

TS17

FEATURES

- Miniature size, wide capacitance, tape and reel packaging available for auto-placement.
- Coating by epoxy resin, creates the excellent humidity resistance and prevents body from damaging during soldering and washing.
- Industry standard size and various load spacing available.

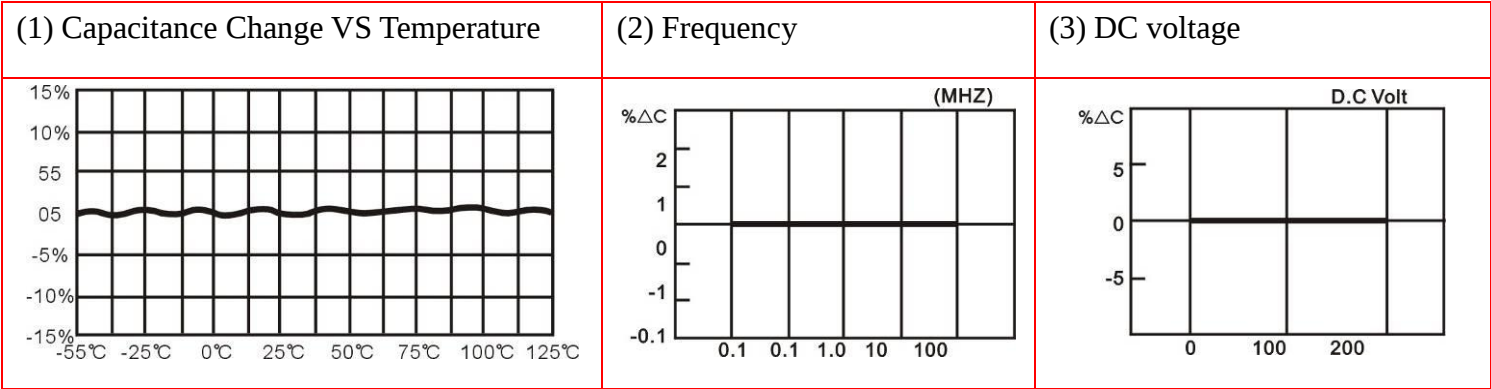


S	P	E	C	I	F	I	C	A	T	I	O	N	S
T.C			NPO/COG			X7R(B)			Y5V(Y/F)			Z5U(E)	
Dielectric type			Stable Class I Dielectric			Stable Class II Dielectric							
Electrical properties			With negligible dependence of electrical properties on temperature、 voltage、 frequency and time			With predictable change of properties with temperature、 voltage、 frequency and time, this dielectric is ferroelectric and offers higher capacitance ranges than Class I.			With high twist dielectric constant and greater variation of properties with temperature and test conditions、 very high capacitance per unit volume.				
Application			Use in circuits requiring stable performance			Use as blocking、 coupling、 By-passing discriminating element.			Suited for By-passing and coupling application such as store power and memory circuit				
Capacitance range			1pF~10nF			100pF~5uF			1nF~14.7uf				
Operating temperature			0±30PPm/c -55℃~+125℃			±15% -55℃~+125℃			+30%~-80% -25℃~+85℃			+22%~-56% -10℃~+85℃	

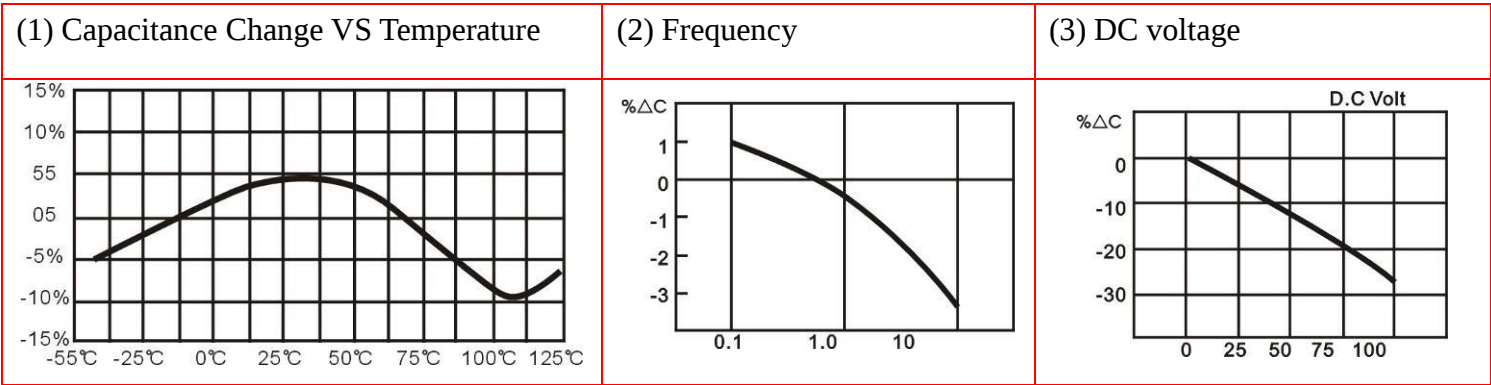
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Capacitance Change VS Temperature Characteristic ; Voltage ; Frequency Profiles

