

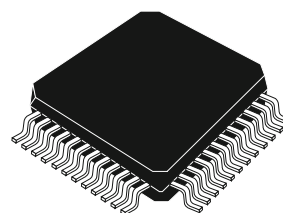
| DIMENSIONS |      |      |      |       |       |        |
|------------|------|------|------|-------|-------|--------|
| REF.       | mm   |      |      | inch  |       |        |
|            | MIN. | TYP. | MAX. | MIN.  | TYP.  | MAX.   |
| A          |      |      | 1.6  |       |       | 0.063  |
| A1         | 0.05 |      | 0.15 | 0.002 |       | 0.006  |
| A2         | 1.35 | 1.40 | 1.45 | 0.053 | 0.055 | 0.057  |
| B          | 0.17 | 0.22 | 0.27 | 0.007 | 0.009 | 0.011  |
| C          | 0.09 |      | 0.20 | 0.003 |       | 0.0079 |
| D          |      | 9.00 |      |       | 0.354 |        |
| D1         |      | 7.00 |      |       | 0.276 |        |
| D3         |      | 5.50 |      |       | 0.216 |        |
| e          |      | 0.50 |      |       | 0.020 |        |
| E          |      | 9.00 |      |       | 0.354 |        |
| E1         |      | 7.00 |      |       | 0.276 |        |
| E3         |      | 5.50 |      |       | 0.216 |        |
| L          | 0.45 | 0.60 | 0.75 | 0.018 | 0.024 | 0.030  |
| L1         |      | 1.00 |      |       | 0.039 |        |
| K          | 0°   | 3.5° | 7°   | 0°    | 3.5°  | 7°     |



