SOLID-ELECTROLYTE TANTALUM CAPACITORS

(TANCHIP® SERIES)

2006.12

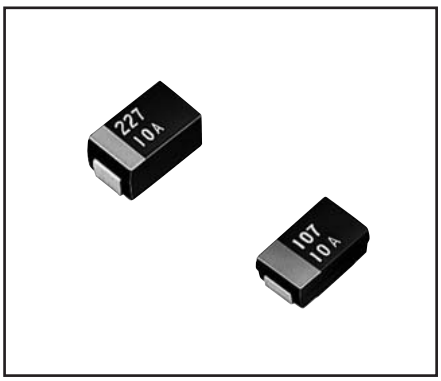
RoHS COMPLIANT, LEAD-FREE

TYPE 281

Epoxy resin molding chip
Ultra Low ESR

⚠ 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.
- Information in this catalog is subject to change without prior notice. Please inquire of us to confirm specifications prior to use.



Type 281 is Ultra Low ESR series based on Type 267.

FEATURES

1. Suitable for surface mounting.
2. Dimensional accuracy and symmetrical terminal structure suitable for high-density mounting ensures excellent “Self-Alignment”.
3. Soldering: 260°C for 10 second by re-flow or flow soldering.
4. This type is suitable for medium to high frequency circuit as High Speed PC, Switching Regulators, DC/DC Convertor for High Quality Voltage Source, etc.

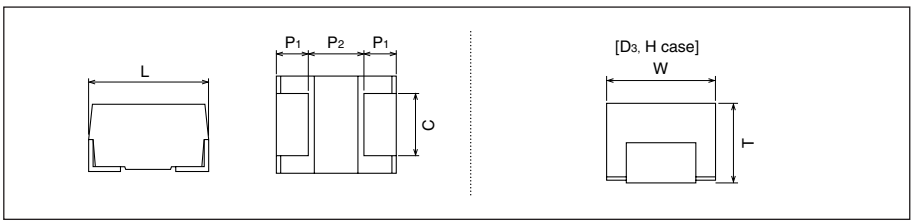
NOTIFICATIONS FOR USE

Prior to use, please refer to Application Notes for Tantalum Solid Electrolytic Capacitors.

CHARACTERISTICS

ITEM	CHARACTERISTICS
Failure rate level	1%/1000h
Operating temperature range	−55～+85°C to +125°C with voltage derating
Rated voltage	4−6.3−10−16−20−25−35−50VDC
Capacitance range	4.7～470 µF (E6 Series)
Capacitance tolerance	±10%, ±20%

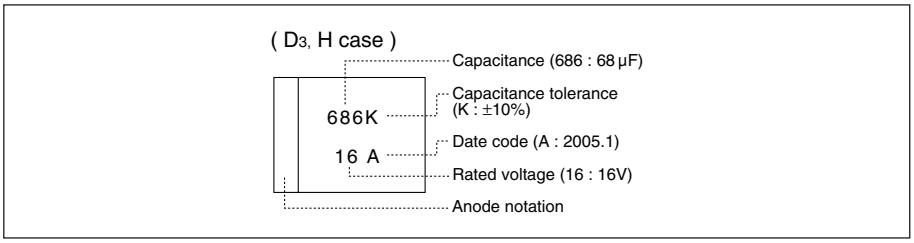
DIMENSIONS mm



Case Code	EIA Code	L±0.2	W±0.2	T±0.2	P1±0.2	P2 min.	C±0.1
D3	7343	7.3	4.4	2.8	1.3	4.0	2.4
H	7343H	7.3	4.4	4.1	1.3	4.0	2.4

D3 Case is in conformity with EIA-535BAAC.

MARKING



■ STANDARD RATINGS

R.V.(VDC) / Cap.(µF)	4	6.3	10	16	20	25	35	50
4.7							D3	
6.8							D3	
10							D3	H
15						D3	H	
22					D3	*D3, H	H	
33				D3	*D3, H	H		
47			D3	*D3, H	H			
68		D3	*D3, H	H	*H			
100	D3	*D3, H	*D3, H	*H				
150	*D3, H	*D3, H	*D3, *H					
220	*D3, H	*D3, *H	*H					
330	*D3, *H	*H						
470			*H					
680								
1000								

