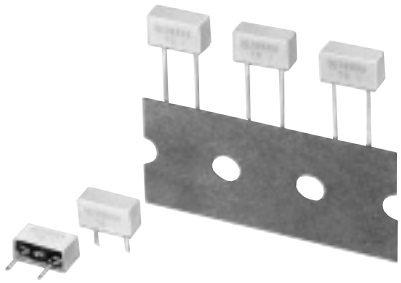
Ceramic Resonators, Case Type

Type: **MN** (3.0 to 50.0 MHz)



■ Features

- Wide range of oscillation frequencies: 3.0 to 50 MHz
- High accuracy and stability
  Initial frequency tolerance: ±0.5 %
- Saves height on P.C. board (Height: 5 mm max.)
- Taped version is available for automatic insertion

■ Recommended Applications

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

■ Safety Precautions (See Page 223 to 224)

■ Explanation of Part Numbers

1	2	3	4	5	6	7	8	9	10	11	12
E	F	O	M	N							

Design No.

Product Code	
EFO	Ceramic Resonators

Type	
MN	Case Type with 2-Terminals

Nominal Oscillation Frequency	
4004	4.0 MHz
2005	20.0 MHz

(Example)

Packaging Style	
A	Bulk Pack
T	Taping
S	Lead Forming

Frequency Tolerance	
3	±0.3 %
4	±0.5 %
5	±1.0 %

■ Ratings and Characteristics

Part Number		Oscillation Frequency	Loop Gain (G)	Temperature Characteristics
Bulk Pack	Taping			
EFOMN3584A4	EFOMN3584T4	3.58 MHz ±0.5 %	10 dB	Maximum frequency drift: ±0.3 %, –20 to 80 ˚C
EFOMN4004A4	EFOMN4004T4	4.00 MHz ±0.5 %		
EFOMN4194A4	EFOMN4194T4	4.19 MHz ±0.5 %		
EFOMN5004A4	EFOMN5004T4	5.00 MHz ±0.5 %		
EFOMN6004A4	EFOMN6004T4	6.00 MHz ±0.5 %		
EFOMN8004A4	EFOMN8004T4	8.00 MHz ±0.5 %		
EFOMN1005A4	EFOMN1005T4	10.00 MHz ±0.5 %	14 dB	
EFOMN2005A4	EFOMN2005T4	20.00 MHz ±0.5 %	10 dB	
EFOMN3385A4	EFOMN3385T4	33.868 MHz ±0.5 %	8 dB	

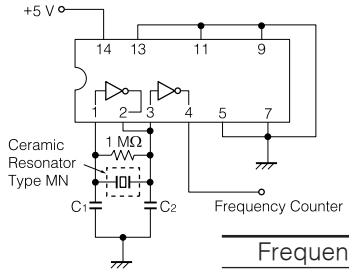
- Operating Temperature Range: –20 to 80 ˚C
- Frequency Drift: 0.3 % max./10 years

Notes:
1. Also available are types other than standard products shown above in the frequency range of 3 to 50 MHz.
   Please contact us for more information.
2. For application in telephone dialer, please contact us.

Design and specifications are each subject to change without notice. Ask factory for the current technical specifications before purchase and/or use.
Should a safety concern arise regarding this product, please be sure to contact us immediately.

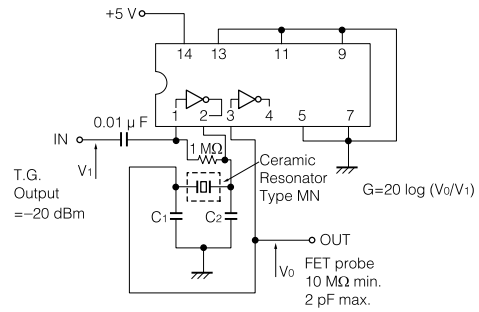
■ Test Circuit Diagram

For Oscillation Circuit



Frequency	Capacitance C_1, C_2
3.0 to 20.0 MHz	33 pF
20.1 to 30.0 MHz	21 pF
30.1 to 50.0 MHz	10 pF

For Loop Gain

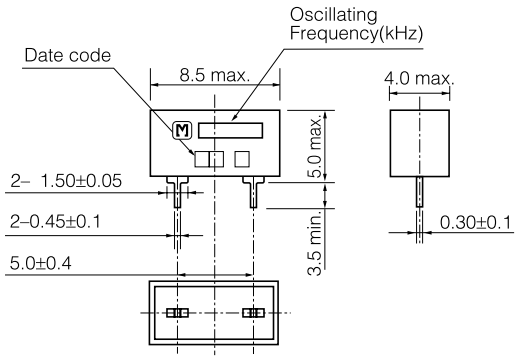


Frequency	IC
3 to 12.9 MHz	µPD 4069UBC
13 to 50 MHz	µPD 74HCU04

■ Dimensions in mm (not to scale)

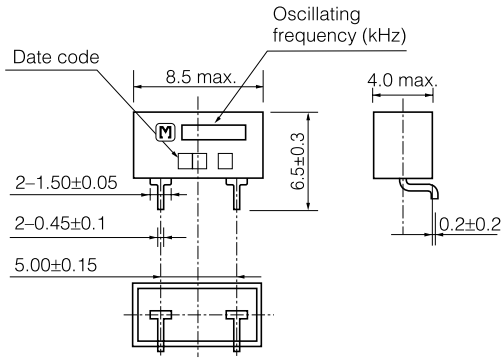
Bulk Pack

EFOMN□□□□A□



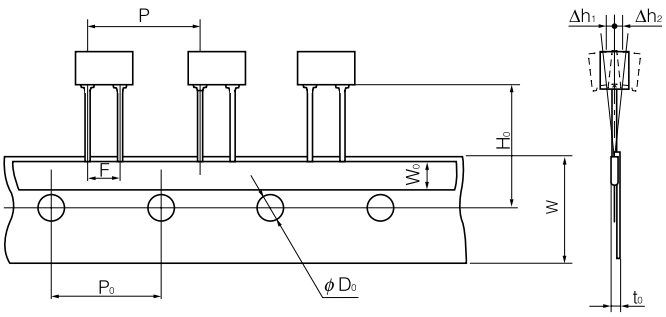
Lead Forming

EFOMN□□□□S□

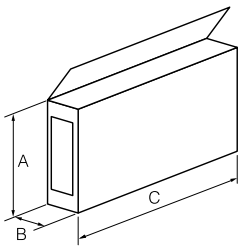


■ Dimensions for Taping in mm (not to scale)

EFOMN□□□□T□



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.

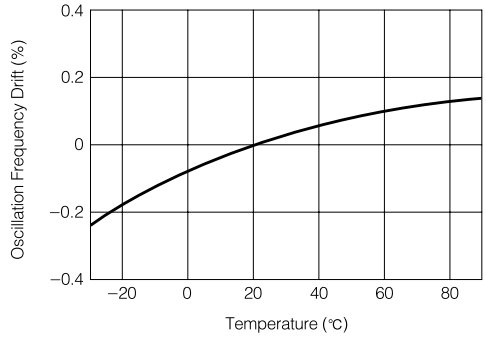


Dimensions*	
A	160 to 170
B	40 to 45
C	330

*Tolerance: ±3 mm

■ Typical Characteristics (EFOMN4004A4)

Temperature Characteristics



● Standard Packing Quantity

Taping Pack	Bulk Pack
1000 pcs./box	500 pcs./box

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Should a safety concern arise regarding this product, please be sure to contact us immediately.