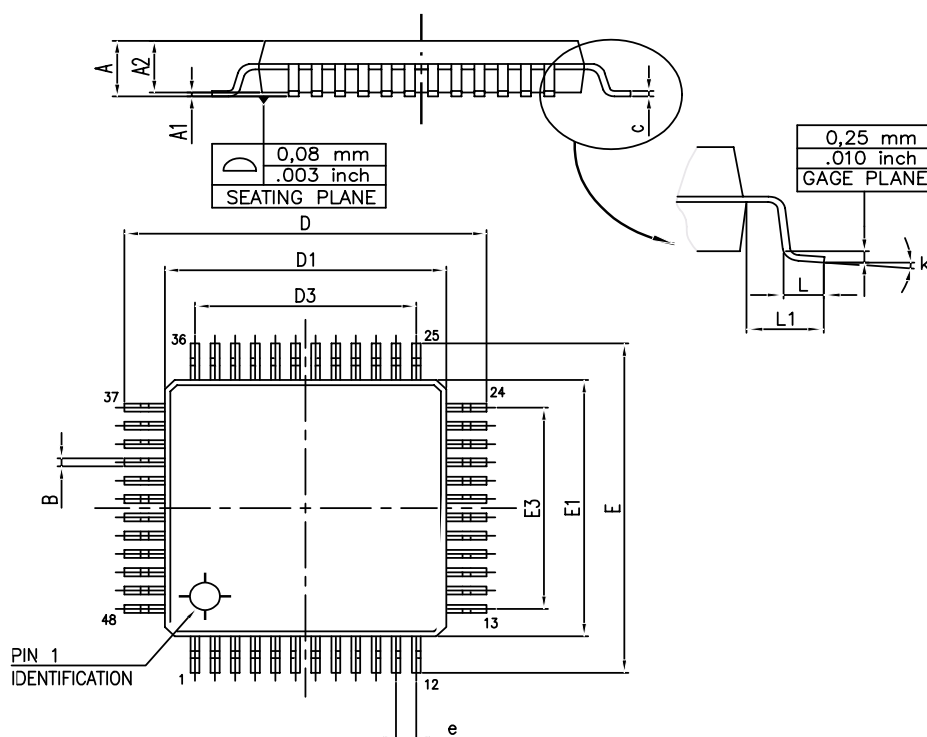
## PACKAGE AND PACKING INFORMATION

### 48-LEAD THIN QUAD FLAT PACKAGE

Weight: not available

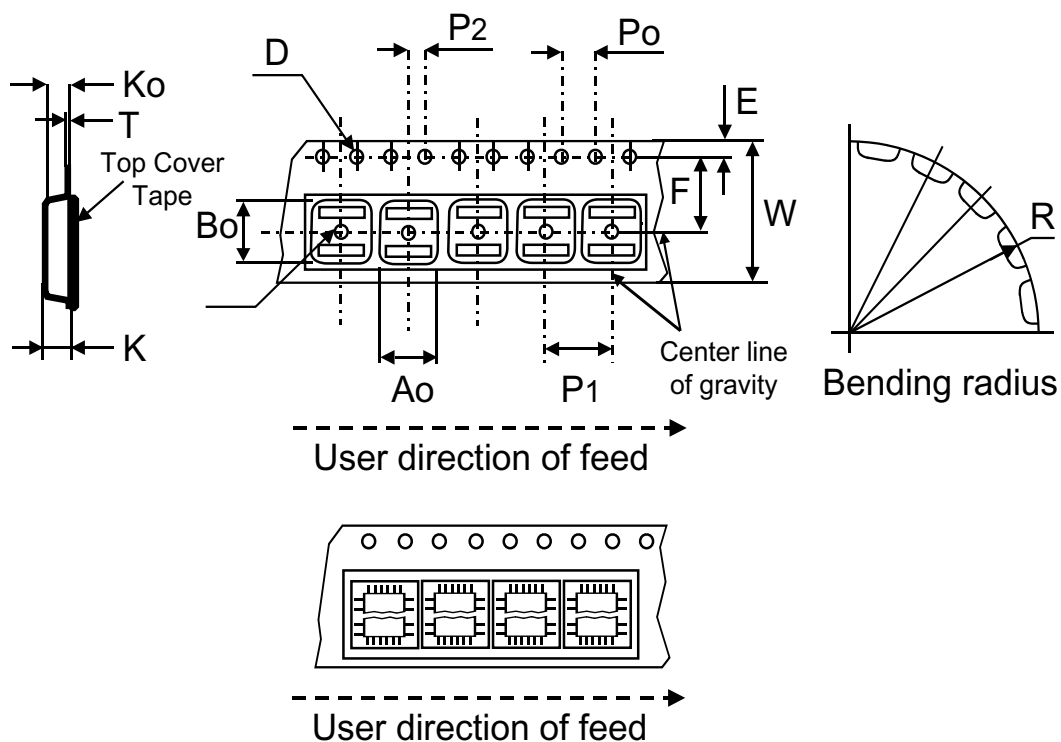


**TQFP48**



## TAPE &amp; REEL SHIPMENT INFORMATION

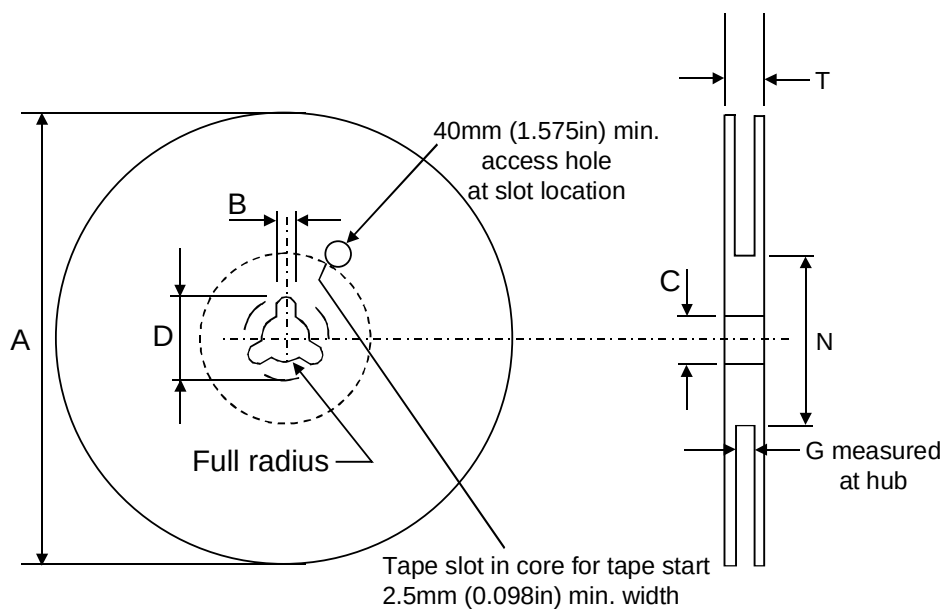
## TAPE SPECIFICATIONS



| TAPE MECHANICAL DATA |                       |                         |
|----------------------|-----------------------|-------------------------|
|                      | mm.                   | inch                    |
| D                    | 1.50 +0.1/0           | 0.059 +0.004/0          |
| E                    | 1.75 ±0.1             | 0.069 ±0.004            |
| Po                   | 4.00 ±0.1             | 0.157 ±0.004            |
| T max.               | 0.40                  | 0.016                   |