* 281E series

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RATINGS AND CATALOG NUMBERS

	Catalog number(1)(2)	cap. (μF)	case code	Max DC Lct. (μA) 20°C	85°C	125°C	Max Dissipation factor –55°C	20°C	85°C	125°C	Max ESR(Ω) 100kHz
Rated voltage 4VDC/Surge voltage 5VDC	281M 4001 107 □1□2	100	D3	4.0	40	50	0.10	0.08	0.08	0.08	0.200
	281E 4001 157 □1□2	150	D3	6.0	60	75	0.10	0.08	0.08	0.08	0.100
	281M 4001 157 □1□2	150	H	6.0	60	75	0.10	0.08	0.08	0.08	0.100
	281E 4001 227 □1□2	220	D3	8.8	88	110	0.15	0.08	0.08	0.10	0.100
	281M 4001 227 □1□2	220	H	8.8	88	110	0.10	0.08	0.08	0.08	0.100
	281E 4001 337 □1□2 734	330	D3	13	132	165	0.18	0.10	0.10	0.12	0.100
	281E 4001 337 □1□2	330	H	13	132	165	0.15	0.08	0.08	0.10	0.100
Rated voltage 6.3VDC/Surge voltage 8VDC	281M 6301 686 □1□2	68	D3	4.3	43	54	0.08	0.06	0.06	0.06	0.200
	281E 6301 107 □1□2	100	D3	6.3	63	79	0.10	0.08	0.08	0.08	0.100
	281M 6301 107 □1□2	100	H	6.3	63	79	0.10	0.08	0.08	0.08	0.100
	281E 6301 157 □1□2	150	D3	9.5	95	118	0.15	0.08	0.08	0.10	0.100
	281M 6301 157 □1□2	150	H	9.5	95	118	0.10	0.08	0.08	0.08	0.100
	281E 6301 227 □1□2 734	220	D3	14	139	173	0.15	0.08	0.08	0.10	0.100
	281E 6301 227 □1□2	220	H	14	139	173	0.15	0.08	0.08	0.10	0.100
	281E 6301 337 □1□2	330	H	21	208	260	0.15	0.08	0.08	0.10	0.100
Rated voltage 10VDC/Surge voltage 13VDC	281M 1002 476 □1□2	47	D3	4.7	47	59	0.08	0.06	0.06	0.06	0.200
	281E 1002 686 □1□2	68	D3	6.8	68	85	0.08	0.06	0.06	0.08	0.175
	281M 1002 686 □1□2	68	H	6.8	68	85	0.08	0.06	0.06	0.06	0.150
	281E 1002 107 □1□2	100	D3	10	100	130	0.15	0.08	0.08	0.10	0.100
	281M 1002 107 □1□2	100	H	10	100	125	0.10	0.08	0.08	0.08	0.100
	281E 1002 157 □1□2 734	150	D3	15	150	188	0.15	0.08	0.08	0.10	0.100
	281E 1002 157 □1□2	150	H	15	150	188	0.15	0.08	0.08	0.10	0.100
	281E 1002 227 □1□2	220	H	22	220	275	0.15	0.08	0.08	0.10	0.100
	281E 1002 477 □1□2	470	H	47	470	588	0.15	0.10	0.10	0.12	0.100
Rated voltage 16VDC/Surge voltage 20VDC	281M 1602 336 □1□2	33	D3	5.3	53	66	0.08	0.06	0.06	0.06	0.225
	281E 1602 476 □1□2	47	D3	7.5	75	94	0.08	0.06	0.06	0.08	0.150
	281M 1602 476 □1□2	47	H	7.5	75	94	0.08	0.06	0.06	0.06	0.150
	281M 1602 686 □1□2	68	H	11	110	136	0.08	0.06	0.06	0.06	0.150
	281E 1602 107 □1□2	100	H	16	160	200	0.15	0.08	0.08	0.10	0.100
Rated voltage 20VDC/Surge voltage 26VDC	281M 2002 226 □1□2	22	D3	4.4	44	55	0.08	0.06	0.06	0.06	0.225
	281E 2002 336 □1□2	33	D3	6.6	66	83	0.08	0.06	0.06	0.08	0.200
	281M 2002 336 □1□2	33	H	6.6	66	83	0.08	0.06	0.06	0.06	0.200
	281M 2002 476 □1□2	47	H	9.4	94	118	0.08	0.06	0.06	0.06	0.200
	281E 2002 686 □1□2	68	H	14	136	170	0.08	0.06	0.06	0.08	0.150

□1 capacitance tolerance code "K" (±10%) or "M" (±20%)
□2 taping code "R" ("N") or "L" ("P") Pull direction "R" ("N") is standard.
∗ Please contact our Sales Department if you have requirements for lower ESR.

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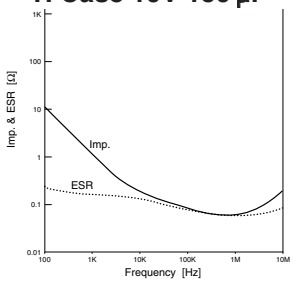
	Catalog number(1)(2)	cap. (μF)	case code	Max DC Lct. (μA)			Max Dissipation factor				Max ESR(Ω)
				20°C	85°C	125°C	–55°C	20°C	85°C	125°C	100kHz
Rated voltage 25VDC/Surge voltage 32VDC	281M 2502 156 □1□2	15	D3	3.8	38	47	0.08	0.06	0.06	0.06	0.275
	281E 2502 226 □1□2	22	D3	5.5	55	69	0.08	0.06	0.06	0.08	0.200
	281M 2502 226 □1□2	22	H	5.5	55	69	0.08	0.06	0.06	0.06	0.200
	281M 2502 336 □1□2	33	H	8.3	83	103	0.08	0.06	0.06	0.06	0.225
Rated voltage 35VDC/Surge voltage 44VDC	281M 3502 475 □1□2	4.7	D3	1.6	16	21	0.08	0.06	0.06	0.06	0.400
	281M 3502 685 □1□2	6.8	D3	2.4	24	30	0.08	0.06	0.06	0.06	0.350
	281M 3502 106 □1□2	10	D3	3.5	35	44	0.08	0.06	0.06	0.06	0.300
	281M 3502 156 □1□2	15	H	5.3	55	66	0.08	0.06	0.06	0.06	0.225
	281M 3502 226 □1□2	22	H	7.7	77	96	0.08	0.06	0.06	0.06	0.250
Rated voltage 50VDC/Surge voltage 63VDC	281M 5002 106 □1□2	10	H	5.0	50	63	0.10	0.08	0.08	0.08	0.400

□1 capacitance tolerance code “K” (±10%) or “M” (±20%)
□2 taping code “R” (“N”) or “L” (“P”) Pull direction “R” (“N”) is standard.
∗ Please contact our Sales Department if you have requirements for lower ESR.

FREQUENCY CHARACTERISTICS

H Case 10V 150 μF



H Case 10V 220 μF