TNC Series (High Performance Polymer type Chip Tantalum Capacitors)

Features

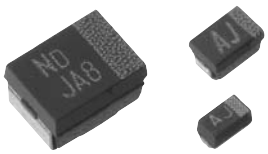
- This type reduces ESR by using high performance polymer based on our original manufacturing process.
- This type is most suitable for an output smoothing circuit that is used, for example, in a DC-DC converter requring a small size, large capacitance, and low ESR.
- 260˚C Reflow compatible for Bcace

Product code: (Example) TNC type B case 6.3 V 100 μF±20% ESR 45mΩ

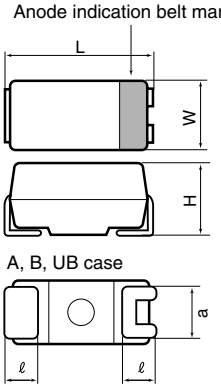
TNC B 0J 107 M T R (Z) F

- TNC: Type of series
- B: Case size code
- 0J: Rated voltage code
- 107: Capacitance code
- M: Capacitance tolerance code(M : ± 20%)
- T: With or without taping
- R: Packing polarity code
- (Z): Specific product code
- F: Lead-free solder plating

Outline of drawings and dimensions



※Please see each page of TMCJ and TMCP, about details information of J and P case.



Dimensions (Unit : mm)

Case code	Case size				
	L	W	H	ℓ	a
J	$1.6^{\pm0.1}$	$0.8^{\pm0.1}$	$0.8^{\pm0.1}$	$0.3^{\pm0.15}$	$0.6^{\pm0.1}$
P	$2.0^{\pm0.2}$	$1.25^{\pm0.2}$	1.2^{MAX}	$0.5^{\pm0.2}$	$0.9^{\pm0.1}$
A	$3.2^{\pm0.2}$	$1.6^{\pm0.2}$	$1.6^{\pm0.2}$	$0.7^{\pm0.3}$	$1.2^{\pm0.2}$
B	$3.5^{\pm0.2}$	$2.8^{\pm0.2}$	$1.9^{\pm0.2}$	$0.8^{\pm0.3}$	$2.2^{\pm0.2}$
UB	$3.5^{\pm0.2}$	$2.8^{\pm0.2}$	1.2^{MAX}	$0.8^{\pm0.3}$	$2.2^{\pm0.2}$

Standard value and case size

Capacitance		Rated voltage (V.DC)			
		2.5	4	6.3	10
μF	Code	0E	0G	0J	1A
3.3	335			J,P	J,P
4.7	475			J,P,A	P,A
6.8	685			P,A	A
10	106		J,P,A	P,A	A
15	156		P,A	A	A
22	226		A,B	A	A,UB,B
33	336		A,B	A,UB,B	A,UB,B
47	476		A,UB,B	A,UB,B	UB,B
68	686		A,UB,B	UB,B	
100	107		UB,B	B	
150	157		B	B	
220	227	B	B		
330	337	B			

For ratings not covered the table, consult Hitachi AIC.

Product specifications	TNC	Test conditions JIS C5101-1:1998
Operating temperature range	–55°C ~ +105°C	
Rated voltage	DC2.5 ~ 10V	85°C
Surge voltage	DC3V ~ 13V	85°C
Derated voltage	DC1.6 ~ 6.3V	(105°C)
Capacitance	3.3 ~ 330μF	120Hz
Capacitance tolerance	±20%	120Hz
Leakage current	Refer to standard product table	—
tanδ	0.1 or less	120Hz
ESR (100kHz)	J case 500mΩ MAX P case 200mΩ,500mΩ MAX A case 200mΩ,500mΩ MAX UB case 70,200mΩ MAX B case 15～200mΩ MAX	100kHz
Maximum permissible ripple current (100kHz,20°C)	J case 320mArms MAX P case 360,560mArms MAX A case 400,620mArms MAX UB case 590,1000mArms MAX B case 700～2190mArms MAX	100kHz
Surge withstanding voltage	△C/C ±20% or less tanδ Specified initial value or less LC ≦0.1CV or ≦0.3CV	Charge a surge voltage through a protective resistor of 33Ω for 30 seconds and discharge it for 5 minutes and 30 seconds at 85°C. Repeat this operation 1000 times.
Temperature characteristics	Specified initial value / –55 / 105 △C/C: – / -20～0% / 0～+30% tanδ: 0.10 / 0.14 / – Value shown table or less LC: Refer to standard product table / – / 1CV or 30μA or less	Measure the specified characteristics in each stage.
Solder heat resistance	△C/C ±20% or less tanδ Specified initial value or less LC ≦0.1CV or ≦0.3CV	Reflow Board surface peak temperature: 240 ± 5°C 220°C or more: within 30 sec.
Moisture resistance no load	△C/C +30% ~ -20% or less tanδ Specified initial value or less LC 300% or less Specified initial value or less	Leave at 40°C and 90 to 95%RH for 500 hours.
High-temperature load	△C/C ±20% or less tanδ Specified initial value or less LC 300% or less Specified initial value or less	85°C. The rated voltage is applied through a protective resistor of 3Ω for 1000 hours.
Thermal shock	△C/C ±20% or less tanδ Specified initial value or less LC ≦0.1CV or ≦0.3CV	Leave at -55°C, normal temperature, 105°C, and normal temperature for 30 min., 15 min., 30 min., and 15 min. Repeat this operation 5 times running.
Failure rate	1% / 1000hrs	85°C. The rated voltage is applied (through a protective resistor of 1 Ω/V).