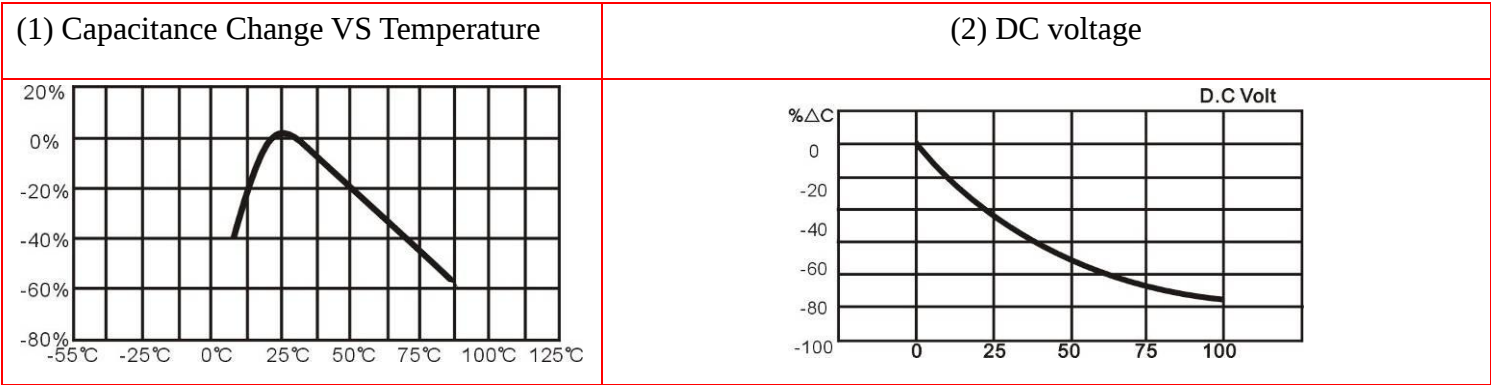
◆ NPO



◆ X7R



◆ Z5U



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Leads MLCC(Radial、Axial)

◆ Electrical Properties standard

Item	Test standard			
	NPO/CG/GH/RH/UJ/SL	X7R(B)	Z5U(E)	Y5V(Y/F)
Capacitance	$\pm 5\%$	$\pm 10\%$	+80-20%	$\pm 20\%$
Dissipation Factor	<0.15%	<3.5%	<5%	<7.5%(200nF)
				<10% (220~470nF)
				<15%(470~1000nF)
Insulation Resistance	<10nF	<25nF	<25nF	<25nF
	IR<1000C0M Ω	IR>25nF	IR>25nF	IR>25nF
	C>10nF	C>25Nf	C>25Nf	C>25Nf
	R • C>100S	R • C>100S	R • C>100S	R • C>100S
Withstanding Voltage	2.5 rated voltage	2.5 rated voltage	2.5 rated voltage	2.5 rated voltage
Test Condition				
Test Frequency	1 MHZ (C>1000PF 1KHz)	1KHz	1KHz	1KHz
Test Voltage of Cap. & D.F	$1 \pm 0.2V$	$1 \pm 0.2V$	$0.3 \pm 0.2V$	$0.3 \pm 0.2V$
Test Voltage of IR	Rated Voltage	Rated Voltage	Rated Voltage	Rated Voltage
Temperature	10~25℃	10~25℃	10~25℃	10~25℃
Humidity	<75%	<75%	<75%	<75%

