



# SOLID-ELECTROLYTE TANTALUM CAPACITORS

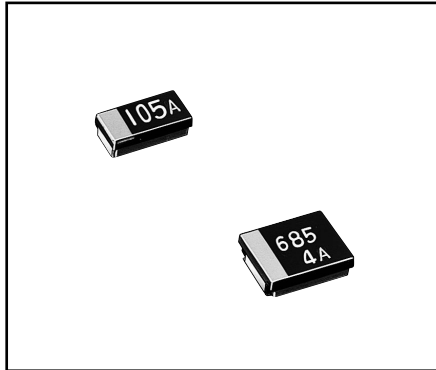
(TANCHIP® SERIES)

## TYPE 277

Epoxy resin molding chip  
Low profile

### ⚠ CAUTIONS

- This capacitor is polarized, do not apply reverse voltage.
- The sum of peak value of AC and DC voltage should not exceed the rated voltage.
- This catalog is designed for providing general information. Please inquire of our Sales Department to confirm specifications prior to use.



The height is reduced to 1.2mm max. responding to miniaturization and low profile of electronic application.

### FEATURES

1. Suitable for low profile board such as IC card or hybrid IC.
2. Suitable for surface mounting.
3. Precise dimensions allow high density packaging. Symmetrical construction of positive and negative terminals provides "Self Alignment".
4. Soldering: 260°C for 10 second by re-flow or flow soldering.
5. 277, which is low profile(thickness : max. 1.2mm) series, was developed to meet in some miniaturized and low profiled application such as IC card, PCMCIA card, pager, hard disk, etc.

### NOTIFICATIONS FOR USE

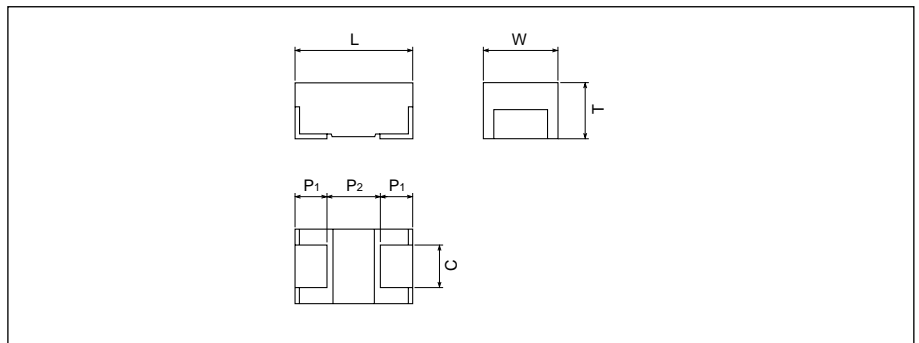
Please inquire of our Sales Department for your suitable soldering or cleaning conditions.

### CHARACTERISTICS

ITEM	CHARACTERISTICS
Failure rate level	1%/1000h
Operating temperature range	-55~+85°C to +125°C with voltage derating
Rated voltage	4-6.3-10-16-20VDC
Capacitance range	0.1~15μF
Capacitance tolerance	±20%

### DIMENSIONS

mm



Case code	L±0.2	W±0.2	T max.	P1±0.2	P2 min.	C±0.1
A	3.2	1.6	1.2	0.8	1.4	1.2
B	3.5	2.8	1.2	0.8	1.5	2.2

### MARKING

Type 277M (A case)

334 A

- Date code (A : 1997.1)
- Capacitance (334 : 0.33μF)
- Anode notation

Type 277E

C 1.5 A

- Rated voltage (C : 16V)<sup>(1)</sup>
- Capacitance (1.5 : 1.5μF)
- Date code (A : 1997.1)
- Anode notation

(B case)  
Type 277E,M

155 20 A

- Capacitance (155 : 1.5μF)
- Date code (A : 1997.1)
- Rated voltage (20 : 20V)
- Anode notation

