



KEMET Ceramic MLCC Surface Mount Capacitors
High Temperature Product Qualification Test Plan and Results Summary
High Temperature 200°C COG 1206 100nF 25V

KEMET Part Number ==>	C1206H104K3GAC
KEMET Lot Number ==>	7157156201
Piece Counts ==>	SS #Fail

RELIABILITY/ ENVIRONMENTAL TESTS				
High Temperature Life	MIL-STD-202, Mthd 108	200, Rated Voltage, 2000 Hours	77	0
Load Humidity	MIL-STD-202, Mthd 103	85°C /85%RH, Rated Voltage, 1000 Hours	77	0
Low Voltage Humidity	MIL-STD-202, Mthd 103	85°C /85%RH, 1.5V, 1000 Hours	77	0
Temperature Cycling	JESD22 Method JA-104	-55°C to +200°C, 50 Cycles	77	0
Thermal Shock	MIL-STD-202, Mthd 107	-55°C to +150°C, 20s transfer, 15 min dwell, 300 Cycles	30	0
Moisture Resistance	MIL-STD-202, Mthd 106	Cycled Temp / RH. 0V, 10 cycles @ 24 Hrs each	77	0
PHYSICAL, MECHANICAL & PROCESS TESTS				
External Visual	MIL-STD-883, Mthd 2009	Evaluate physical external characteristics of all parts submitted for test	All pieces tested	0
Physical Dimensions	JESD22 Method JB-100	Length, width, and thickness	30	0
Resistance to Solvents	MIL-STD-202, Method 215	Include Aqueous wash chemical - OKEM Clean or equivalent	5	0
Solderability	ANSI / J-STD-002	a) Method B, 4 hrs @ 155°C dry heat @ 235°C	15	0
		b) Method B, category 3, 8 hr steam age @ 220 / 260°C dips	30	0
		c) Method D, category 3, Leaching @260°C dip	15	0
Mechanical Shock and Vibration	MIL-STD-202 Mthd 213/214	Method 213: Figure 1, Condition F Method 204: 5 gs for 20 min, 12 cycles	30	0
Resistance to Soldering Heat	MIL-STD-202, Mthd 210	Condition B, no pre-heat of samples, Single Wave Solder	30	0
Terminal Strength	JIS-C-6429	Force of 1.8 kg for 60 seconds	30	0
Board Flex	JIS-C-6429	2mm minimum for all except 3 mm min for Class I		
Electrical Characterization	KEMET Custom Test	Parametrically test, show statistics at room as well as min and max operating temperatures	30	0
QUALIFICATION STATUS			APPROVED	
			660	0



KEMET Ceramic SMD Product
High Temperature 200°C C0G 1206 100nF 25 Volt Product
High Temperature Qualification Test Results

Lot Number	Results	Test Point	Capacitance, nF				Delta Cap, %				DF, 1 KHz, %				IR, 25°C, Gohm				
			AVG	STD	Max	Min	AVG	STD	Max	Min	AVG	STD	Max	Min	AVG	STD	Max	Min	
High Temperature Life, 200°C, Rated Voltage, 2000 Hours																			
			Pre Test Limits		110.0	90	N/A		N/A	0.1		N/A	N/A		10.0				
			Post Test Limits		---	---	0.3		-0.3	0.5		N/A	N/A		1.0				
90977909708	0/77	0 hours	103.49	1.24	105.62	99.81	-	-	-	-	0.006	0.001	0.012	0.004	119	1.09	143	104	
	0/77	1000 hours	103.46	1.26	105.61	99.79	0.010	0.003	0.015	0.004	0.015	0.016	0.076	0.003	87	1.53	119	30	
Storage Life, 150°C, 0 Volts, 1000 Hours																			
			Pre Test Limits		110.0	90	N/A		N/A	0.1		N/A	N/A		10.0				
			Post Test Limits		---	---	0.3		-0.3	0.5		N/A	N/A		1.0				
6313312304	0/77	0 hours	95.09	1.35	97.80	91.60	-	-	-	-	0.001	0.000	0.002	0.001	5848	1.998	25000	522	
	0/77	1000 hours	95.08	1.35	97.80	91.60	0.000	0.000	0.000	-0.001	0.002	0.000	0.002	0.001	1544	2.106	25000	394	

Lot Number	Results	Test Point	Capacitance, nF				Delta Cap, %				DF, 1 KHz, %				IR, 25°C, Gohm				
			AVG	STD	Max	Min	AVG	STD	Max	Min	AVG	STD	Max	Min	AVG	STD	Max	Min	
Load Humidity, 85°C, Rated Voltage, 1000 Hours																			
			Pre Test Limits		110.0	90	N/A		N/A	0.1		N/A	N/A		10.0				
			Post Test Limits		---	---	0.3		-0.3	0.5		N/A	N/A		1.0				
6313312304	0/77	0 hours	95.22	1.38	97.90	92.10	-	-	-	-	0.001	0.000	0.002	0.001	2268	1.895	39947	749	
	0/77	1000 hours	95.22	1.38	97.90	92.10	0.000	0.000	0.000	-0.001	0.001	0.000	0.002	0.001	1945	1.882	25000	411	
Low Volt Humidity, 85°C, 1.5 Volts, 1000 Hours																			
			Pre Test Limits		110.0	90	N/A		N/A	0.1		N/A	N/A		10.0				
			Post Test Limits		---	---	0.3		-0.3	0.5		N/A	N/A		1.0				
6313312304	0/77	0 hours	95.15	1.30	97.60	92.40	-	-	-	-	0.002	0.000	0.003	0.002	9591	1.128	25000	1915	
	0/77	1000 hours	95.14	1.31	97.60	92.30	0.000	0.000	0.000	0.000	0.001	0.000	0.002	0.001	295	1.294	1500	46	