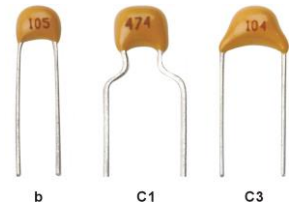
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Leads MLCC(Radial、Axial)

◆ Quality Item & Reliability inspection

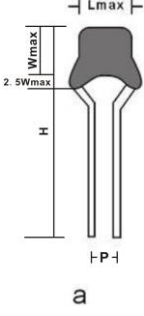
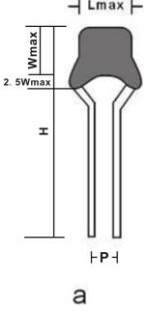
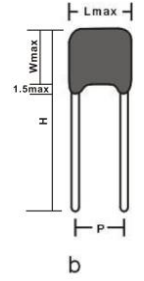
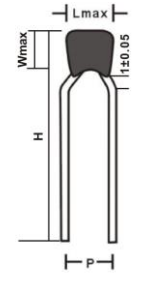
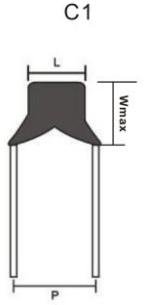
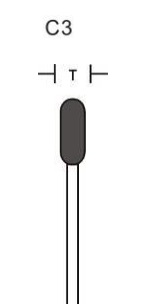
Item	Test Specifications		Test Methods																													
Solderability	Termination area shall be at least 75% covered with a new solder coating.		The lead wire of a capacitor shall be dipped into a 25% methanol solution of rosin and then into molten solder of 235℃ for 2±0.5seconds,in both cases the depth of dipping is up to about 2.5 to 3.0mm from the root of lead.																													
Resistance to soldering heat	There shall be no evidence of damage or flash over during the test and sign in focus.		The lead wire shall be immersed into the melted solder of 260℃±5℃.up to about 2.5 to 3.0mm from the main body for 5±0.5sec and the specified items shall be measured after leaving for 24±2hours																													
	T.C	△C/C<																														
	CG/CH/RH	0.5% or 0.5Pf																														
	UJ/SL	1% or 1pF																														
	B	±10%																														
	Y(F)/E	±20%																														
Life test	Appearance	There shall be no evidence of damage or flash over during the test and sign in focus	<table><tr><td>Condition</td><td>NPO</td><td>X7R</td><td>Y5V</td><td>Z5U</td></tr><tr><td>Temperature</td><td colspan="2">+125℃</td><td colspan="2">+85℃</td></tr><tr><td>Time</td><td colspan="4">T=1000h</td></tr><tr><td>Voltage</td><td colspan="4">V=1.5Vr</td></tr><tr><td>Recovery time</td><td colspan="4">24±1h</td></tr></table>					Condition	NPO	X7R	Y5V	Z5U	Temperature	+125℃		+85℃		Time	T=1000h				Voltage	V=1.5Vr				Recovery time	24±1h			
								Condition	NPO	X7R	Y5V	Z5U																				
	Temperature	+125℃						+85℃																								
	Time	T=1000h																														
	Voltage	V=1.5Vr																														
	Recovery time	24±1h																														
Capacitance change	NPO:<2%;X7R<20%; Y5V:<30%																															
D.F	NPO:<0.3 X7R:<5% Y5V:<7%																															
I.R	R.C<258																															

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Leads MLCC(Radial、Axial)

◆ **Size Code、Capacitance and Voltage**

	Size code	shape	Dimensions(mm)				Voltage	Capacitance(PF)		
			P(±0.5)	Lmax	Wmax	Tmax		COG(NPO)	X7R	Y5V(Z5U)
	0805	b	2.54	4.2	3.8	3.0	25V	OR5~103	101~105	103~475
		C1	5.08				50V	OR5~103	101~474	103~105
		C3	5.08	4.2	5.0	3.0	100V	OR5~103	101~104	103~104
	1206	a	2.54	5.0	4.5	3.5	25V	OR5~104	101~225	103~106
		b	3.5				50V	OR5~473	101~225	103~106
		C1	5.08				100V	OR5~473	101~105	103~155
	1210	a	2.54	5.0	4.5	3.5	25V	OR5~104	101~106	103~106
		b	3.5				50V	OR5~473	101~475	103~106
		C1	5.08				100V	OR5~473	101~105	103~155
	1812	b	5.08	7.0	6.0	4.0	25V	OR5~104	101~106	103~106
							50V	OR5~104	101~106	103~106
							100V	OR5~473	101~105	103~155
	2225	b	5.5	10	9	4.5	25V	OR5~104	101~106	103~106
							50V	OR5~104	101~106	103~106
							100V	OR5~473	101~105	103~155
	3035	b	7.5	12	10	4.5	25V	OR5~104	101~106	103~106
							50V	OR5~104	101~106	103~106
							100V	OR5~473	101~105	103~155

