORAKS GP01–D232 PROCUREMENT SPEC FOR TAPE AND REEL SHIPPING.
2. CARRIER TAPE SHALL BE BLACK CONDUCTIVE POLYSTYRENE.
3. COVER TAPE SHALL BE TRANSPARENT CONDUCTIVE PRESSURE-SENSITIVE ADHESIVE (PSA) MATERIAL W/ 21.3 mm WIDTH.
4. ESD-SURFACE RESISTIVITY SHALL BE ≤ 1 X 10¹⁰ OHMS/SQUARE PER EIA, JEDEC TNR SPECIFICATION.
5. Po / P1 10 PITCHES CUMULATIVE TOLERANCE ON TAPE: ±0.2 mm.
6. Ao & Bo MEASUREMENT POINT TO BE .03 mm FROM BOTTOM POCKET.
7. ALL DIMENSIONS ARE IN MILLIMETERS.
8. PART NO.: eC3-FPBGA1010-24-16-F1-L REV.D. (PLEASE INDICATE ON PURCHASE ORDER).
9. NUMBER OF PARTS per 13 inch (DIAMETER) x 24 mm REEL: 1000.

ePAK CARRIER TAPE

Figure 36. Carrier Tape Body Size: 10 x 10 x 1.0 mm – Overmold FPBG A
NOTES:
1. REFERS TO ORIENTATION OF PIN 1 OF A 10.04 X 14.04 mm PACKAGE WITH A 1.3 mm MOLD CAP.
2. REFERS TO ORIENTATION OF PIN 1 OF A 10.04 X 14.04 mm PACKAGE WITH A 0.5 mm OR 1.0 mm MOLD CAP.
3. CARRIER TAPES MUST MEET ALL REQUIREMENTS OF SKYWORKS GP01–D232 PROCUREMENT SPEC FOR TAPE AND REEL SHIPPING.
4. CARRIER TAPE SHALL BE BLACK CONDUCTIVE POLYSTYRENE.
5. COVER TAPE SHALL BE TRANSPARENT CONDUCTIVE PRESSURE-SENSITIVE ADHESIVE (PSA) MATERIAL W/ 21.3 mm WIDTH.
6. ESD-SURFACE RESISTIVITY SHALL BE ≤ 1 X 10^10 OHMS/SQUARE PER EIA, JEDEC TNR SPECIFICATION.
7. Po / P1, 10 PITCHES CUMULATIVE TOLERANCE ON TAPE: ±0.2 mm.
8. Ao & Bo MEASUREMENT POINT TO BE 0.3 mm FROM BOTTOM POCKET.
9. ALL DIMENSIONS ARE IN MILLIMETERS.
10. PART NO.: eC3–MCM10x14–24–12–F1–L REV 0 (PLEASE INDICATE ON PURCHASE ORDER).
11. NUMBER OF PARTS per 13 inch (DIAMETER) x 24 mm REEL: 2500.

Figure 37. Carrier Tape  Body Size: 10 x 14 x 1.4 mm – Overmold MCM

ePAK CARRIER TAPE

CARRIER TAPE  OVERMOLD-MCM  10 x 14 x 1.4 BODY SIZE  GP01-D232-003E
101568_007
NOTES:
1. CARRIER TAPES MUST MEET ALL REQUIREMENTS OF SKYWORKS GP01–D232 PROCUREMENT SPEC FOR TAPE AND REEL SHIPPING.
2. CARRIER TAPE SHALL BE BLACK CONDUCTIVE POLYSTYRENE.
3. COVER TAPE SHALL BE TRANSPARENT CONDUCTIVE PRESSURE-SENSITIVE ADHESIVE (PSA) MATERIAL W/ 21.3 mm WIDTH.
4. ESD-SURFACE RESISTIVITY SHALL BE ≤ 1 X 10^10 OHMS/SQUARE PER EIA, JEDEC TNR SPECIFICATION.
5. TOLERANCE: .XX = ±0.10
6. ALL DIMENSIONS ARE IN MILLIMETERS.
7. PART NO.: KS2416-139 (PLEASE INDICATE ON PURCHASE ORDER).
8. NUMBER OF PARTS per 13 inch (DIAMETER) x 24 mm REEL: 1000.

KOSTAT CARRIER TAPE

Figure 38. Carrier Tape Body Size: 13 x 13 x 1.8 / 1.4 mm – Overmold MCM
Figure 39. Typical Tape and Reel Showing Unreeling Direction