※This catalog is designed for providing general information. Please inquire of our Sales Department to confirm specifications prior to use.

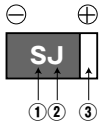
Standard product tables - TNC series

Standard product tables - TNC series

Rated voltage V.DC	Capacitance μF	tan δ	Leakage current μA	Case code	Product name	ESR (100kHz) mΩ	Maximum permissible ripple current (20°C 100kHz) mArms
2.5	220	0.10	55.0	B	TNCB0E227MTRF	70	1170
		0.10	55.0	B	TNCB0E227MTRZF	35	1650
		0.10	55.0	B	TNCB0E227MTRWF	15/300K	2190
	330	0.10	82.5	B	TNCB0E337MTRF	70	1170
		0.10	82.5	B	TNCB0E337MTRZF	35	1650
		0.10	82.5	B	TNCB0E337MTRWF	15/300K	2190
4		0.10	10.0	J	TNCJ0G106MTRF	500	320
	10	0.10	5.0	P	TNCP0G106MTRF	500	360
		0.10	5.0	P	TNCP0G106MTRXF	200	560
		0.10	4.0	A	TNCA0G106MTRF	500	400
		0.10	4.0	A	TNCA0G106MTRXF	200	620
	15	0.10	10.0	P	TNCP0G156MTRF	500	360
		0.10	10.0	P	TNCP0G156MTRXF	200	560
		0.10	6.0	A	TNCA0G156MTRF	500	400
		0.10	6.0	A	TNCA0G156MTRXF	200	620
	22	0.10	8.8	A	TNCA0G226MTRF	500	400
		0.10	8.8	A	TNCA0G226MTRXF	200	620
		0.10	8.8	B	TNCB0G226MTRF	200	700
	33	0.10	13.2	A	TNCA0G336MTRF	500	400
		0.10	13.2	A	TNCA0G336MTRXF	200	620
		0.10	13.2	B	TNCB0G336MTRF	200	700
	47	0.10	18.8	A	TNCA0G476MTRF	500	400
		0.10	18.8	A	TNCA0G476MTRXF	200	620
		0.10	18.8	UB	TNCUB0G476MTRF	200	590
		0.10	18.8	UB	TNCUB0G476MTRXF	70	1000
		0.10	18.8	B	TNCB0G476MTRF	150	800
		0.10	18.8	B	TNCB0G476MTRXF	70	1170
	68	0.10	27.2	A	TNCA0G686MTRF	500	400
		0.10	27.2	A	TNCA0G686MTRXF	200	620
		0.10	27.2	UB	TNCUB0G686MTRF	200	590
		0.10	27.2	UB	TNCUB0G686MTRXF	70	1000
		0.10	27.2	B	TNCB0G686MTRF	150	800
		0.10	27.2	B	TNCB0G686MTRXF	70	1170
	100	0.10	40.0	UB	TNCUB0G107MTRXF	70	1000
		0.10	40.0	B	TNCB0G107MTRF	70	1170
		0.10	40.0	B	TNCB0G107MTRZF	45	1460
	150	0.10	60.0	B	TNCB0G157MTRF	70	1170
		0.10	60.0	B	TNCB0G157MTRZF	35	1650
	220	0.10	88.0	B	TNCB0G227MTRF	70	1170
		0.10	88.0	B	TNCB0G227MTRZF	35	1650
6.3	3.3	0.10	10.0	J	TNCJ0J335MTRF	500	320
		0.10	3.0	P	TNCP0J335MTRF	500	360
	4.7	0.10	10.0	J	TNCJ0J475MTRF	500	320
		0.10	3.0	P	TNCP0J475MTRF	500	360
		0.10	3.0	A	TNCA0J475MTRF	500	400
	6.8	0.10	4.2	P	TNCP0J685MTRF	500	360
		0.10	4.2	A	TNCA0J685MTRF	500	400
	10	0.10	10.0	P	TNCP0J106MTRF	500	360
		0.10	10.0	P	TNCP0J106MTRXF	200	560
		0.10	6.3	A	TNCA0J106MTRF	500	400
		0.10	6.3	A	TNCA0J106MTRXF	200	620
	15	0.10	9.4	A	TNCA0J156MTRF	500	400
		0.10	9.4	A	TNCA0J156MTRXF	200	620
	22	0.10	13.8	A	TNCA0J226MTRF	500	400
		0.10	13.8	A	TNCA0J226MTRXF	200	620
	33	0.10	20.7	A	TNCA0J336MTRF	500	400
		0.10	20.7	A	TNCA0J336MTRXF	200	620
		0.10	20.7	UB	TNCUB0J336MTRF	200	590
		0.10	20.7	UB	TNCUB0J336MTRXF	70	1000
