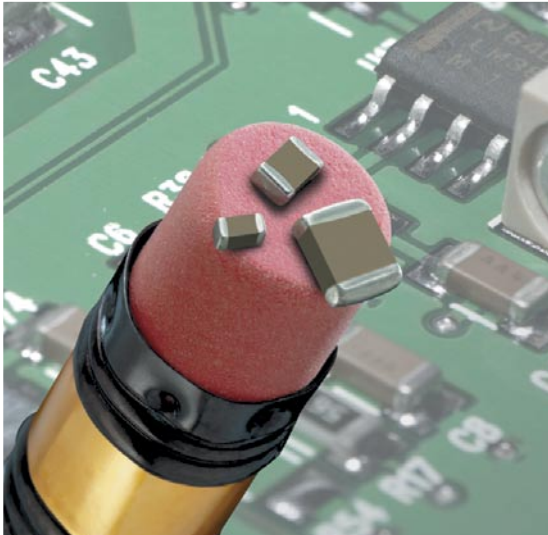


TANCERAM® CHIP CAPACITORS



TANCERAM® chip capacitors can replace tantalum capacitors in many applications and offer several key advantages over traditional tantalums. Because Tanceram® capacitors exhibit extremely low ESR, equivalent circuit performance can often be achieved using considerably lower capacitance values. Low DC leakage reduces current drain, extending the battery life of portable products. Tancerams® high DC breakdown voltage ratings offer improved reliability and eliminate large voltage de-rating common when designing with tantalums.

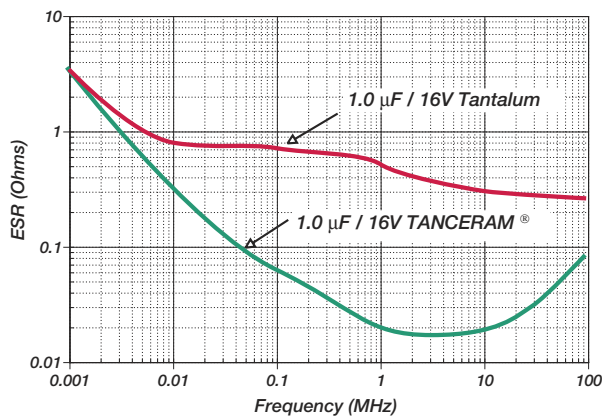
ADVANTAGES

- Low ESR
- Higher Surge Voltage
- Reduced CHIP Size
- Higher Insulation Resistance
- Low DC Leakage
- Non-polarized Devices
- Improved Reliability
- Higher Ripple Current

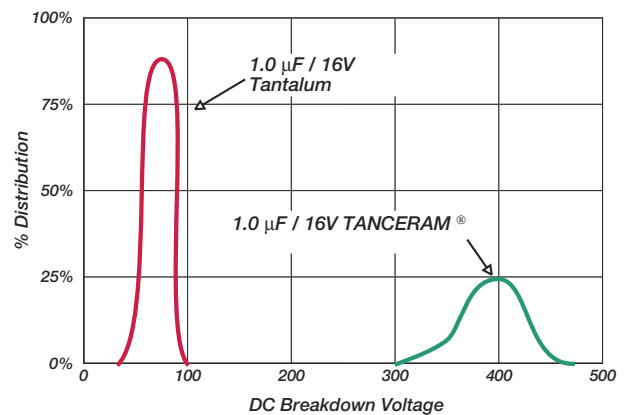
APPLICATIONS

- Switching Power Supply Smoothing (Input/Output)
- DC/DC Converter Smoothing (Input/Output)
- Backlighting Inverters
- General Digital Circuits

