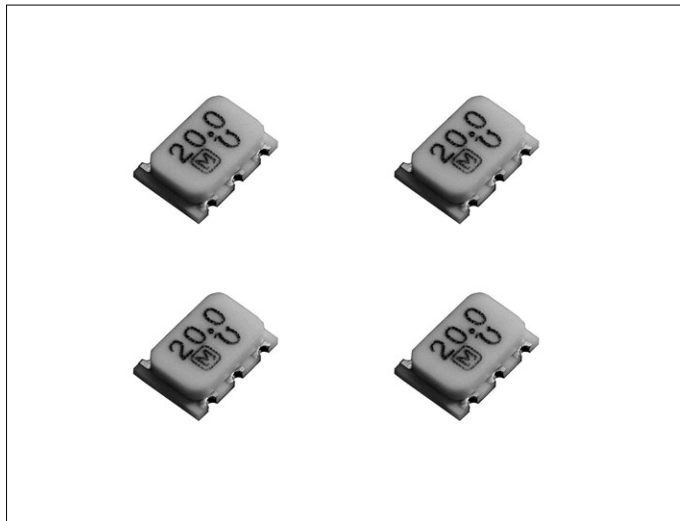


Using breakthrough technology,  
we aim for products that will create new markets.

## New Product News

### Miniature Thin Type

## Miniature thin type



## Ceramic Resonators

### Chip Type Ceramic Resonators (EFOBM Type)

Industry/Field: AV, OA • Information, Mobile communication, Automotive electronics, Home appliances,  
Optical equipment, Industrial equipment, amusement, Electronics instruments

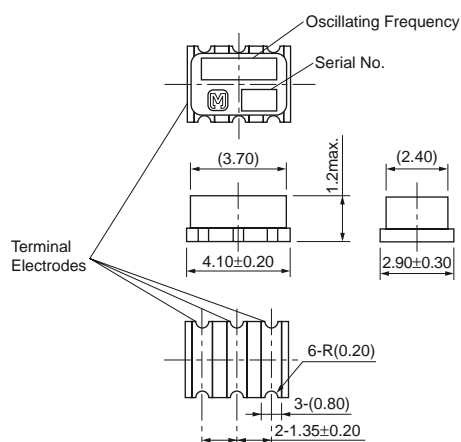
#### • Development Target:

Slim Type CD-ROM, DVD-ROM, HDD in note type  
PC PDA, digital camera storage unit super thin  
type

#### • Features:

- ① **Miniature Type**  
(67% : Comparison with our previous products)
- ② **Oscillation Frequency Range : 12 to 20MHz**
- ③ **Excellent Temperature Characteristics :**  
 $\pm 0.3\%$  (at  $-20$  to  $80^{\circ}\text{C}$ )

#### • Construction:



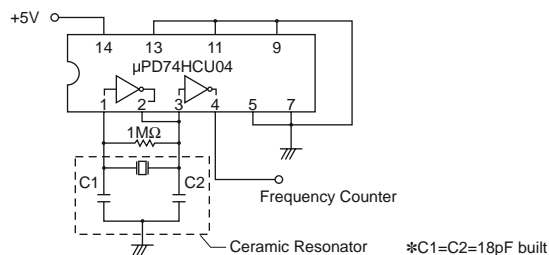
#### • Characteristics/specifications:

Item	Characteristics/specifications
Oscillation Frequency Range	12 to 20MHz
Oscillation Frequency Tolerance	$\pm 0.5\%$ , $\pm 0.3\%$
Temperature Characteristics	Maximum frequency drift : $\pm 0.3\%$ (at $-20$ to $+80^{\circ}\text{C}$ )
Dimensions	$4.1 \times 2.9 \times 1.2\text{mm}$

#### • Applications/usage examples:

- Clock generator for microprocessors in CD-ROM, HDD etc.

##### For Oscillation circuit



#### • Explanation of part numbers:

1	2	3	4	5	6	7	8	9	10	11	12																										
E	F	O	B	M																																	
<table><tr><td colspan="2">Product Code</td></tr><tr><td>EFO</td><td>Ceramic Resonators</td></tr></table>					Product Code		EFO	Ceramic Resonators	<table><tr><td>Type</td></tr><tr><td>BM</td></tr></table>		Type	BM	<table><tr><td colspan="2">Nominal Frequency</td></tr><tr><td>1605</td><td>16.0MHz</td></tr><tr><td>1695</td><td>16.9MHz</td></tr><tr><td>2005</td><td>20.0MHz</td></tr><tr><td colspan="2">(Example)</td></tr></table>			Nominal Frequency		1605	16.0MHz	1695	16.9MHz	2005	20.0MHz	(Example)		<table><tr><td colspan="2">Frequency Tolerance</td></tr><tr><td>0</td><td>±1.0%</td></tr><tr><td>3</td><td>±0.3%</td></tr><tr><td>5</td><td>±0.5%</td></tr></table>		Frequency Tolerance		0	±1.0%	3	±0.3%	5	±0.5%	Design No.	
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