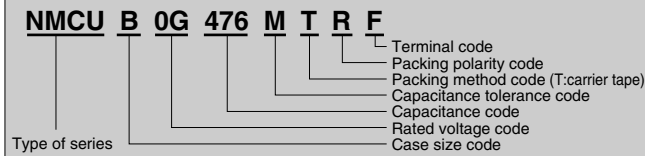


## NMCU Series (Ultra Flat Low Profile Niobium Chip Capacitors)

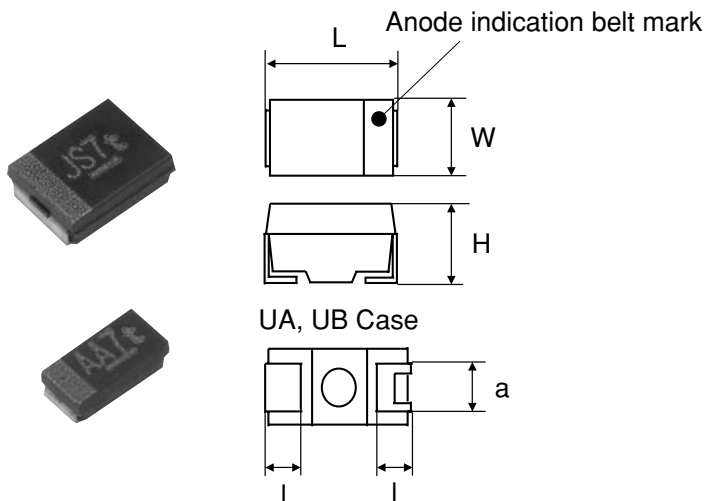
### Features

A Niobium capacitor is a polar capacitor.  
 Low profile Niobium chip capacitors were developed to meet growing needs for flat capacitors where height is critical.  
 Small and low profile: Obtained by thinning the NMC type.

Product symbol : (Example) NMCU Series B case 4V 47 $\mu$ F  $\pm$ 20%



### Outline of drawings and dimensions



### Dimensions (Unit : mm)

Case code	Case size				
	L <sup>+0.2</sup>	W <sup>+0.2</sup>	H <sup>max</sup>	$\phi$ <sup>+0.3</sup>	a <sup>+0.2</sup>
UA	3.2	1.6	1.2	0.7	1.2
UB	3.5	2.8	1.2	0.7	1.8

### Standard value and case size

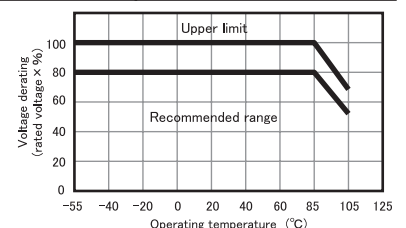
Capacitance		Rated voltage (V.DC)			
		2.5	4	6.3	10
$\mu$ F	Code	0E	0G	0J	1A
1.0	105				
1.5	155				
2.2	225				
3.3	335				
4.7	475				UA
6.8	685				UB
10	106			UA	UB
15	156	UA	UA	UB	UB
22	226	UB	UB	UB	
33	336	UB	UB	UB	
47	476	UB	UB		

For ratings not covered in the table, consult Hitachi AIC.