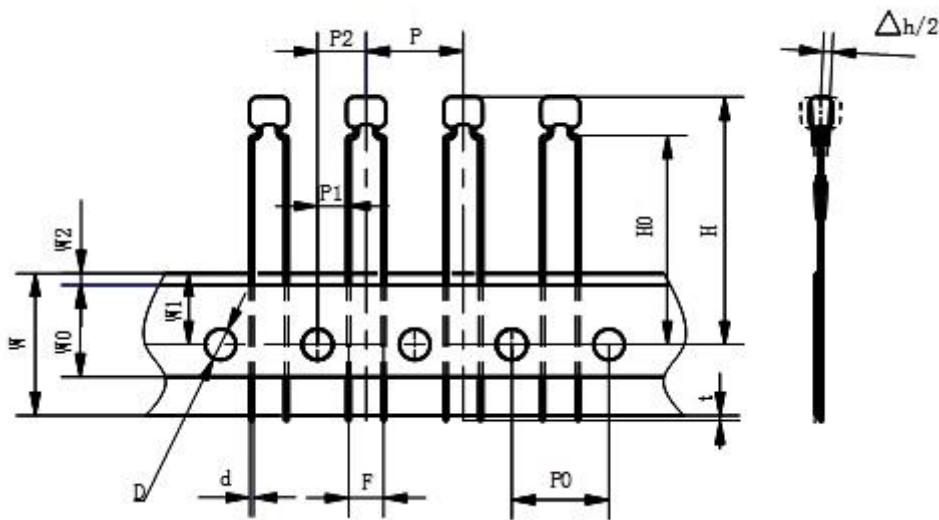
*Notice 1: Normal length of lead is 10.0mm(±1)& it can be adjusted between 3.0~25mm by customer request.

Notice 2: The diameter of lead is $\phi 0.5 \pm 0.05\text{mm}$

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Radial Leads MLCC

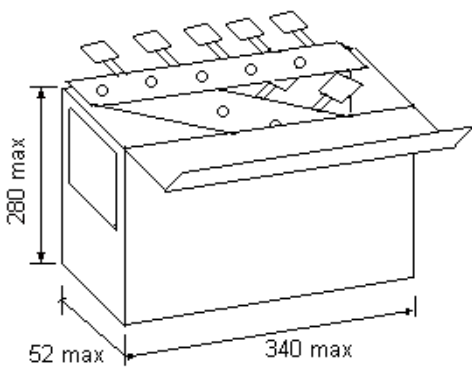
◆Packaging Style



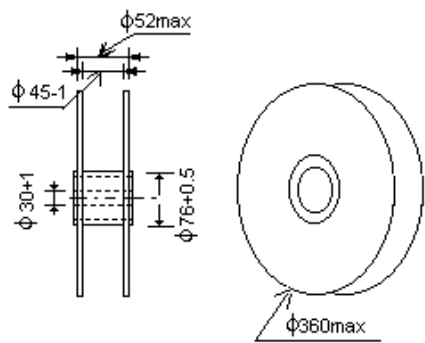
Note: P1=3.85mm for F=5.08mm P1=5.1mm for F=2.54mm

Code	P	P0	P1	P2	d	Δh	w	W0	W1	W2	H	H0	D	t
Dim	12.7	12.7	3.85 5.1	6.35	0.5	0	18.5	12	9	1.5	25	15~20	4.0	0.7
Tol	± 0.2	± 0.2	0.7	± 1.3	± 0.1	± 2	± 1	± 1	± 0.5	± 1.5	Max	± 0.5	± 0.2	Max