Rated voltage	4	6.3	10	16	20
Code	g	j	A	C	D





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## STANDARD RATINGS

R.V.(VDC) Cap.(μF)	4	6.3	10	16	20
0.1					A
0.15					A
0.22					A
0.33					A
0.47					A
0.68				A	B
1.0			A	A	*A,B
1.5		A	A	*A	*A,B
2.2	A	A	*A	*A,B	B
3.3	A	*A	*A,B	B	
4.7	*A	*A,B	B		
6.8	*A,B	*A,B	*B		
10	*A,B	*A,*B			
15	*B				
22					

\* 277E series

## RATINGS AND CATALOG NUMBERS

	Catalog number	cap. (μF)	case code	Max DC Lct. (μA)			Max Dissipation factor				Max ESR(Ω) 10kHz
				20°C	85°C	125°C	-55°C	20°C	85°C	125°C	
Rated voltage 4VDC/Surge voltage 5VDC	277M 4001 225 M □ <sup>1</sup>	2.2	A	0.5	5	6.3	0.08	0.06	0.06	0.06	10
	277M 4001 335 M □ <sup>1</sup>	3.3	A	0.5	5	6.3	0.08	0.06	0.06	0.06	10
	277E 4001 475 M □ <sup>1</sup>	4.7	A	0.5	5	6.3	0.12	0.08	0.08	0.10	10
	277E 4001 685 M □ <sup>1</sup>	6.8	A	0.5	5	6.3	0.12	0.08	0.08	0.10	10
	277M 4001 685 M □ <sup>1</sup>	6.8	B	0.5	5	6.3	0.08	0.06	0.06	0.06	2
	277E 4001 106 M □ <sup>1</sup>	10	A	0.5	5	6.3	0.12	0.08	0.08	0.10	10
	277M 4001 106 M □ <sup>1</sup>	10	B	0.5	5	6.3	0.08	0.06	0.06	0.06	2
	277E 4001 156 M □ <sup>1</sup>	15	B	0.6	6	7.5	0.12	0.08	0.08	0.10	2
Rated voltage 6.3VDC/Surge voltage 8VDC	277M 6301 155 M □ <sup>1</sup>	1.5	A	0.5	5	6.3	0.08	0.06	0.06	0.06	10
	277M 6301 225 M □ <sup>1</sup>	2.2	A	0.5	5	6.3	0.08	0.06	0.06	0.06	10
	277E 6301 335 M □ <sup>1</sup>	3.3	A	0.5	5	6.3	0.12	0.08	0.08	0.10	10
	277E 6301 475 M □ <sup>1</sup>	4.7	A	0.5	5	6.3	0.12	0.08	0.08	0.10	10
	277M 6301 475 M □ <sup>1</sup>	4.7	B	0.5	5	6.3	0.08	0.06	0.06	0.06	2
	277E 6301 685 M □ <sup>1</sup>	6.8	A	0.5	5	6.3	0.12	0.08	0.08	0.10	10
	277M 6301 685 M □ <sup>1</sup>	6.8	B	0.5	5	6.3	0.08	0.06	0.06	0.06	2
	277E 6301 106 M □ <sup>1</sup> 533	10	A	0.6	6	7.9	0.12	0.08	0.08	0.10	10
277E 6301 106 M □ <sup>1</sup>	10	B	0.6	6	7.9	0.12	0.08	0.08	0.10	2	
Rated voltage 10VDC/Surge voltage 13VDC	277M 1002 105 M □ <sup>1</sup>	1.0	A	0.5	5	6.3	0.05	0.04	0.04	0.05	10
	277M 1002 155 M □ <sup>1</sup>	1.5	A	0.5	5	6.3	0.08	0.06	0.06	0.06	10
	277E 1002 225 M □ <sup>1</sup>	2.2	A	0.5	5	6.3	0.12	0.08	0.08	0.10	10
	277E 1002 335 M □ <sup>1</sup>	3.3	A	0.5	5	6.3	0.12	0.08	0.08	0.10	10
	277M 1002 335 M □ <sup>1</sup>	3.3	B	0.5	5	6.3	0.08	0.06	0.06	0.06	2
	277M 1002 475 M □ <sup>1</sup>	4.7	B	0.5	5	6.3	0.08	0.06	0.06	0.06	2
	277E 1002 685 M □ <sup>1</sup>	6.8	B	0.7	7	8.5	0.12	0.08	0.08	0.10	2
	277M 1602 684 M □ <sup>1</sup>	0.68	A	0.5	5	6.3	0.05	0.04	0.04	0.05	10
Rated voltage 16VDC/Surge voltage 20VDC	277M 1602 105 M □ <sup>1</sup>	1.0	A	0.5	5	6.3	0.05	0.04	0.04	0.05	10
	277E 1602 155 M □ <sup>1</sup>	1.5	A	0.5	5	6.3	0.12	0.08	0.08	0.10	10
	277E 1602 225 M □ <sup>1</sup>	2.2	A	0.5	5	6.3	0.12	0.08	0.08	0.10	10
	277M 1602 225 M □ <sup>1</sup>	2.2	B	0.5	5	6.3	0.08	0.06	0.06	0.06	2
	277M 1602 335 M □ <sup>1</sup>	3.3	B	0.5	5	6.6	0.08	0.06	0.06	0.06	2

