

**TAPE AND REEL INFORMATION**

**QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE**


\*All dimensions are nominal

| Device            | Package Type         | Package Drawing | Pins | SPQ  | Reel Diameter (mm) | Reel Width W1 (mm) | A0 (mm) | B0 (mm) | K0 (mm) | P1 (mm) | W (mm) | Pin1 Quadrant |
|-------------------|----------------------|-----------------|------|------|--------------------|--------------------|---------|---------|---------|---------|--------|---------------|
| MSP430BT5190IPZR  | LQFP                 | PZ              | 100  | 1000 | 330.0              | 24.4               | 17.0    | 17.0    | 2.1     | 20.0    | 24.0   | Q2            |
| MSP430BT5190IZCAT | NFBGA                | ZCA             | 113  | 250  | 180.0              | 16.4               | 7.3     | 7.3     | 1.5     | 12.0    | 16.0   | Q1            |
| MSP430BT5190IZQWR | BGA MICROSTAR JUNIOR | ZQW             | 113  | 2500 | 330.0              | 16.4               | 7.3     | 7.3     | 1.5     | 12.0    | 16.0   | Q1            |
| MSP430BT5190IZQWT | BGA MICROSTAR JUNIOR | ZQW             | 113  | 250  | 180.0              | 16.4               | 7.3     | 7.3     | 1.5     | 12.0    | 16.0   | Q1            |

**TAPE AND REEL BOX DIMENSIONS**


\*All dimensions are nominal

| Device            | Package Type            | Package Drawing | Pins | SPQ  | Length (mm) | Width (mm) | Height (mm) |
|-------------------|-------------------------|-----------------|------|------|-------------|------------|-------------|
| MSP430BT5190IPZR  | LQFP                    | PZ              | 100  | 1000 | 350.0       | 350.0      | 43.0        |
| MSP430BT5190IZCAT | NFBGA                   | ZCA             | 113  | 250  | 213.0       | 191.0      | 55.0        |
| MSP430BT5190IZQWR | BGA MICROSTAR<br>JUNIOR | ZQW             | 113  | 2500 | 350.0       | 350.0      | 43.0        |
| MSP430BT5190IZQWT | BGA MICROSTAR<br>JUNIOR | ZQW             | 113  | 250  | 213.0       | 191.0      | 55.0        |