TMCU Series (Ultra Flat Low Profile Tantalum Chip Capacitors)

Features

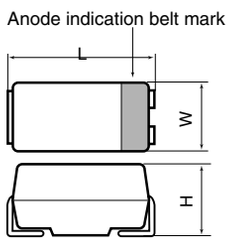
- Low profile tantalum chip capacitors developed to meet the growing needs for flat capacitors where height is critical.
- Small and low profile:
  Obtained by thinning the TMCS type.

Product symbol : (Example) TMCU Series A case 4V 4.7µF ±20%

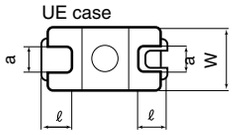
TMCU A 0G 475 M T R E

- E — Terminal code
- R — Packing polarity code
- T — Packing method code (T:carrier tape)
- M — Capacitance tolerance code
- 475 — Capacitance code
- 0G — Rated voltage code
- A — Case size code
- TMCU — Type of series

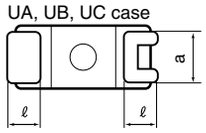
Outline of drawings and dimensions



UE case



UA, UB, UC case



Dimensions (Unit : mm)

Case code	Case size				
	L ±0.2	W ±0.2	H MAX	ℓ ±0.3	a ±0.2
UA	3.2	1.6	1.2	0.7	1.2
UB	3.5	2.8	1.2	0.7	1.8
UC	5.8	3.2	1.5	1.1	2.2
UE	7.3	4.3	1.9	1.3	2.4

Standard value and case size

Capacitance		Rated voltage (V.DC)							
		2.5	4	6.3(7)	10	16	20	25	35
µF	Code	0E	0G	0J	1A	1C	1D	1E	1V
0.10	104								UA
0.15	154								UA
0.22	224								UA
0.33	334							UA	
0.47	474							UA	
0.68	684						UA	UA	
1.0	105						UA,UB	UA	UA,UB
1.5	155					UA	UA,UB	UB	UB,UC
2.2	225					UA,UB	UA,UB	UB,UC	UB,UC
3.3	335					UA,UB	UA,UC	UB,UC	
4.7	475				UA	UA,UB	UB,UC	UB,UC	
6.8	685				UA	UA,UB,UC	UB,UC	UC	
10	106			UA	UA	UA,UB,UC	UB,UC		
15	156	UA	UA	UA	UA,UB	UB,UC	UC		
22	226	UA	UA	UA,UB	UA,UB,UC	UB,UC			
33	336	UA,UB	UA,UB	UA,UB	UB,UC	UB			
47	476	UA,UB	UA,UB	UA,UB,UC	UB,UC				
68	686	UB,UC	UA,UB,UC	UB,UC	UC				
100	107	UB,UC	UA,UB,UC	UB,UC	UC				
150	157	UB,UC	UB,UC	UC					
220	227	UB	UB,UC	UC					
330	337								

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

Product specifications	TMCU	Test conditions JIS C5101-3-1998
Operating temperature range	–55℃ ~ +125℃	
Rated voltage	DC2.5 ~ 35V	85℃
Surge voltage	DC3.2 ~ 45V	85℃
Derated voltage	DC1.6 ~ 22V	125℃
Capacitance	0.1 ~ 220µF	
Capacitance tolerance	±10% or 20%	Paragraph 7.8, 120 Hz
Leakage current	Refer to standard product table	Paragraph 7.7, in 5 minutes after the rated voltage is applied.
tanδ	Refer to standard product table	Paragraph 7.9, 120Hz
Surge withstanding voltage	△C/C ±5% or less tanδ Specified initial value or less LC Specified initial value or less	Paragraph 7.14
Temperature characteristics	Specified initial value: –55: -12 ~ 0%; 85: 0 ~ +10%; 125: 0 ~ +12% △C/C: – / -12 ~ 0% / 0 ~ +10% / 0 ~ +12% tanδ (Value shown table or less): 0.04 / 0.05 / 0.04 / 0.05 0.06 / 0.08 / 0.06 / 0.06 0.08 / 0.12 / 0.10 / 0.12 0.10 / 0.14 / 0.12 / 0.14 0.12 / 0.16 / 0.14 / 0.16 0.18 / 0.22 / 0.20 / 0.22 0.20 / 0.24 / 0.22 / 0.24 LC: Refer to standard product table / – / 1000% or less specified intial value or less / 1250% or less specified intial value or less	Paragraph 7.12
Solder heat resistance	△C/C ±5% or less tanδ Specified initial value or less LC Specified initial value or less	Solder Dip 260±5℃ UA, UB case 10±1 sec. UC, UE case 5±0.5 sec. Reflow–260℃ 10±1 sec.
Moisture resistance no load	△C/C ±10% or less tanδ Specified initial value or less LC Specified initial value or less	Paragraph 9.5, 40℃ 90 ~ 95%RH,500hrs
High-temperature load	△C/C ±10% or less tanδ Specified initial value or less LC 125% Specified initial value or less	Paragraph 9.10, 85℃ The rated voltage is applied for 2000 hours.
Thermal shock	△C/C ±5% or less tanδ Specified initial value or less LC Specified initial value or less	Leave at -55℃, normal temperature, 125℃, and normal temperature for 30 min., 3 min., 30 min., and 3 min. Repeat this operation 5 times running.
Moisture resistance load	△C/C ±10% or less tanδ 150% Specified initial value or less LC 200% Specified initial value or less	40℃, humidity 90 to 95%RH The rated voltage is applied for 500 hours.
Failure rate	1% / 1000hrs	85℃. The rated voltage is applied (through a protective resistor of 1 Ω/V).

