

Ceramic Resonators (Built-In Capacitors Type)

Type: **EC** (2.0 to 50.0 MHz)

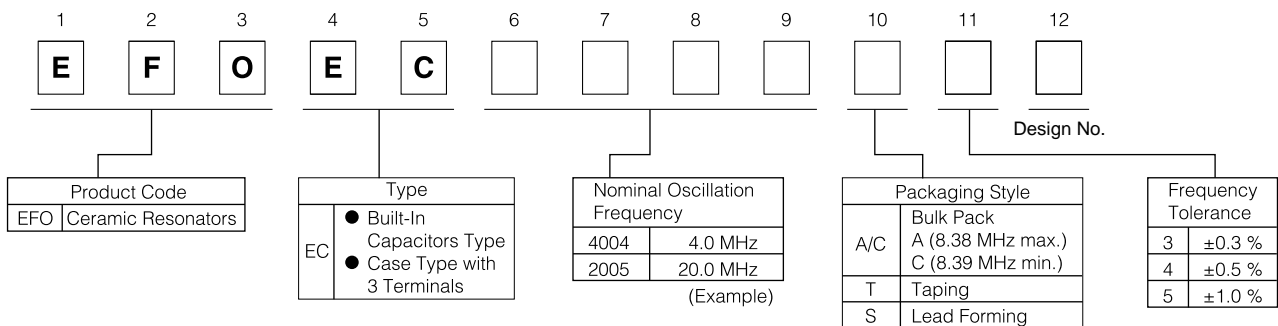
■ Features

- Wide range of oscillation frequency: 2.0 to 50 MHz
- No need of capacitors in oscillation circuit
- High accuracy, high stability
Initial frequency tolerance: ± 0.3 to 0.5 %
- Excellent temperature characteristics (Nominal Freq.: 3.58 to 50 MHz)
Frequency drift: ± 0.1 % max. -10 to 60 °C
- Saves height on P.C.-board (Height: 5 mm max.)
- Taped version is available for automatic insertion

■ Recommended Applications

- Clock pulse generator for micro-processors
- Carrier between telecommunication equipment
(telephone to telephone, personal computer to printer)

■ Explanation of Part Numbers



■ Ratings and Characteristics

● Type EC

| Part Number | | Oscillation Frequency | Loop Gain (G) | Temperature Characteristics |
|-------------|-------------|------------------------|---------------|---|
| Bulk Pack | Taping | | | |
| EFOEC2004A5 | EFOEC2004T5 | 2.00 MHz ± 1.0 % | 10 dB | Maximum frequency drift: ± 0.1 %, -10 to 60 °C (± 0.2 %, -20 to 80 °C) |
| EFOEC3584A4 | EFOEC3584T4 | 3.58 MHz ± 0.5 % | 10 dB | |
| EFOEC4004A4 | EFOEC4004T4 | 4.00 MHz ± 0.5 % | | |
| EFOEC4194A4 | EFOEC4194T4 | 4.19 MHz ± 0.5 % | | |
| EFOEC5004A4 | EFOEC5004T4 | 5.00 MHz ± 0.5 % | | |
| EFOEC6004A4 | EFOEC6004T4 | 6.00 MHz ± 0.5 % | | |
| EFOEC8004A4 | EFOEC8004T4 | 8.00 MHz ± 0.5 % | | |
| EFOEC1005C4 | EFOEC1005T4 | 10.00 MHz ± 0.5 % | 14 dB | |
| EFOEC2005C4 | EFOEC2005T4 | 20.00 MHz ± 0.5 % | 10 dB | |
| EFOEC3385C4 | EFOEC3385T4 | 33.868 MHz ± 0.5 % | 8 dB | |

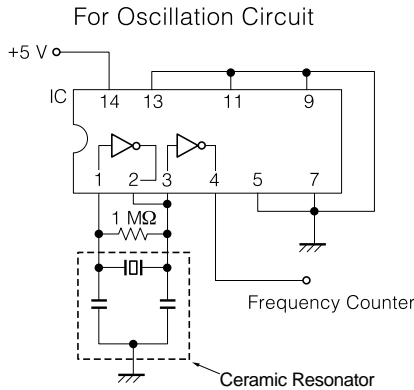
- Operating Temperature Range: -20 to 80 °C
- Frequency Drift: 0.3 % max./10 years

Notes:

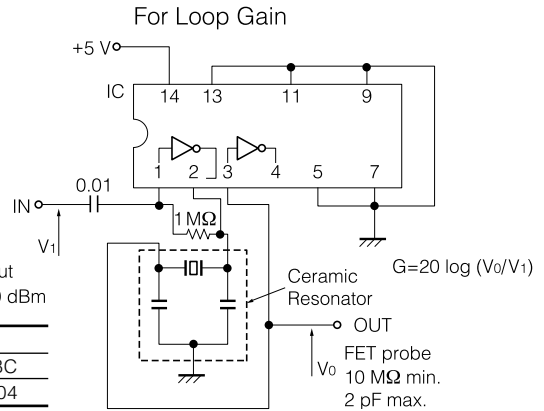
1. Also available are types other than above standard products in the frequency range of 2.0 to 50 MHz. Please contact us for more information.
2. For application in telephone dialer, please contact us.