Typical ESR Comparison



Typical Breakdown Voltage Comparison



HOW TO ORDER TANCERAM®

250	R18	Y	105	Z	V	4	E
VOLTAGE 500 = 50 V 250 = 25 V 160 = 16 V 100 = 10 V 6R3 = 6.3 V	CASE SIZE See Chart	DIELECTRIC W = X7R X = X5R Y = Y5V	CAPACITANCE 1st two digits are significant; third digit denotes number of zeros. 474 = 0.47 µF 105 = 1.00 µF	TOLERANCE Y5V Z = +80% -20% X7R/X5R K = ±10% M = ±20%	TERMINATION V = Ni barrier w/ 100% Sn Plating	MARKING 4 = Unmarked	TAPE MODIFIER Code Type Reel E Plastic 7" T Paper 7" Tape specifications conform to EIA RS481

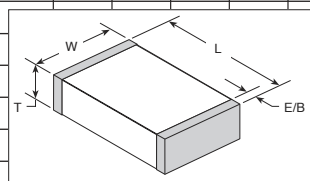
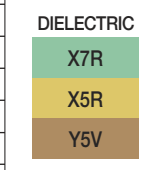
P/N written: 250R18Y105ZV4E



TANCERAM® CHIP CAPACITORS

CAPACITANCE SELECTION

CASE SIZE			50 V	25 V	16 V	10 V	6.3 V	50 V	25 V	16 V	10 V	6.3 V	50 V	25 V	16 V	10 V	6.3 V	50 V	25 V	16 V	10 V	6.3 V	50 V	25 V	16 V	10 V	6.3 V	50 V	25 V	16 V	10 V	6.3 V					
0402 R07	L	.040 ±.004	(1.02 ±.10)																																		
	W	.020 ±.004	(0.51 ±.10)																																		
	T	.025 Max.	(0.64)																																		
	E/B	.008 ±.004	(0.20±.10)																																		
0603 R14	L	.063 ±.008	(1.60 ±.20)																																		
	W	.032 ±.008	(0.81 ±.20)																																		
	T	.035 Max.	(0.89)																																		
	E/B	.010±.005	(.25±.13)																																		
0805 R15	L	.080 ±.010	(2.03 ±.25)																																		
	W	.050 ±.010	(1.27 ±.25)																																		
	T	.060 Max.	(1.52)																																		
	E/B	.020±.010	(0.51±.25)																																		
1206 R18	L	.125 ±.010	(3.17 ±.25)																																		
	W	.062 ±.010	(1.57 ±.25)																																		
	T	.070 Max.	(1.78)																																		
	E/B	.020 +.015-.010	(0.51+.38-.25)																																		
1210 S41	L	.125 ±.010	(3.18 ±.25)																																		
	W	.095 ±.010	(2.41 ±.25)																																		
	T	.110 Max.	(2.8)																																		
	E/B	.020 +.015-.010	(0.51+.38-.25)																																		
1812 S43	L	.175 ±.010	(4.45 ±.25)																																		
	W	.125 ±.010	(3.17 ±.25)																																		
	T	.110 Max.	(2.8)																																		
	E/B	.035±.020	(0.89±.51)																																		



Contact factory for C/V requirements which are not shown.

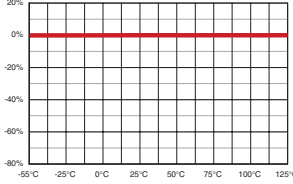
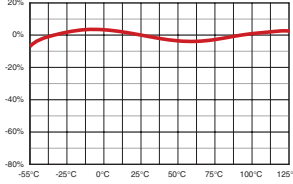
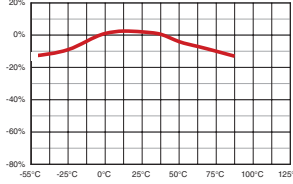
ELECTRICAL CHARACTERISTICS