Lot Number	Results	Test Point	Capacitance, nF				Delta Cap, %				DF, 1 KHz, %				IR, 25°C, Gohm				
			AVG	STD	Max	Min	AVG	STD	Max	Min	AVG	STD	Max	Min	AVG	STD	Max	Min	
Temperature Cycle, 50 Cycles																			
			Pre Test Limits		110.0	90	N/A		N/A	0.1		N/A	N/A		10.0				
			Post Test Limits		---	---	0.3		-0.3	0.5		N/A	N/A		1.0				
7157156201	0/77	Initial	102.82	1.17	104.90	100.10	---	---	---	---	0.009	0.009	0.047	0.004	111	1.180	145	53	
	0/77	50 Cycles	102.89	1.17	104.90	100.10	-0.005	0.001	-0.002	-0.007	0.007	0.002	0.020	0.005	114	1.120	142	84	
Thermal Shock, 300 Cycles																			
			Pre Test Limits		110.0	90	N/A		N/A	0.1		N/A	N/A		10.0				
			Post Test Limits		---	---	0.3		-0.3	0.5		N/A	N/A		1.0				
7157156201	0/30	Initial	100.17	0.44	100.90	99.20	---	---	---	---	0.003	0.000	0.003	0.002	1650	2.180	8030	122	
	0/30	300 Cycles	100.17	0.44	100.90	99.20	0.006	0.024	0.100	0.000	0.003	0.000	0.003	0.002	1610	1.840	13000	592	
Moisture Resistance, 0 V DC, 10 Cycles																			
			Pre Test Limits		110.0	90	N/A		N/A	0.1		N/A	N/A		10.0				
			Post Test Limits		---	---	0.3		-0.3	0.5		N/A	N/A		1.0				
6313312304	0/77	Initial	95.06	1.49	98.30	91.60	---	---	---	---	0.001	0.000	0.002	0.001	1275	2.099	38304	397	
	0/77	300 Cycles	95.06	1.49	98.30	91.60	0.000	0.000	0.001	0.000	0.002	0.000	0.002	0.001	653	2.150	16805	152	



KEMET Ceramic SMD Product

High Temperature 200°C COG 1206 100nF 25 Volt Product

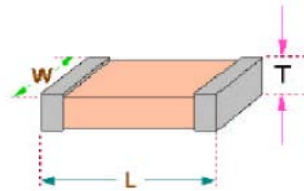
High Temperature Qualification Test Results

Lot Number	Results	Test Point	Capacitance, nF				Delta Cap, %				DF, 1 KHz, %				IR, 25°C, Gohm				
			AVG	STD	Max	Min	AVG	STD	Max	Min	AVG	STD	Max	Min	AVG	STD	Max	Min	
Mechanical Shock and Vibration																			
			Pre Test Limits		110.0	90	N/A		N/A	0.1		N/A	N/A		10.0				
C1206H104K3GAC			Post Test Limits		---	---	0.3		-0.3	0.5		N/A	N/A		10.0				
6313312304	0/30	Initial	95.32	1.492	97.61	93.01	---	---	0.005	0.000	0.006	0.004	8631.0	1.173	25000	2545			
	0/30	Post	95.32	1.04	97.62	93.01	0.000	0.000	0.005	0.000	0.006	0.005	2205.0	1.442	9562	278			
Resistance to Soldering Heat																			
			Pre Test Limits		110.0	90	N/A		N/A	0.1		N/A	N/A		10.0				
C1206H104K3GAC			Post Test Limits		---	---	0.3		-0.3	0.5		N/A	N/A		10.0				
6313312304	0/30	Initial	94.98	1.41	97.40	91.97	---	---	0.005	0.000	0.006	0.005	13742.0	1.23	25000	3460			
	0/30	Post	94.98	1.41	97.40	91.97	0.000	0.000	0.005	0.000	0.006	0.004	12967.0	1.45	25000	1408			

Electrical Characterization			-55°C Delta Cap, PPM/°C				Reference Capacitance @ 25°C, nF				+ 200°C Delta Cap, PPM/°C				IR, 200°C, Gohm			
			AVG	STD	Max	Min	AVG	STD	Max	Min	AVG	STD	Max	Min	AVG	STD	Max	Min
C1206H104K3GAC			Post Test Limits															
9196073801	0/30	± 15%	-7.53	0.08	-7.61	-7.44	99.60	0.95	101.19	98.29	16.50	0.11	17.24	16.04	6.20	1.10	12.80	1.60

Physical Dimension

Dimension	Results	Limits, mm	AVG	STD	Max	Min
Length (L)	0/30	3.0 - 3.4	3.19	0.046	3.24	3.08
Thickness (T)	0/30	1.4 - 1.8	1.46	0.031	1.55	1.40
Width (T)	0/30	1.4 - 1.8	1.56	0.021	1.60	1.52



Other Mechanical / Performance Results

Limits Reference		C1206H104K3GAC			
		AVG	STD	Max	Min
ESD	per AEC-Q200-002	Classification 6			
Beam Load	per AEC-Q200-003	451	29	519	403