		0.10	20.7	B	TNCB0J336MTRF	200	700
		0.10	20.7	B	TNCB0J336MTRXF	70	1170
	47	0.10	29.6	A	TNCA0J476MTRF	500	400
		0.10	29.6	A	TNCA0J476MTRXF	200	620
		0.10	29.6	UB	TNCUB0J476MTRF	200	590
		0.10	29.6	UB	TNCUB0J476MTRXF	70	1000
		0.10	29.6	B	TNCB0J476MTRF	150	800
		0.10	29.6	B	TNCB0J476MTRXF	70	1170
	68	0.10	42.8	UB	TNCUB0J686MTRF	200	590
		0.10	42.8	UB	TNCUB0J686MTRXF	70	1000
		0.10	42.8	B	TNCB0J686MTRF	150	800
		0.10	42.8	B	TNCB0J686MTRXF	70	1170
	100	0.10	63.0	B	TNCB0J107MTRF	100	980
		0.10	63.0	B	TNCB0J107MTRXF	70	1170
		0.10	63.0	B	TNCB0J107MTRZF	45	1460
6.3	100	0.10	63.0	B	TNCB0J107MTRVF	35	1650
	150	0.10	94.5	B	TNCB0J157MTRF	100	980
		0.10	94.5	B	TNCB0J157MTRXF	70	1170
		0.10	94.5	B	TNCB0J157MTRZF	40	1550
10	3.3	0.10	10.0	J	TNCJ1A335MTRF	500	320
		0.10	5.0	P	TNCP1A335MTRF	500	360
	4.7	0.10	10.0	P	TNCP1A475MTRF	500	360
		0.10	10.0	P	TNCP1A475MTRXF	200	560
		0.10	4.7	A	TNCA1A475MTRF	500	400
		0.10	4.7	A	TNCA1A475MTRXF	200	620
	6.8	0.10	6.8	A	TNCA1A685MTRF	500	400
		0.10	6.8	A	TNCA1A685MTRXF	200	620
	10	0.10	10.0	A	TNCA1A106MTRF	500	400
		0.10	10.0	A	TNCA1A106MTRXF	200	620
	15	0.10	15.0	A	TNCA1A156MTRF	500	400
		0.10	15.0	A	TNCA1A156MTRXF	200	620
	22	0.10	22.0	A	TNCA1A226MTRF	500	400
		0.10	22.0	A	TNCA1A226MTRXF	200	620
		0.10	22.0	UB	TNCUB1A226MTRF	200	590
		0.10	22.0	UB	TNCUB1A226MTRXF	70	1000
		0.10	22.0	B	TNCB1A226MTRF	200	700
		0.10	22.0	B	TNCB1A226MTRXF	70	1170
	33	0.10	33.0	A	TNCA1A336MTRF	500	400
		0.10	33.0	A	TNCA1A336MTRXF	200	620
		0.10	33.0	UB	TNCUB1A336MTRF	200	590
		0.10	33.0	UB	TNCUB1A336MTRXF	70	1000
		0.10	33.0	B	TNCB1A336MTRF	200	700
		0.10	33.0	B	TNCB1A336MTRXF	70	1170
	47	0.10	47.0	UB	TNCUB1A476MTRF	200	590
		0.10	47.0	UB	TNCUB1A476MTRXF	70	1000
		0.10	47.0	B	TNCB1A476MTRF	150	800
		0.10	47.0	B	TNCB1A476MTRXF	70	1170

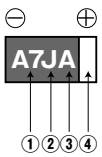
Marking indication TNC series

J,P case



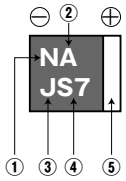
①Simplified code of nominal capacitance (S : 4.7μF)
②Simplified code of rated voltage (J : 6.3V)
③Anode indication belt mark

A case



①Simplified code of nominal capacitance (A7 : 10μF)
②Simplified code of rated voltage (J : 6.3V)
③Lot indication (A : for manufacturing in January, 2009)
④Anode indication belt mark

B,UB case



①Type of series
②Lot indication (A : for manufacturing in January, 2009)
③Simplified code of rated voltage (J : 6.3V)
④Simplified code of nominal capacitance (S7 : 47μF)
⑤Anode indication belt mark

Lot indication

Year \ Month	1	2	3	4	5	6	7	8	9	10	11	12
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
2011	a	b	c	d	e	f	g	h	j	k	l	m
2012	n	p	q	r	s	t	u	v	w	x	y	z