□<sup>1</sup> taping code "R" ("N") or "L" ("P")  
Pull direction "R" ("N") is standard.





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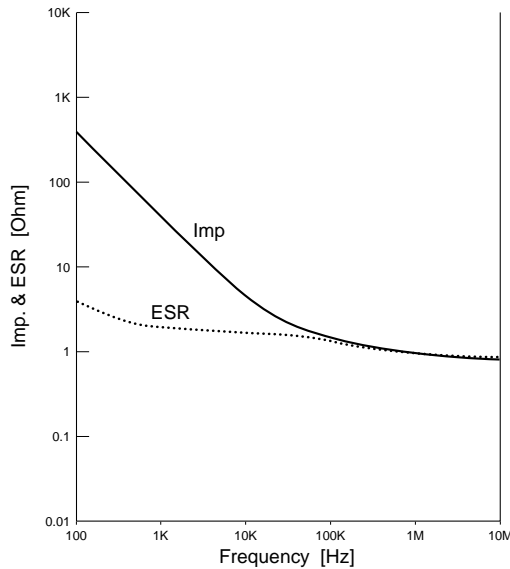
### RATINGS AND CATALOG NUMBER

Rated voltage 20VDC/Surge voltage 26VDC	Catalog number	cap. (μF)	case code	Max DC Lct. (μA)			Max Dissipation factor			Max ESR(Ω) 10kHz	
				20°C	85°C	125°C	-55°C	20°C	85°C		125°C
	277M 2002 104 M □ <sup>1</sup>	0.1	A	0.5	5	6.3	0.05	0.04	0.04	0.05	10
	277M 2002 154 M □ <sup>1</sup>	0.15	A	0.5	5	6.3	0.05	0.04	0.04	0.05	10
	277M 2002 224 M □ <sup>1</sup>	0.22	A	0.5	5	6.3	0.05	0.04	0.04	0.05	10
	277M 2002 334 M □ <sup>1</sup>	0.33	A	0.5	5	6.3	0.05	0.04	0.04	0.05	10
	277M 2002 474 M □ <sup>1</sup>	0.47	A	0.5	5	6.3	0.05	0.04	0.04	0.05	10
	277M 2002 684 M □ <sup>1</sup>	0.68	B	0.5	5	6.3	0.05	0.04	0.04	0.05	2
	277E 2002 105 M □ <sup>1</sup>	1.0	A	0.5	5	6.3	0.06	0.04	0.04	0.06	10
	277M 2002 105 M □ <sup>1</sup>	1.0	B	0.5	5	6.3	0.05	0.04	0.04	0.05	2
	277E 2002 155 M □ <sup>1</sup>	1.5	A	0.5	5	6.3	0.12	0.08	0.08	0.10	10
	277M 2002 155 M □ <sup>1</sup>	1.5	B	0.5	5	6.3	0.08	0.06	0.06	0.06	2
	277M 2002 225 M □ <sup>1</sup>	2.2	B	0.5	5	6.3	0.08	0.06	0.06	0.06	2

□<sup>1</sup> tapping code "R" ("N") or "L" ("P")  
Pull direction "R" ("N") is standard.

### FREQUENCY CHARACTERISTICS

(A Case) 4V 4.7μF



(B Case) 10V 6.8μF

