

JYT series SMD is widely used in Analog & Digital Modems, LAN/WAN Interface, Lighting Ballast Circuits, Voltage Multipliers, DC-DC Converter, Back-lighting Inverters.

FEATURES

- Excellent Break down voltage, low DF
- > Suit to re-flow soldering, wave soldering, hand soldering
- Small size



Outside Dimensions

Туре		Dimensions (mm)			1)	
British expression	Metric expression	L	W	T /Code		
0603	1608	1.60±0.10	0.80±0.10	0.80±0.10	С	
0603*1	1608	1.60±0.20*1	0.80±0.20*1	0.80±0.20*1	С	
0603*3	1608	1.60-0/+0.3	0.80-0/+0.3	0.80-0/+0.3	С	
				0.60±0.10	В	
0805	2012	2.00±0.10	1.25±0.10	0.85±0.10	D	
				1.25±0.20	F	
				0.60±0.10	В	
0805*1	2012	2.00±0.20*1	1.25±0.20*1	0.85±0.20	D	
				1.25±0.20	F	
				0.85±0.10	D	W L
1206	2216	2 20 1 0 20	1.6010.20	1.00±0.10	Е	5
1206	3216	3.20±0.20	1.60±0.20	1.25±0.20	F	T 4
			_	1.60±0.20	Н	2
				0.85±0.10	D	No.
1206*1	2216	2 20 10 20*1	4 60 10 20*1	1.00±0.10	Е	
1206 ^{*1}	3216	3.20±0.30 ^{*1}	1.60±0.30*1	1.25±0.20	F	
				1.60±0.30*1	Н	
				0.85±0.10	D	
				1.25±0.20	F	
1210	3225	3.20±0.30	2.5±0.20	1.60±0.20	Н	
		2.00±0.20		G		
				2.50±0.30	М	
				0.85±0.10	D	
				1.25±0.20	F	
1210 ^{*1}	3225	3.20±0.40 ^{*1}	2.5±0.30 ^{*1}	1.60±0.30	Н	
				2.00±0.20	G	
				2.50±0.30	М	
*1 Stands for	Capacitance Ran	ıge: ≥1uF				

*3 Stands for Capacitance Range: $\geq 10 uF$

We also offer size of 1808, 1812, 2220 and 2225, please feel free to check with me.



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SPECIFICATIONS

Dielectric & Values	NPO X7R X5R X7T X7S X6S Y5V consult product pages of catalog for cap ranges and voltage rating	
Terminations	Tin / Nickel	
Voltage	100, 200, 250, 500, 630, 1000, 2000 VDC	
Packing	tape and reel (0603, 0805, 1206, 1210)	
Capacitance	0.2pF ~ 4.7uF	
Tolerance	±0.1pF ~ +80-20%	
Operating Temperature Range	NPO, X7R, X7T, X7S: -55 ~ +125℃; X6S: -55 ~ +105℃; X5R: -55 ~ +85℃; Y5V: -30 ~ +85℃	
	NPO: The capacitor of this kind dielectric material is considered as Class I capacitor, including general capacitor and high frequency NPO capacitor. The electrical properties of NPO capacitor are the most stable one and have little change with temperature, voltage and time. They are suited for applications where low losses and high stability are required, such as filters, oscillators, and timing circuits.	
Types of Capacitor and Dielectric Material	X7R, X5R, X6S, X7T, X7S: material is a kind of material has high dielectric constant. The capacitor made of this kind material is considered as Class II capacitor whose capacitance is higher than that of class I . These capacitors are classified as having a semi stable temperature characteristic and used over a wide temperature range, such in these kinds of circuits, DC blocking, decoupling, bypassing, frequency discriminating etc.	
	Y5V: The capacitor made of this kind of material is the highest dielectric constant of all ceramic capacitors. They are used over a moderate temperature range in application where high capacitance is required because of its unstable temperature coefficient, but where moderate losses and capacitance changes can be tolerated. Its capacitance and dissipation factors are sensible to measuring conditions, such as temperature and voltage, etc	

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SPECIFICATIONS AND TEST CONDITION

1. Appearance

Dielectrics	Specification	Testing Condition
NPO/X7R/X5R/X7T/X6S/X7S	$1/10L < L \le 1/8L$, $1/10W < W \le 1/8W$, $1/10T < T \le 1/8T$ (None is acceptable All judged unqualified)	Visual inspection.