Product specifications	NMC	Test conditions JIS C5101-1:1998																			
Operating temperature range	-55°C ~ +105°C																				
Rated voltage	DC2.5 ~ 10V	85°C																			
Surge voltage	DC3.3 ~ 12V	85°C																			
Derated voltage	DC1.7 ~ 6.7V	105°C																			
Capacitance	4.7 ~ 47 $\mu$ F	120 Hz, 1.5V																			
Capacitance tolerance	$\pm$ 20%	Paragraph 4.7, 120 Hz, 1.5V																			
Leakage current	Refer to Standard product table	Paragraph 4.8, in 5 minutes after the rated voltage is applied.																			
tan $\delta$	Refer to Standard product table	Paragraph 4.8, 120Hz, 1.5V																			
Surge withstanding voltage	$\Delta$ C/C $\pm$ 10% or less tan $\delta$ Specified initial value table or less LC Specified initial value table or less	Paragraph 4.26																			
Temperature characteristics	<table border="1"> <thead> <tr> <th>Specified initial value</th> <th>-55</th> <th>85</th> <th>105</th> </tr> </thead> <tbody> <tr> <td><math>\Delta</math>C/C</td> <td>-</td> <td>-20 ~ 0%</td> <td>0 ~ +20%</td> <td>0 ~ +25%</td> </tr> <tr> <td>tan<math>\delta</math> Value shown table or less</td> <td>0.30</td> <td>0.39</td> <td>0.36</td> <td>0.39</td> </tr> <tr> <td>LC</td> <td>0.02CV</td> <td>0.02CV</td> <td>0.2CV</td> <td>0.25CV</td> </tr> </tbody> </table>	Specified initial value	-55	85	105	$\Delta$ C/C	-	-20 ~ 0%	0 ~ +20%	0 ~ +25%	tan $\delta$ Value shown table or less	0.30	0.39	0.36	0.39	LC	0.02CV	0.02CV	0.2CV	0.25CV	Paragraph 4.24
Specified initial value	-55	85	105																		
$\Delta$ C/C	-	-20 ~ 0%	0 ~ +20%	0 ~ +25%																	
tan $\delta$ Value shown table or less	0.30	0.39	0.36	0.39																	
LC	0.02CV	0.02CV	0.2CV	0.25CV																	
Solder heat resistance	$\Delta$ C/C $\pm$ 30% or less tan $\delta$ Specified initial value table or less LC Specified initial value table or less	Reflow 260°C 10 $\pm$ 1 sec.																			
Moisture resistance no load	$\Delta$ C/C $\pm$ 30% or less tan $\delta$ Specified initial value table or less LC Specified initial value table or less	Paragraph 4.22 40°C, 90 ~ 95%RH, 500hrs																			
High-temperature load	$\Delta$ C/C $\pm$ 30% or less tan $\delta$ Specified initial value table or less LC 200%Specified initial value table or less	Paragraph 4.23 85°C, The rated voltage is applied for 2000 hrs.																			
Thermal shock	$\Delta$ C/C $\pm$ 20% or less tan $\delta$ Specified initial value table or less LC Specified initial value table or less	Leave at -55°C, normal temperature, 105°C, and normal temperature for 30 min., 3 min., 30 min., and 3 min. Repeat this operation 5 times running.																			
Moisture resistance load	$\Delta$ C/C $\pm$ 30% or less tan $\delta$ Specified initial value table or less LC 200%Specified initial value table or less	40°C, 90 ~ 95%RH, The rated voltage is applied for 500 hrs.																			
Failure rate	1% / 1000hrs	85°C. The rated voltage is applied (through a protective resistor of 1 $\Omega$ /V).																			

### Operating Voltage

※ The voltage derating factor should be as great as possible.  
 Under normal conditions, the operating voltage should be reduced to 80% or less of the rated.



※ This catalog is designed for providing general information.

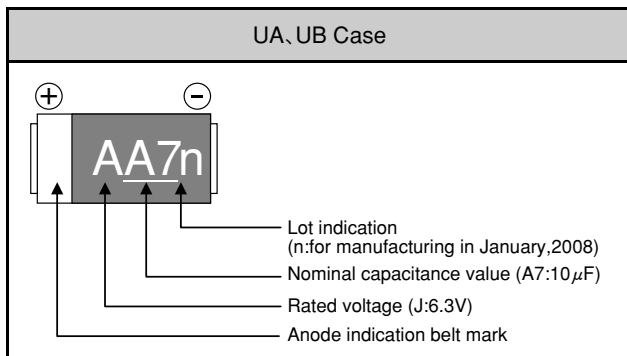
Please inquire of our Sales Department to confirm specifications prior to us.

## Standard product tables - NMCU series

Standard product table - NMCU series

Rated voltage V. DC	Capacitance $\mu\text{F}$	$\tan\delta$	Leakage current $\mu\text{A}$	Case code	Product name
2.5	15	0.30	0.8	UA	NMCUA0E156
	22	0.30	1.1	UB	NMCUB0E226
	33	0.30	1.7	UB	NMCUB0E336
	47	0.30	2.4	UB	NMCUB0E476
4	15	0.30	1.2	UA	NMCUA0G156
	22	0.30	1.8	UB	NMCUB0G226
	33	0.30	2.6	UB	NMCUB0G336
	47	0.30	3.8	UB	NMCUB0G476
6.3	10	0.30	1.3	UA	NMCUA0J106
	15	0.30	1.9	UB	NMCUB0J156
	22	0.30	2.8	UB	NMCUB0J226
	33	0.30	4.2	UB	NMCUB0J336
10	4.7	0.30	0.9	UA	NMCUA1A475
	6.8	0.30	1.4	UB	NMCUB1A685
	10	0.30	2.0	UB	NMCUB1A106
	15	0.30	3.0	UB	NMCUB1A156

### Marking indication



### Lot indication

Month Year	1	2	3	4	5	6	7	8	9	10	11	12
2007	a	b	c	d	e	f	g	h	j	k	l	m
2008	n	p	q	r	s	t	u	v	w	x	y	z
2009	A	B	C	D	E	F	G	H	J	K	L	M
2010	N	P	Q	R	S	T	U	V	W	X	Y	Z