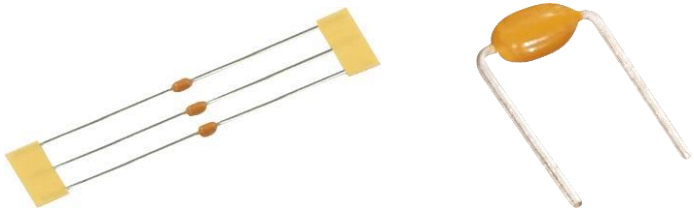
*Ammo packaging



*Reel packaging

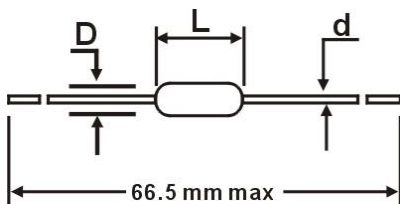
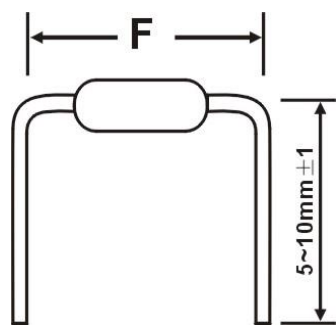


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Axial Laser MLCC

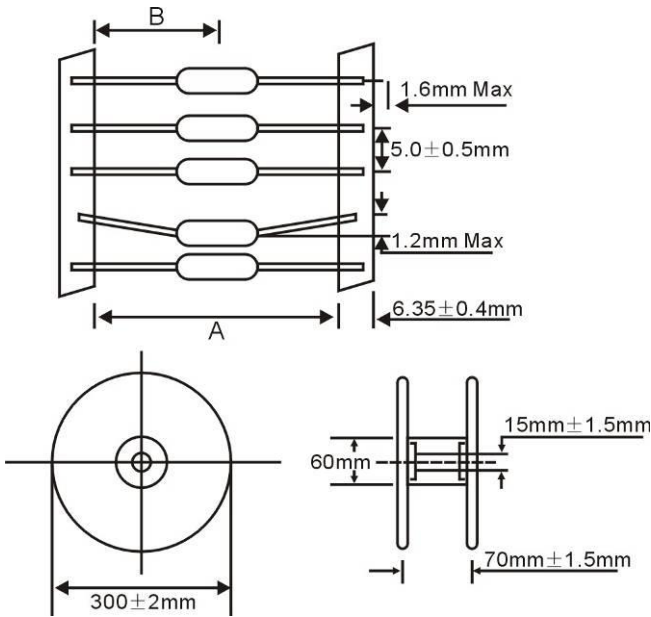
◆ Size Code、Capacitance and Voltage

	Size code	Dimensions(mm)				voltage e	Capacitance ranges			
		L max	D max	F (±0.6)			d (±0.05)	COG (NPO)	X7R	Y5V (Z5U)
	15	3.8	2.5	5.08	10.0	0.45	25V 50V 100V	OR5~102 OR5~821 OR5~561	101~333 101~223 101~472	222~224 222~154
	16	5.08	2.5	5.08	10.0	0.45	25V 50V 100V	OR5~332 OR5~222 OR5~102	331~104 331~473 331~223	103~105 103~684
	17	4.30	2.5	5.08	10.0	0.45	25V 50V 100V	OR5~332 OR5~222 OR5~102	331~104 331~473 331~223	103~105 103~684
	19	7.50	3.0	7.50	10.0	0.45	25V 50V 100V	OR5~472 OR5~392 OR5~152	102~224 102~104 102~683	103~125 103~105
	20	5.10	3.0	7.50	10.0	0.45	25V 50V 100V	OR5~472 OR5~392 OR5~152	102~224 102~104 102~683	103~125 103~105

◆ Packaging style

Tape and reel

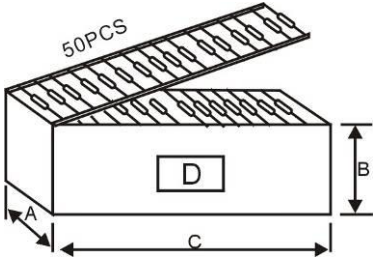
Tape style	A	B
Tape width:52.4mm	52.4±1.5mm	26.2±0.76mm