2. Dimensions

Dielectrics	Specification	Testing Condition
NPO/X7R/X5R/X7T/X6S/X7S	Within the specified dimensions	Using calipers on micrometer

3. Capacitance

Dielectrics	Specification	Testing Condition			
NPO	Within the specified tolerance A:±0.05pF; B:±0.1pF; C:±0.25pF; D:±0.5pF; J: ±5%	1.0±0.2Vrms, 1MHz±10% (C>1000 pF, 1.0±0.2Vrms, 1KHz±10%)			
X7R/X5R/X7T/X6S/X7S	Within the specified tolerance J: $\pm 5\%$; K: $\pm 10\%$; M: $\pm 20\%$	1.0±0.2Vrms, 1KHz±10% (Cp>10uF,0.5±0.1Vrms,120±24Hz)			

4. Dissipation Factor

Dielectrics	Specifica	Specification			Testing Condition
NPO		Cp<30pF, Q≥400+20Cp; Cp≥30pF, Q≥1000			1.0±0.2Vrms,1MHz±10% ,25℃ (Cp>1000pF,1.0±0.2Vrms,1KHz±10%)
	Type	U _R	Capacitance	DF	
	0402	0402 >25V	C≤0.1uF	≤7.0%	
	0402		C>0.1uF	≤10.0%	
		0603 >25V	C≤0.1uF	≤5.0%	
X7R/X5R/X7T/X6S/	0603		0.1uF <c≤0.22uf< td=""><td>≤7.0%</td><td>1.0±0.2Vrms, 1KHz±10%,</td></c≤0.22uf<>	≤7.0%	1.0±0.2Vrms, 1KHz±10%,
X7S			C>0.22uF	≤10.0%	(Cp>10uF,0.5±0.1Vrms,120±24Hz)
	0005	> 251/	C≤0.47uF	≤7.0%	
	0805	0805 >25V C>0.47uF	≤10.0%		
	1206	> 251/	C<1uF	≤7.0%	
	1206	>25V	1uF≤C<47uF	≤10.0%	

5. Insulation Resistance

Dielectrics	Specification	Testing Condition		
NPO /X7R/ X5R/X7T/ X6S/X7S	$U_R \le 50V$, More than 10 G Ω or 100 $\Omega \cdot F/CR$, whichever is smaller.	$U_R \le 50V \ U_{Test} = U_R;$ Charge Time: 60 ± 5 sec; Temperature: 25° C		
NPO /X7R/X7T/X6S/ X7S	$U_R{>}50V,$ More than 4 $G\Omega$ or $100\Omega{\cdot}F/CR,$ whichever is smaller.	$U_R \le 400V \ U_{Test} = U_R;$ $U_R > 400V \ U_{Test} = 400V;$ Charge Time: 60 ± 5 sec; Temperature: 25° C		
Test Temperature: 25℃±3℃; Test Humidity: <70%RH.				





SPECIFICATIONS AND TEST CONDITION

6. Dielectric Strength

Dielectrics	Rated voltage range	Measuring Method
NPO	U _R ≤50V	Force 300%Rated voltage for 5second. Maxcurrent should not exceed 50 mA.
X7R/X5R/X7T/X6S/X7S	U _R ≤50V	Force 250%Rated voltage for 5second. Maxcurrent should not exceed 50 mA.
	100V≤U _R <500V	Force 200%Rated voltage for 5second. Maxcurrent should not exceed 50 mA.
	500V≤U _R <1000V	Force 150%Rated voltage for 5second. Maxcurrent should not exceed 50 mA.
NPO /X7R/X7T/X7S	1000V≤U _R <2000V	Force 150%Rated voltage for 5second. Maxcurrent should not exceed 50 mA.
	U _R ≥2000V	Force 120%Rated voltage for 5second. Maxcurrent should not exceed 50 mA.