Standard product tables - TMCU series

Standard product table - TMCU series

Rated voltage V. DC	Capacitance μF	tanδ	Leakage current μA	Case code	Product name
2.5	15	0.08	0.5	UA	TMCUA0E156
	22	0.08	0.6	UA	TMCUA0E226
	33	0.12	1.7	UA	TMCUA0E336
		0.12	0.8	UB	TMCUB0E336
	47	0.18	2.4	UA	TMCUA0E476
		0.12	1.2	UB	TMCUB0E476
	68	0.12	1.7	UB	TMCUB0E686
		0.08	1.7	UC	TMCUC0E686
	100	0.20	5.0	UB	TMCUB0E107
		0.18	2.5	UC	TMCUC0E107
	150	0.30	7.5	UB	TMCUB0E157
		0.18	3.8	UC	TMCUC0E157
	220	0.30	11.0	UB	TMCUB0E227
		0.18	5.5	UC	TMCUC0E227
4	15	0.08	0.6	UA	TMCUA0G156
	22	0.08	0.9	UA	TMCUA0G226
	33	0.12	2.6	UA	TMCUA0G226
		0.12	1.3	UB	TMCUB0G336
	47	0.18	3.8	UA	TMCUA0G476
		0.12	1.9	UB	TMCUB0G476
	68	0.30	27.2	UA	TMCUA0G686
		0.15	2.7	UB	TMCUB0G686
		0.08	2.7	UC	TMCUC0G686
	100	0.30	40.0	UA	TMCUA0G107
		0.20	8.0	UB	TMCUB0G107
		0.18	4.0	UC	TMCUC0G107
	150	0.30	12.0	UB	TMCUB0G157
		0.18	6.0	UC	TMCUC0G157
	220	0.30	88.0	UB	TMCUB0G227
6.3	1.5	0.06	0.5	UA	TMCUA0J155
	2.2	0.06	0.5	UA	TMCUA0J225
	3.3	0.06	0.5	UA	TMCUA0J335
	4.7	0.06	0.5	UA	TMCUA0J475
		0.06	0.5	UB	TMCUB0J475
	6.8	0.06	0.5	UA	TMCUA0J685
	10	0.08	0.7	UA	TMCUA0J106
	15	0.08	1.1	UA	TMCUA0J156
	22	0.12	2.8	UA	TMCUA0J226
		0.10	1.4	UB	TMCUB0J226
	33	0.18	4.2	UA	TMCUA0J336
		0.10	2.3	UB	TMCUB0J336
	47	0.20	5.9	UA	TMCUA0J476
		0.12	3.3	UB	TMCUB0J476
		0.08	3.3	UC	TMCUC0J476
	68	0.20	8.6	UB	TMCUB0J686
		0.12	4.8	UC	TMCUC0J686
	100	0.20	12.6	UB	TMCUB0J107
		0.18	7.0	UC	TMCUC0J107
	150	0.20	21.0	UC	TMCUC0J157
	220	0.20	30.8	UC	TMCUC0J227
10	4.7	0.06	0.5	UA	TMCUA1A475
	6.8	0.06	0.7	UA	TMCUA1A685
	10	0.08	1.0	UA	TMCUA1A106
	15	0.12	3.0	UA	TMCUA1A156
		0.10	1.5	UB	TMCUB1A156
	22	0.18	4.4	UA	TMCUA1A226
		0.10	2.2	UB	TMCUB1A226
		0.08	2.2	UC	TMCUC1A226
	33	0.12	6.6	UB	TMCUB1A336
		0.08	3.3	UC	TMCUC1A336
	47	0.30	47.0	UB	TMCUB1A476
		0.12	4.7	UC	TMCUC1A476
	68	0.12	6.8	UC	TMCUC1A686
	100	0.20	20.0	UC	TMCUC1A107
16	1.5	0.06	0.5	UA	TMCUA1C155
	2.2	0.06	0.5	UA	TMCUA1C225
		0.06	0.5	UB	TMCUB1C225
	3.3	0.06	0.5	UA	TMCUA1C335
		0.06	0.5	UB	TMCUB1C335
	4.7	0.08	0.8	UA	TMCUA1C475
		0.06	0.8	UB	TMCUB1C475
	6.8	0.12	1.1	UA	TMCUA1C685
		0.06	1.1	UB	TMCUB1C685
		0.06	1.1	UC	TMCUC1C685
	10	0.18	1.6	UA	TMCUA1C106
		0.08	1.6	UB	TMCUB1C106
		0.08	1.6	UC	TMCUC1C106

