

**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 |
|-------------------|--------------|-----------------|------|------|--------------------|--------------------|---------|---------|---------|---------|--------|---------------|
| MSP430FG4616IPZR  | LQFP         | PZ              | 100  | 1000 | 330.0              | 24.4               | 17.0    | 17.0    | 2.1     | 20.0    | 24.0   | Q2            |
| MSP430FG4616IZCAR | NFBGA        | ZCA             | 113  | 2500 | 330.0              | 16.4               | 7.3     | 7.3     | 1.5     | 12.0    | 16.0   | Q1            |
| MSP430FG4617IZCAR | NFBGA        | ZCA             | 113  | 2500 | 330.0              | 16.4               | 7.3     | 7.3     | 1.5     | 12.0    | 16.0   | Q1            |
| MSP430FG4618IPZR  | LQFP         | PZ              | 100  | 1000 | 330.0              | 24.4               | 17.0    | 17.0    | 2.1     | 20.0    | 24.0   | Q2            |
| MSP430FG4618IZCAR | NFBGA        | ZCA             | 113  | 2500 | 330.0              | 16.4               | 7.3     | 7.3     | 1.5     | 12.0    | 16.0   | Q1            |
| MSP430FG4618IZCAT | NFBGA        | ZCA             | 113  | 250  | 330.0              | 16.4               | 7.3     | 7.3     | 1.5     | 12.0    | 16.0   | Q1            |
| MSP430FG4619IPZR  | LQFP         | PZ              | 100  | 1000 | 330.0              | 24.4               | 17.0    | 17.0    | 2.1     | 20.0    | 24.0   | Q2            |
| MSP430FG4619IZCAR | NFBGA        | ZCA             | 113  | 2500 | 330.0              | 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) |
|-------------------|--------------|-----------------|------|------|-------------|------------|-------------|
| MSP430FG4616IPZR  | LQFP         | PZ              | 100  | 1000 | 367.0       | 367.0      | 45.0        |
| MSP430FG4616IZCAR | NFBGA        | ZCA             | 113  | 2500 | 341.0       | 336.6      | 31.8        |
| MSP430FG4617IZCAR | NFBGA        | ZCA             | 113  | 2500 | 341.0       | 336.6      | 31.8        |
| MSP430FG4618IPZR  | LQFP         | PZ              | 100  | 1000 | 367.0       | 367.0      | 45.0        |
| MSP430FG4618IZCAR | NFBGA        | ZCA             | 113  | 2500 | 341.0       | 336.6      | 31.8        |
| MSP430FG4618IZCAT | NFBGA        | ZCA             | 113  | 250  | 341.0       | 336.6      | 31.8        |
| MSP430FG4619IPZR  | LQFP         | PZ              | 100  | 1000 | 367.0       | 367.0      | 45.0        |
| MSP430FG4619IZCAR | NFBGA        | ZCA             | 113  | 2500 | 341.0       | 336.6      | 31.8        |

**TRAY**


Chamfer on Tray corner indicates Pin 1 orientation of packed units.

\*All dimensions are nominal

| Device              | Package Name | Package Type | Pins | SPQ  | Unit array matrix | Max temperature (°C) | L (mm) | W (mm) | K0 (µm) | P1 (mm) | CL (mm) | CW (mm) |
|---------------------|--------------|--------------|------|------|-------------------|----------------------|--------|--------|---------|---------|---------|---------|
| MSP430FG4616IZCA    | ZCA          | NFBGA        | 113  | 260  | 10 x 26           | 150                  | 315    | 135.9  | 7620    | 11.8    | 10      | 10.35   |
| MSP430FG4616IZCA.Z  | ZCA          | NFBGA        | 113  | 260  | 10 x 26           | 150                  | 315    | 135.9  | 7620    | 11.8    | 10      | 10.35   |
| MSP430FG4616IZCAR   | ZCA          | NFBGA        | 113  | 2500 | 10 x 26           | 150                  | 315    | 135.9  | 7620    | 11.8    | 10      | 10.35   |
| MSP430FG4616IZCAR.Z | ZCA          | NFBGA        | 113  | 2500 | 10 x 26           | 150                  | 315    | 135.9  | 7620    | 11.8    | 10      | 10.35   |
| MSP430FG4617IZCAR   | ZCA          | NFBGA        | 113  | 2500 | 10 x 26           | 150                  | 315    | 135.9  | 7620    | 11.8    | 10      | 10.35   |
| MSP430FG4617IZCAR.Z | ZCA          | NFBGA        | 113  | 2500 | 10 x 26           | 150                  | 315    | 135.9  | 7620    | 11.8    | 10      | 10.35   |
| MSP430FG4618IZCA    | ZCA          | NFBGA        | 113  | 260  | 10 x 26           | 150                  | 315    | 135.9  | 7620    | 11.8    | 10      | 10.35   |
| MSP430FG4618IZCA.Z  | ZCA          | NFBGA        | 113  | 260  | 10 x 26           | 150                  | 315    | 135.9  | 7620    | 11.8    | 10      | 10.35   |
| MSP430FG4618IZCAR   | ZCA          | NFBGA        | 113  | 2500 | 10 x 26           | 150                  | 315    | 135.9  | 7620    | 11.8    | 10      | 10.35   |
| MSP430FG4618IZCAR   | ZCA          | NFBGA        | 113  | 2500 | 10 x 26           | 150                  | 315    | 135.9  | 7620    | 11.8    | 10      | 10.35   |
| MSP430FG4618IZCAR.Z | ZCA          | NFBGA        | 113  | 2500 | 10 x 26           | 150                  | 315    | 135.9  | 7620    | 11.8    | 10      | 10.35   |
| MSP430FG4618IZCAR.Z | ZCA          | NFBGA        | 113  | 2500 | 10 x 26           | 150                  | 315    | 135.9  | 7620    | 11.8    | 10      | 10.35   |
| MSP430FG4618IZCAT   | ZCA          | NFBGA        | 113  | 250  | 10 x 26           | 150                  | 315    | 135.9  | 7620    | 11.8    | 10      | 10.35   |
| MSP430FG4618IZCAT.Z | ZCA          | NFBGA        | 113  | 250  | 10 x 26           | 150                  | 315    | 135.9  | 7620    | 11.8    | 10      | 10.35   |
| MSP430FG4619IZCAR   | ZCA          | NFBGA        | 113  | 2500 | 10 x 26           | 150                  | 315    | 135.9  | 7620    | 11.8    | 10      | 10.35   |
| MSP430FG4619IZCAR.Z | ZCA          | NFBGA        | 113  | 2500 | 10 x 26           | 150                  | 315    | 135.9  | 7620    | 11.8    | 10      | 10.35   |