7. Temperature Coefficient of Capacitance

Dielectrics	Specification	Testing C	Condition			
		Measure	capacitance unde	r follow table	e list temper	ature:
NDO	Temperature coefficient within ± 30 ppm/ $^{\circ}$ C	STEP	NPO, X7R, X7T	X6S	X5R	X7S
NPO	Cp drift within ±0.2% or ±0.05pF	1	25 ±2	25 ±2	25 ±2	25 ±2
	·	2	-55±3	-55±3	-55±3	-55±3
		3	25 ±2	25 ±2	25 ±2	25 ±2
X7R/X5R	Capacitance change within ±15%	4	125±3	105±3	85 ±3	125±3
	· -	5	25 ±2	25 ±2	25 ±2	25 ±2
Х7Т	Capacitance change within ±22%, -33%	1) NPO The capacitance drift is calculated by dividing the differences between the maximum and minimum measured values in the step 1, 3 and 5. The temperature coefficient is determined using the Capacitance measured in step 3 as a reference. 2) X7R, X5R, X7T, X6S and X7S The ranges of capacitance change compared within the above				lues in the ermined erence.
X6S/X7S	Capacitance change within ±22%	specified	ue over the tempe ranges.	rature range	es snail be w	itnin the

8. Adhesion

Dielectrics	Specification	Testing Condition
NPO/X7R/X5R/ X7T/X6S/X7S	No removal of the terminations or other defect shall occur.	The pressurizing force shall be 6N (=600g*f) and the duration of application shall be $10\pm1sec$.

9. Solderability of Termination

Dielectrics	Specification	Testing Condition
NPO/X7R/X5R/ X7T/X6S/X7S	95% min. coverage of both terminal electrodes and less than 5% have pin holes or rough spots.	Solder temperature: $245\pm5^{\circ}$ C Dipping time: 2 ± 1 seconds. Completely soak both terminal electrodes in solder





SPECIFICATIONS AND TEST CONDITION

10. Resistance to leaching

Dielectrics	Specification	Testing Condition
NPO/X7R/X5R/ X7T/X6S/X7S	95% min. coverage of both terminal electrodes and less than 5% have pin holes or rough spots. No remarkable visual damage.	Solder temperature: $270\pm5^{\circ}$ Preheated: 120°

11. Bending

Dielectrics	Specification	Testing Condition
NPO	No remarkable visual damage Cp change $\leq \pm 5\%$ or ± 0.5 pF, whichever is larger.	Solder the capacitor on testing substrate and put it on testing stand. The middle part of substrate shall successively be pressurized by pressuring rod at a
		rated of about 1.0mm/sec. Until the deflection become means of the 1.0mm.
X7R/X5R/X7T/	No remarkable visual damage	speeding: 1.0 mm/sec.
X6S/X7S	Cp change ≤ ±10%	Mar South Little of the Control of t
		capacitance meter 45 4 45

12. Resistance to Soldering Heat

12. Resistance to so		
Dielectrics	Specification	Testing Condition
NPO	No remarkable visual damage Cp change within ±2.5% or ±0.25pF, whichever is larger. DF meets initial standard value. IR meets initial standard value.	Soldering temperature: 270±5℃ Preheating: 120~150℃ 60sec. Dipping time: 10±1 seconds. Measurement to be made after being kept at room temperature for 24±2 (NPO) or 48±4 (X7R, X5R, X7S, X7T, X6S) hours. Recovery for the following period under the standard
X7R/X5R/X7T/ X6S/X7S	No remarkable visual damage Cp change within ±7.5% DF meets initial standard value. IR meets initial standard value.	condition after test. *Initial measurement for high dielectric constant type Perform a heat treatment at 140~150°C for 1hr and let sit for 48±4hrs at room temperature. Perform the initial measurement.

13. Moisture Resistance, steady state

Dielectrics	Specification	Testing Condition
NPO	No remarkable visual damage Cp change within $\pm 5\%$ or ± 0.5 pF, whichever is larger. Cp<10pF, Q≥200+10Cp; $10 \le Cp < 30$ pF, Q≥275+2.5Cp Cp≥30pF, Q≥350 R*C≥1000M Ω or $10\Omega \cdot F$, whichever is smaller	Test temperature: 40±2℃ Humidity: 90~95% RH Testing time: 500 ±12hrs Measurement to be made after being kept at room temperature for 24±2hrs (NPO) or 48±4hrs (X7R, X5R, X7S, X7T, X6S)
X7R/X5R/X7T/ X6S/X7S	Cp change within $\pm 12.5\%$ DF: Not more than 2 times of initial value R*C ≥ 1000 M Ω or $10\Omega\cdot$ F, whichever is smaller	*Initial measurement for high dielectric constant type Perform a heat treatment at 140~150°C for 1hr and let sit for 48±4hrs at room temperature. Perform the initial measurement.