Design, Specifications are subject to change without notice. Ask factory for technical specifications before purchase and/or use. Whenever a doubt about safety arises from this product, please inform us immediately for technical consultation without fail.

Test Circuit Diagram



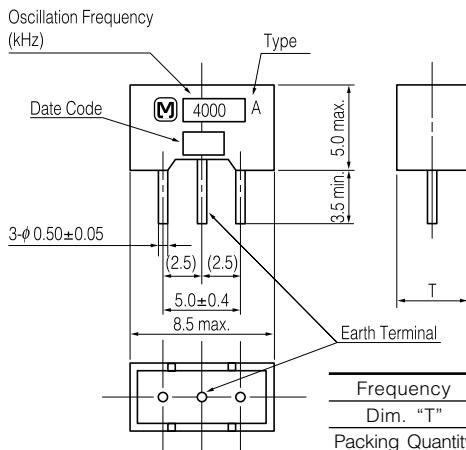
| Frequency | IC |
|------------------|-------------|
| 2.00 to 8.38 MHz | μPD 4069UBC |
| 8.39 to 45 MHz | μPD 74HCU04 |



Dimensions in mm (not to scale)

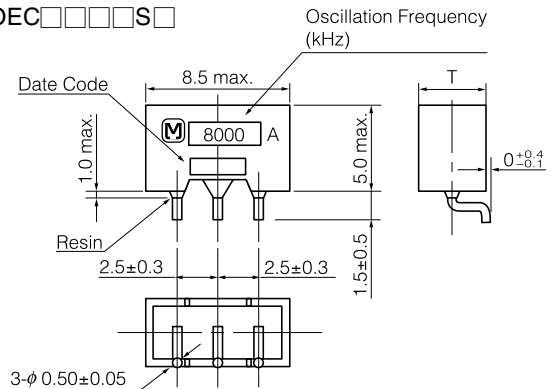
Bulk Pack

EFOEC□□□□□^A□_C



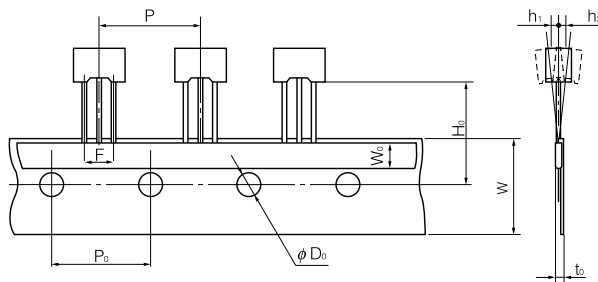
Lead Forming

EFOEC□□□□□S□

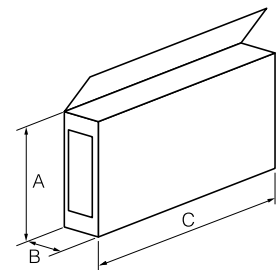


Dimensions for Taping in mm (not to scale)

EFOEC□□□□□T4



| Dimensions | |
|-----------------------------------|----------|
| P | 12.7±1.0 |
| P ₀ | 12.7±0.3 |
| W | 18.0±1.0 |
| W ₀ | 6.0 min. |
| H ₀ | 18.5±0.5 |
| φD ₀ | φ4.0±0.2 |
| F | 5.0±0.4 |
| t ₀ | 1.5 max. |
| Δh ₁ , Δh ₂ | 2.0 max. |

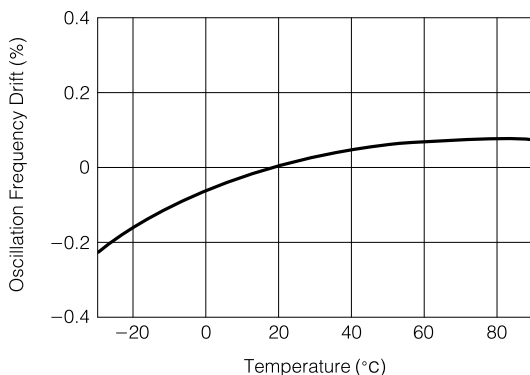


| Dimensions* | |
|-------------|---------|
| A | 160–170 |
| B | 40–45 |
| C | 330 |

*Tolerance: ±3 mm

Typical Characteristics (EFOEC4004A4)

Temperature Characteristics



Standard Packing Quantity

| Frequency Range | Packing Quantity |
|------------------|------------------|
| 2.0 to 8.38 MHz | 1000 pcs./box |
| 8.39 to 19.9 MHz | 800 pcs./box |
| 20.0 to 50 MHz | 1000 pcs./box |