| D1 min.              | 1.50                  | 0.059                   |
| F                    | 7.5 ±0.05             | 0.295 ±0.002            |
| K max.               | 6.50                  | 0.256                   |
| P2                   | 2.00 ±0.05            | 0.079 ±0.002            |
| R                    | 40                    | 1.575                   |
| W                    | 16.00 ±0.30           | 0.630 ±0.012            |
| P1                   | 12.00                 | 0.472                   |
| Ao, Bo, Ko           | 0.05 min to 0.90 max. | 0.002 min to 0.035 max. |

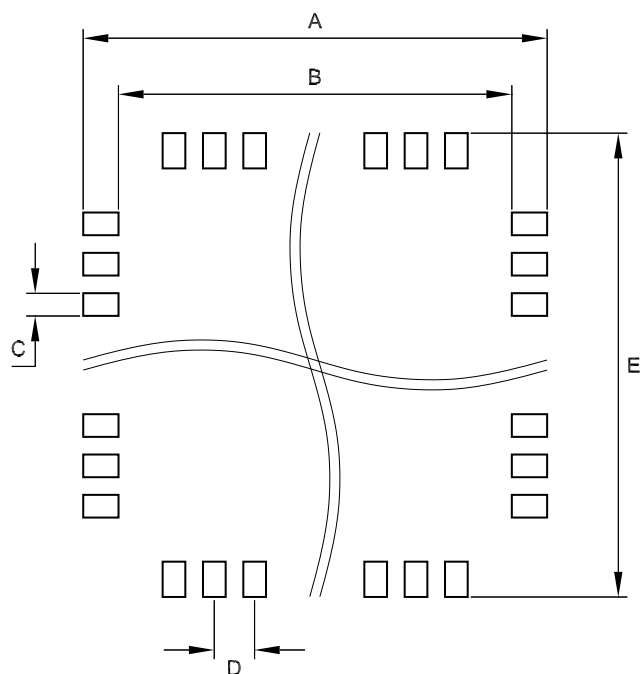
|               |           |
|---------------|-----------|
| BASE QUANTITY | 2400 pcs. |
| BULK QUANTITY | 2400 pcs. |