SPECIFICATIONS AND TEST CONDITION

14. Temperature Cycle

Dielectrics	Specification	Testing	Condition				
		To perform 5 cycles of the stated environment:					
		Step	Temperature	Time			
NDO	No remarkable visual damage	1	Min. operating Temp.+0/-3 $^{\circ}$ C	30min			
NPO	Cp change within ±2.5% or ±0.25pF, whichever is larger.	2	25℃	2~3 min			
	whichever is larger.	3	Max. operating Temp.+3/-0 $^{\circ}$ C	30 min			
		4	25℃	2~3 min			
X7R/X5R/X7T/ X6S/X7S	No remarkable visual damage Cp change within ±7.5%	temper X5R, X measu *Initial Perforr let sit f	rement to be made after being kep rature for 24±2hrs (NPO) or 48±4 7S, X7T, X6S) at room temperature. measurement for high dielectric on a heat treatment at 140~150°C for 48±4hrs at room temperature. In the initial measurement.	hrs (X7R, re, then onstant type for 1hr and			

15. Damp heat with load

Dielectrics	Specification	Testing Condition
NPO	No remarkable visual damage Cp change $\leq \pm 7.5\%$ or ± 0.75 pF, whichever is larger. Cp<30pF, Q $\geq 100+10/3*$ Cp Cp ≥ 30 pF, Q ≥ 200 R*C ≥ 500 M Ω or $5\Omega \cdot$ F, whichever is smaller	Test temperature: 40±2℃ Humidity: 90~95% RH Voltage: 100% of the rated voltage Testing time: 500 ±12hrs Measurement to be made after being kept at room
X7R/X5R/X7T/ X6S/X7S	No remarkable visual damage Cp change $\leq \pm 12.5\%$ DF: Not more than 2 times of initial value R*C $\geq 500M\Omega$ or $5\Omega\cdot F$, whichever is smaller	temperature for 24±2hrs (NPO) or 48±4hrs (X7R, X5R, X7S, X7T, X6S) *Apply the rated DC voltage for 1 hour at 40±2°C. Remove and let sit for 48±4hrs at room temperature. Perform the initial measurement.

16. Life Test

Dielectrics	Specification	Testing Condition
NPO	No remarkable visual damage Cp change $\leq \pm 3\%$ or ± 0.3 pF, whichever is larger. Q ≥ 350 (Cp ≥ 30 pF) Q $\geq 275+(2.5*$ Cp) (10pF \leq Cp < 30 pF) Q $\geq 200+10*$ Cp (Cp < 10 pF) R*C ≥ 1000 M Ω or $50\Omega\cdot$ F, whichever is smaller	Test temperature: Max. Operating Temp. $\pm 3^{\circ}$ C Voltage: U _R <100V 150% of the rated voltage (*Remarks) Testing time: 1000 hrs Measurement to be made after being kept at room temperature for 24 \pm 2hrs (NPO) or 48 \pm 4hrs (X7R,
X7R/X5R/X7T/ X6S/X7S	No remarkable visual damage Cp change $\leq \pm 12.5\%$ DF: Not more than 2 times of initial value R*C $\geq 1000M\Omega$ or $5\Omega \cdot F$, whichever is smaller	X5R, X7S, X7T, X6S) *Initial measurement for high dielectric constant type Apply 150% of the rated DC voltage for one hour at the maximum operating temperature ±3℃. Remove and let sit for 48±4hrs at room temperature. Perform the initial measurement





Precautions on the use of MLCC:

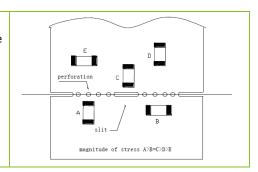
1. General Precautions On The Use Of MLCC:

The Multi-layer Ceramic Capacitors MLCC may fail when subjected to severe conditions of electrical environment and mechanical stress beyond the specified "rating" and specified condition in the specification. Following the precautions for safety.

2. PCB Design

When breaking PC boards along their perforations, the amount if mechanical stress on the capacitors can vary according to the method used. The following methods are listed in order from least stressful to most stressful: push-back, silt, -grooving, and perforation.

Thus, any ideal SMD capacitor layout must also consider the PCB splitting procedure.



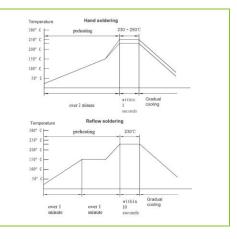
3. Considerations For Automatic Placement

- ①. Excessive impact load should not be imposed on the capacitors when mounting the PC boards.
- ②. The maintenance and inspection of the mounters should be conducted periodically.