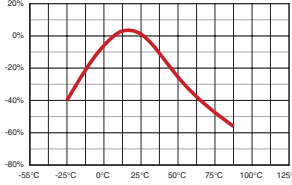
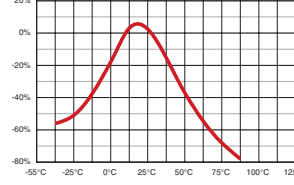
	X7R	X5R	Y5V
Temperature Coefficient	±15% (-55 to +125°C)	±15% (-55 to +85°C)	+22%, -82% (-30 to +85°C)
Dissipation Factor	3.5% max	For ≥ 10 Volts: 5.0% max For 6.3 Volts: 10.0% max	For ≥ 16 Volts: 7.0% max For 10 Volts: 9.0% max For 6.3 Volts: 16.0% max
Insulation Resistance (Min. @ 25°C, WVDC)	500 ΩF or 10 GΩ, whichever is less	500 ΩF or 10 GΩ, whichever is less	500 ΩF or 10 GΩ, whichever is less
Test Conditions	For capacitance values >10μF: 120Hz ± 10Hz @ 0.5V ± 0.1Vrms		

For other dielectric specifications see page 20



ELECTRICAL CHARACTERISTICS

PARAMETER	NPO		X7R		X5R	
TEMPERATURE COEFFICIENT:	0± 30 ppm/°C	-55 to +125°C	± 15%	-55 to +125°C	± 15%	-55 to +85°C
						
DISSIPATION FACTOR:	.001 (0.1%) max		For Vrated = 50 VDC, DF = 2.5% max For Vrated = 125 VDC, DF = 3.0% max For Vrated = 116 VDC, DF = 3.5% max		For Vrated = 25 VDC, DF = 3.0% max For Vrated = 16 VDC: DF = 3.5% max For Vrated = 10 VDC: DF = 5.0% max	
AGING:	None		2.5% / decade hour			
INSULATION RESISTANCE:	IR @ 25°C, WVDC = 1000 F or 100G whichever is less ¹ IR @ 125°C, WVDC = 10% of 25°C rating				IR @ 25°C, WVDC = 1000 F or 100G whichever is less ²	
DIELECTRIC STRENGTH:	For Vrated = 6 - 200 VDC, DWV = 2.5 X WVDC, 25°C, 50mA max. For Vrated = 201 - 499 VDC, DWV = 2.0 X WVDC, 25°C, 50mA max. For Vrated = 500 - 999 VDC, DWV = 1.5 X WVDC, 25°C, 50mA max. For Vrated = 1000+ VDC, DWV = 1.2 X WVDC, 25°C, 50mA max.				DWV = 2.5 X WVDC, 25°C, 50mA max.	
TEST PARAMETERS:	C > 100 pF; 1kHz ±50Hz; 1.0±0.2 VRMS C 100 pF 1Mhz ±50kHz; 1.0±0.2 VRMS		1kHz ±50Hz; 1.0±0.2 VRMS		1kHz ±50Hz; 1.0±0.2 VRMS	
NOTES:			1) Tanceram X7R IR = 500 F or 10 G ,		2) Tanceram X5R IR = 500 F or 10 G	

PARAMETER	Z5U		Y5V	
TEMPERATURE COEFFICIENT:	+22% -56%	+10 to +85°C	+22% -82%	-30 to +85°C
				
DISSIPATION FACTOR:	For Vrated = 25 VDC, DF = 4.0 % max For Vrated = 16 VDC, DF = 5.0 % max		For Vrated = 25 VDC, DF = 5.0% max For Vrated = 16 VDC, DF = 7.0% max For Vrated = 10 VDC, DF = 9.0% max	
AGING:	5.0 % / decade hour		7.0% / decade hour	
INSULATION RESISTANCE:	IR @ 25°C, WVDC = 100 F or 10G whichever is less			
DIELECTRIC STRENGTH:	DWV = 2.5 X WVDC, 25°C, 50mA max.			
TEST PARAMETERS:	1kHz ±50Hz; 0.5±0.2 VRMS		1kHz ±50Hz; 1.0±0.2 VRMS	
NOTES:				