**TAPE & REEL SHIPMENT INFORMATION**  
**REEL SPECIFICATIONS**



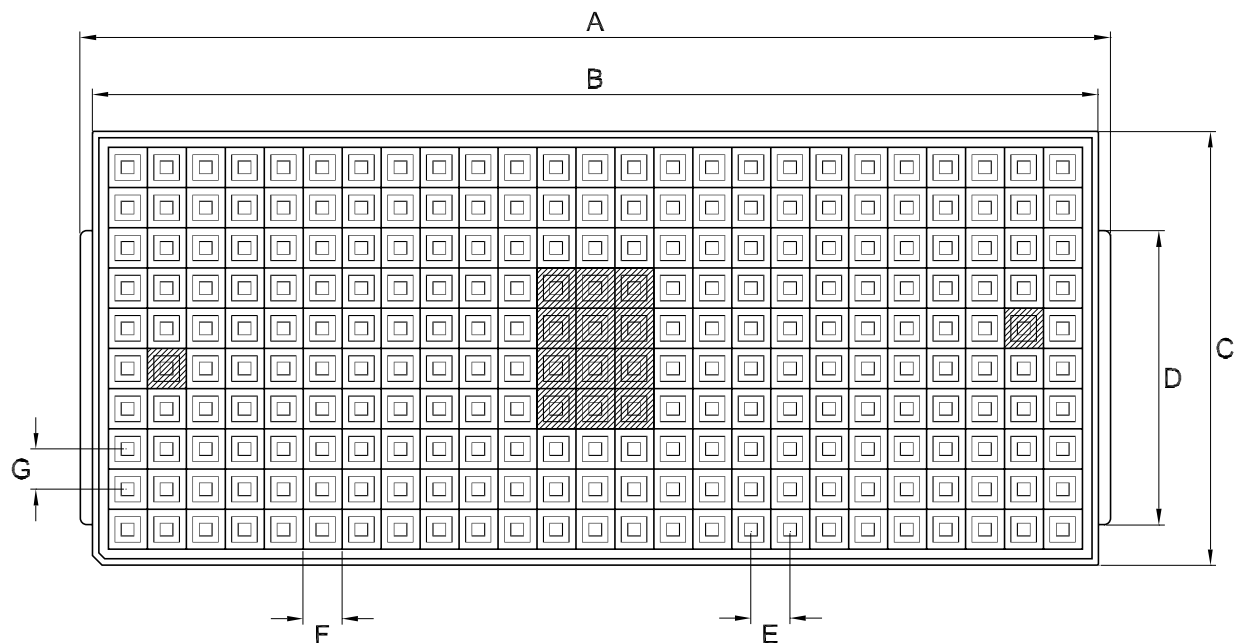
| REEL MECHANICAL DATA |                 |                      |
|----------------------|-----------------|----------------------|
|                      | mm.             | inch                 |
| Tape size            | 16.0 $\pm$ 0.30 | 0.630 $\pm$ 0.012    |
| A max.               | 330.0           | 12.992               |
| B min.               | 1.5             | 0.059                |
| C                    | 13.0 $\pm$ 0.20 | 0.512 $\pm$ 0.008    |
| D min.               | 20.2            | 0.795                |
| N min.               | 60              | 2.362                |
| G                    | 16.4 $\pm$ 2/-0 | 0.646 $\pm$ 0.079/-0 |
| T max.               | 22.4            | 0.882                |

FOOTPRINT RECOMMENDED DATA



| FOOTPRINT DATA |      |       |
|----------------|------|-------|
|                | mm.  | inch  |
| A              | 9.40 | 0.370 |
| B              | 7.70 | 0.303 |
| C              | 0.32 | 0.012 |
| D              | 0.50 | 0.020 |
| E              | 9.4  | 0.370 |

## TRAY SHIPMENT INFORMATION



| TRAY DATA |             |               |
|-----------|-------------|---------------|
|           | mm.         | inch          |
| A         | 322.6       | 12.700        |
| B         | 315.0 ±0.10 | 12.402 ±0.004 |
| C         | 135.9 ±0.10 | 5.350 ±0.004  |
| D         | 92.1 ±0.10  | 3.626 ±0.004  |
| E         | 12.2 ±0.10  | 0.480 ±0.004  |
| F         | 12.2 ±0.10  | 0.480 ±0.004  |
| G         | 12.2 ±0.10  | 0.480 ±0.004  |

|               |           |
|---------------|-----------|
| BASE QUANTITY | 250 pcs.  |
| BULK QUANTITY | 1500 pcs. |