4. Soldering

The ceramic section and metal section combine to the MLCC. As the poor heat conductivity of the ceramic section ,ceramic chip capacitors are susceptible to thermal shock when exposed to rapid or concentrated heating or rapid cooling, especially for large s

When hand soldering, use a soldering iron with a maximum power of 20W and a maximum tip diameter of 1.0mm. The soldering iron should not touch the capacitor directly.



5.Breakaway PC Boards

When splitting the PC board after mounting capacitors and other components, care is required so as not to give any stresses of stresses of deflection or twisting to board.

Board separation should not be done manually, but by using the appropriate devices.

6. Storage Conditions

- (1) Keep the storage environment conditions as following: Temperature: 5~ 40 Humidity: ≤70% RH
- (2) Don't open the tape until the parts are to be used, and store them within one year since the date printed on the reel.
- (3) Use the chips within 3 months after the tape is opened.
- (4) The capacitance value of high dielectric constant capacitors (X7R,X5R,Y5V,X7T,X6S) will gradually decrease with the passage of time, so this should be taken into consideration in the circuit design. If such a capacitance reduction occurs, a heat treatment of 150 for 1 hour will return the capacitance to its initial level.

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Capacitance & Voltage

				0603			
		NF	20			X7R	
Cp/VDC	500	250	200	100	250	200	100
0R2	С	С	С	С			
0R3	С	С	С	С			
0R4	С	С	С	С			
0R5	С	С	С	С			
0R6	С	С	С	С			
0R7	С	С	С	С			
0R8	С	С	С	С			
0R9	С	С	С	С			
1R0	С	С	С	С			
1R1	С	С	С	С			
1R2	С	С	С	С			
1R3	С	С	С	С			
1R5	С	С	С	С			
1R6	С	С	С	С			
1R8	С	С	С	С			
2R0	С	С	С	С			
2R2	С	С	С	С			
2R4	С	С	С	С			
2R7	С	С	С	С			
3R0	С	С	С	С			
3R3	С	С	С	С			
3R6	С	С	С	С			
3R9	С	С	С	С			
4R0	С	С	С	С			
4R3	С	С	С	С			
4R7	С	С	С	С			
5R0	С	С	С	С			
5R1	С	С	С	С			
5R6	С	С	С	С			
6R0	С	С	С	С			
6R2	С	С	С	С			
6R8	С	С	С	С			
7R0	С	С	С	С			
7R5	С	С	С	С			
8R0	С	С	С	С			
8R2	С	С	С	С			
9R0	С	С	С	С			
9R1	С	С	С	С			
100	С	С	С	С			
120	С	С	С	С			
150	C	С	С	С			
180	С	С	С	С			
200	С	С	С	С			

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Capacitance & Voltage

	0603											
		N	PO			X7R						
Cp/VDC	500	250	200	100	250	200	100					
220	С	С	С	С								
270	С	С	С	С								
300	С	С	С	С								
330	С	С	С	С								
390	С	С	С	С								
470	С	С	С	С								
560	С	С	С	С								
680	С	С	С	С								
820	С	С	С	С								
101	С	С	С	С	С	С	С					
121	С	С	С	С	С	С	С					
151	С	С	С	С	С	С	С					
181	С	С	С	С	С	С						
221		С	С	С	С	С	С					
271		С	С	С	С	С	С					
331		С	С	С	С	С	С					
391		С	С	С	С	С	С					
471		С	С	С	С	С	С					
561				С	С	С	С					
681				С	С	С	С					
821				С	С	С	С					
102				С	С	С	С					
152					С	С	С					
182					С	С	С					
222					С	С	С					
272					С	С	С					
332					С	С	С					
472					С	С	С					
562					С	С	С					
682					С	С	С					
103							С					
153							С					
183							C					
223							С					
273							С					
333							С					
393							C					
473							C					
563							C					
683							C					
104							C					