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Ammo package

Tape style	A	B	C	D
52.4mm	81(±5)mm	72(±5)mm	258(±5)mm	Lable

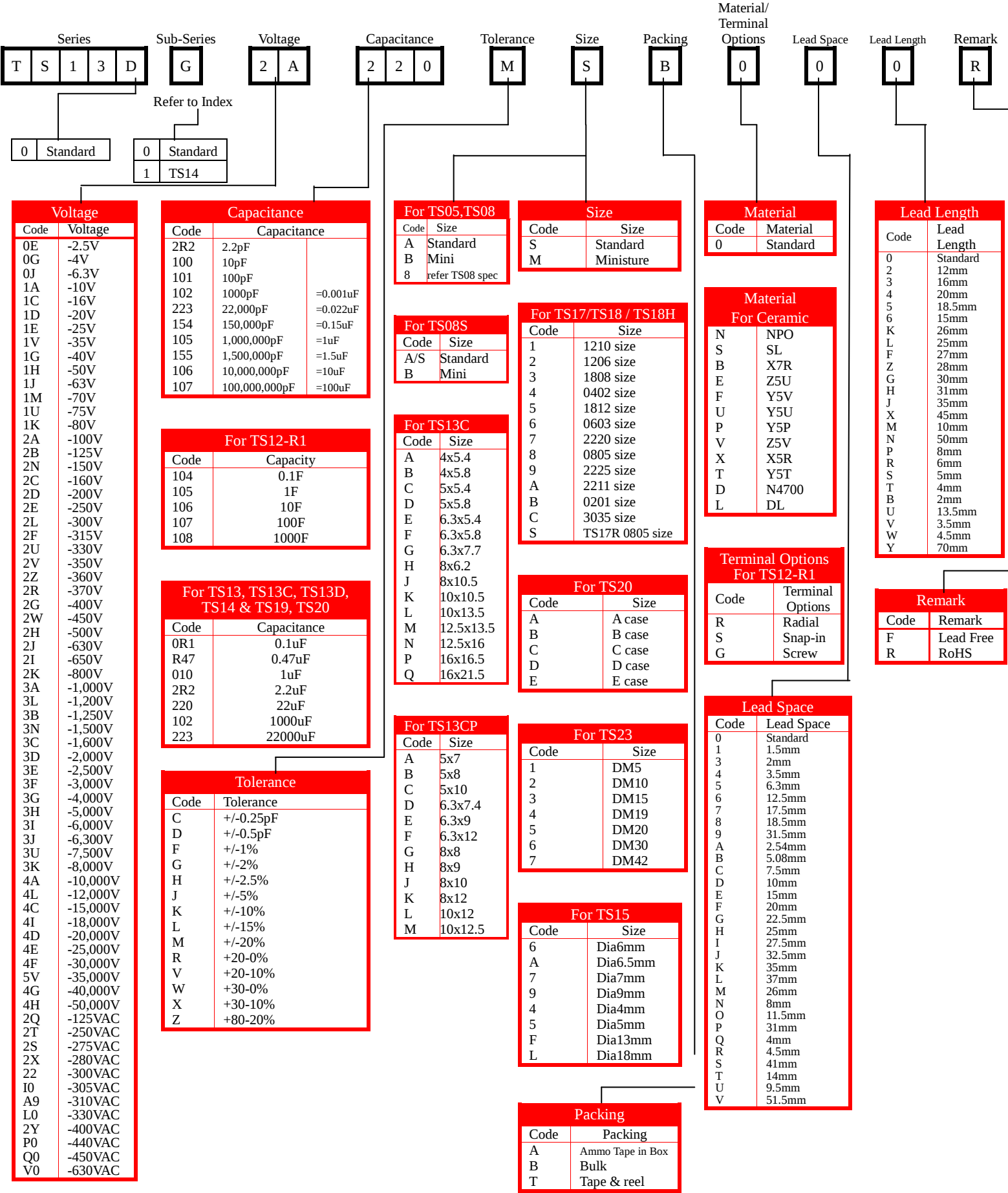


Packaging quantity

Size code	Tape and reel	Ammo package	Bulk package
15	5000	5000	1000(500)
16	5000	5000	1000(500)
17	5000	5000	1000(500)
19	2500(5000)	2500(5000)	500
20	2500(5000)	2500	500

*packaging according to the customer’s requirement

PART NUMBER SYSTEM



For TS12-R1	
Code	Voltage
27	2.7V
30	3.0V