Rated voltage V. DC	Capacitance μF	tanδ	Leakage current μA	Case code	Product name
16	15	0.12	4.8	UB	TMCUB1C156
		0.08	2.4	UC	TMCUC1C156
	22	0.18	7.0	UB	TMCUB1C226
		0.08	3.5	UC	TMCUC1C226
	33	0.30	52.8	UB	TMCUB1C336
20	0.68	0.04	0.5	UA	TMCUA1D684
	1.0	0.04	0.5	UA	TMCUA1D105
		0.04	0.5	UB	TMCUB1D105
	1.5	0.06	0.5	UA	TMCUA1D155
		0.06	0.5	UB	TMCUB1D155
	2.2	0.06	0.5	UA	TMCUA1D225
		0.06	0.5	UB	TMCUB1D225
	3.3	0.06	0.7	UA	TMCUA1D335
		0.06	0.7	UC	TMCUC1D335
	4.7	0.06	0.9	UB	TMCUB1D475
		0.06	0.9	UC	TMCUC1D475
	6.8	0.06	1.4	UB	TMCUB1D685
		0.06	1.4	UC	TMCUC1D685
	10	0.08	2.0	UB	TMCUB1D106
		0.08	2.0	UC	TMCUC1D106
	15	0.08	3.0	UC	TMCUC1D156
25	0.33	0.04	0.5	UA	TMCUA1E334
	0.47	0.04	0.5	UA	TMCUA1E474
	0.68	0.08	0.5	UA	TMCUA1E684
	1.0	0.08	0.5	UA	TMCUA1E105
	1.5	0.06	0.4	UB	TMCUB1E155
	2.2	0.06	0.6	UB	TMCUB1E225
		0.06	0.6	UC	TMCUC1E225
	3.3	0.06	0.8	UB	TMCUB1E335
		0.06	0.8	UC	TMCUC1E335
	4.7	0.06	1.2	UB	TMCUB1E475
		0.06	1.2	UC	TMCUC1E475
	6.8	0.06	1.7	UC	TMCUC1E685
35	0.1	0.04	0.5	UA	TMCUA1V104
	0.15	0.04	0.5	UA	TMCUA1V154
	0.22	0.04	0.5	UA	TMCUA1V224
	1.0	0.08	0.5	UA	TMCUA1V105
		0.06	0.4	UB	TMCUB1V105
	1.5	0.06	0.5	UB	TMCUB1V155
		0.06	0.5	UC	TMCUC1V155
	2.2	0.06	0.8	UB	TMCUB1V225
		0.06	0.8	UC	TMCUC1V225

Marking indication

	TMCU＊△△□□□○○○F
UA, UB case	10V1μF UA case: A6A (③ ① ②) 16V1μF UA case: CA6A (③ ④ ① ②) ① Simplified code of nominal capacitance (A6 : 1μF) ② Lot indication (for manufacturing in January, 2005) ③ Anode indication belt mark ④ Simplified code of rated voltage (C : 16V) ＊When the capacitance code is the same in the same case, use the voltage code for the higher rated voltage.
UC case	Anode indication belt mark → 10 16A Nominal capacitance Volue (10μF) Lot indication (for manufacturing in January, 2005) Rated voltage (16V)

Lot indication

Year \ Month	1	2	3	4	5	6	7	8	9	10	11	12
2005	A	B	C	D	E	F	G	H	J	K	L	M
2006	N	P	Q	R	S	T	U	V	W	X	Y	Z
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