apacitance & Voltage

				05		
		NF	20		X.	7R
Cp/VDC	630	500	250	100	250	100
0R2	В	В	В	В		
0R3	В	В	В	В		
0R4	В	В	В	В		
0R5	В	В	В	В		
0R6	В	В	В	В		
0R7	В	В	В	В		
0R8	В	В	В	В		
0R9	В	В	В	В		
1R0	В	В	В	В		
1R1	В	В	В	В		
1R2	В	В	В	В		
1R3	В	В	В	В		
1R5	В	В	В	В		
1R6	В	В	В	В		
1R8	В	В	В	В		
2R0	В	В	В	В		
2R2	В	В	В	В		
2R4	В	В	В	В		
2R7	В	В	В	В		
3R0	В	В	В	В		
3R3	В	В	В	В		
3R6	В	В	В	В		
3R9	В	В	В	В		
4R0	В	В	В	В		
4R3	В	В	В	В		
4R7	В	В	В	В		
5R0	В	В	В	В		
5R1	В	В	В	В		
5R6	В	В	В	В		
6R0	В	В	В	В		
6R2	В	В	В	В		
6R8	В	В	В	В		
7R0	В	В	В	В		
7R5	В	В	В	В		
8R0	В	В	В	В		
8R2	В	В	В	В		
9R0	В	В	В	В		
9R1	В	В	В	В		
100	В	В	В	В		
120	В	В	В	В		
150	В	В	В	В		
180	В	В	В	В		
200	В	В	В	В		



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apacitance & Voltage

	0805											
		NF	0		X	7R	X7S					
p/VDC	630	500	250	100	250	100	100					
270	В	В	В	В								
300	В	В	В	В								
330	В	В	В	В								
390	В	В	В	В								
470	В	В	В	В								
560	В	В	В	В								
680	В	В	В	В								
820	В	В	В	В								
101	В	В	В	В	В	В						
121	В	В	В	В	В	В						
151	В	В	В	В	В	В						
181	В	В	В	В	В	В						
201	В	В	В	В	В	В						
221	В	В	В	В	D	D						
271	В	В	В	В	D	D						
331	В	В	В	В	D/F	D/F						
391		D	В	В	D/F	D/F						
471		D	В	В	D/F	D/F						
561		D	В	В	D/F	D/F						
681		D	В	В	D/F	D/F						
821		D	В	В	D/F	D/F						
102		D	В	В	D/F	D/F						
152			В	В	D/F	D/F						
182				В	D/F	D/F						
222				В	D/F	D/F						
272					D/F	D/F						
332					D/F	D/F						
472					D/F	D/F						
562					D/F	D/F						
682					D/F	D/F						
103					D/F	D/F						
153					F	D/F						
183					F	D/F						
223					F	D/F						
273					F	D/F						
333					F	D/F						
393					F	D/F						
473					F	D/F						
563					F	D/F	<u> </u>					
683					F	D/F						
104					F	D/F						
154						F						
184						F						
224						F	F					



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Capacitance & Voltage

apacitano						12	06					
			NPC	<u> </u>					X7R)		
Cp/VDC	2000	1000	630	500	250	100	2000	1000	630	500	250	100
0R5	D	D	D	D	D	D	2000	1000	030	300	230	100
1R0	D	D	D	D	D	D						
1R1	D	D	D	D	D	D						
1R2	D	D	D	D	D	D						
1R3	D	D	D	D	D	D						
1R5	D	D	D	D	D	D						
1R6	D	D	D	D	D	D						
1R8	D	D	D	D	D	D						
2R0	D	D	D	D	D	D						
2R2	D	D	D	D	D	D						
2R4	D	D	D	D	D	D						
2R7	D	D	D	D	D	D						
3R0	D	D	D	D	D	D						
3R3	D	D	D	D	D	D						
3R6	D	D	D	D	D	D						
3R9	D	D	D	D	D	D						
4R0	D	D	D	D	D	D						
4R3	D	D	D	D	D	D						
4R7	D	D	D	D	D	D						
5R0	D	D	D	D	D	D						
5R1	D	D	D	D	D	D						
5R6	D	D	D	D	D	D						
6R0	D	D	D	D	D	D						
6R2	D	D	D	D	D	D						
6R8	D	D	D	D	D	D						
7R0	D	D	D	D	D	D						
7R5	D	D	D	D	D	D						
8R0	D	D	D	D	D	D						
8R2	D	D	D	D	D	D						
9R0	D	D	D	D	D	D						
9R1	D	D	D	D	D	D						
100	D	D	D	D	D	D						
120	D	D	D	D	D	D						
150	D	D	D	D	D	D						
180	D	D	D	D	D	D						
200	D	D	D	D	D	D						
220	D/E	D	D	D	D	D						
270	D/E	D	D	D	D	D						
300	D/E	D	D	D	D	D						
330	D/E	D	D	D	D	D						
390	D/E	D	D	D	D	D						
470	D/E	D	D	D	D	D						
560	D/E D/E	D	D	D	D	D						
680	D/E D/E	D	D	D	D	D						
820	D/E D/E	D	D	D	D	D						





Capacitance & Voltage

							120	6							
			NPC)			X7R							X7S	
Cp/VDC	2000	1000	630	500	250	100	2000	1000	630	500	250	100	250	100	
101	D/E	D/E	D	D	D	D	F	F	F	F	F				
121		D/E	D	D	D	D	F	F	F	F	F				
151		D/E	D	D	D	D	F	F	F	F	F				
181		D/E	D	D	D	D	F	F	F	F	F				
201		D/E	D	D	D	D	F	F	F	F	F				
101		D/E	D	D	D	D	F	F	F	F	F				
121		D/E	D	D	D	D	F	F	F	F	F				
151		D/E	D	D	D	D	F	F	F	F	F				
181		D/E	D	D	D	D	F	F	F	F	F				
221		D/E	D	D	D	D	F	F	F	F	F	D			
271		D/E	D	D	D	D	F	F	F	F	F	D			
331		D/E	D	D	D	D	F	F	F	F	F	D			
391		,	D	D	D	D	F	F	F	F	F	D			
471			D	D	D	D	F	F	F	F	F	D			
561			D	D	D	D	F	F	F	F	F	D			
681			D	D	D	D	F	F	F	F	F	D			
821			D	D	D	D	F	F	F	F	F	D			
102			D	D	D	D	F	F	F F	F	F	D			
152			D	D	D	D	H	F	F	F	F	D			
182			D	D	D	D	H	F	F	F	F	D			
222			D	D	D	D	H	F	F	F	F	D			
272			D	D	D	D	11	F	F	F	F	D			
					D			F	F						
332				D	D	D				F	F	D			
472						D		F	F	F	F	D			
562						D		F	F	F	F	D			
682						D -		F -	F -	F -	F	D			
103						D		F	F -	F	F	D			
153								Н	F	F	F	D			
183									F	F	F	D			
223									F	F	F	D			
273									Н	Н	F	D			
333									Н	Н	F	D			
393									Н	Н	F	D			
473									Н	Н	F	D			
563										Н	F	D			
683										Н	F	D			
104										Н	F	D			
154											Н	D			
184											Н	D			
224											Н	D	Н	D	
274												D		D	
334												D		D	
474												F		F	
684												F/H		F/I	
105												H		H	



Capacitance & Voltage

•	<u> </u>	1210												
			NDC				1210	-	(7p			\/= -	V	
		I	NPO		ı		1 1		K7R	ı		X7S	X7T	
Cp/VDC	2000	1000	500	250	100	2000	1000	630	500	250	100	100	100	
100	D													
120	D													
150	D													
180	D													
200	D													
220	D													
270	D													
300	D													
330	D													
390	D													
470	D													
560	D													
680	D													
820	D													
101	D	D	D	D	D									
121	F	D	D	D	D									
151	F	D	D	D	D									
181	F	D	D	D	D									
201	F	D	D	D	D									
221	F	D	D	D	D	F	F	F	F	F	F			
271		D	D	D	D	F	F	F	F	F	F			
331		D	D	D	D	F	F	F	F	F	F			
391		D	D	D	D	F	F	F	F	F	F			
471		D	D	D	D	F	F	F	F	F	F			
561		F	D	D	D	F	F	F	F	F	F			
681		F	D	D	D	F	F	F	F	F	F			
821		F	D	D	D	F	F	F	F	F	F			
102		F	D	D	D	F	F	F	F	F	F			
152			D	D	D	F	F	F	F	F	F			
182			D	D	D	F	F	F	F	F	F			
222			D	D	D	F	F	F	F	F	F			
272			F	D	D	Н	F	F	F	F	F			
332				D	D	Н	F	F	F	F	F			
472				D	D	Н	F	F	F	F	F			
562							F	F	F	F	F			
682							F	F	F	F	F			
103							F	F	F	F	F			
153							F	F	F	F	F			
223							Н	Н	Н	F	F			
333								Н	Н	F	F			
473								G	G	F	F			
563										F	F			
683										F	F			
104										F	F			
154										Н	Н			
224										G	Н			
334											G			
374											G			
474											G	G		
684											Н	Н		
105											H	H		
225											-		М	
475													M	

