

PART NUMBER ASSEMBLY FOR ENGINEERING KITS
Steps to Create Your Custom Kit
Example: M VP 0505 U KIT00 T

Step #1	M = Select Test Codes M or N (See Page 4)	Step #4	U = Select Dielectric Material Code (See Selection Table Above)
Step #2	VP = Product Code	Step #5	KIT00 = Select Kit Number (See Page 4 and Kit Numbers Below)
Step #3	0505 = Select Case Size Code (See Selection Table Above)	Step #6	T = Termination Code (See Termination Codes Page 4)

Kit Number	Cap. Value Range	Different Values	Min. Pieces per Value	pF	Cap. Tol. Code	Kit Price
KIT00	0.3 - 100	27	15	0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1.0, 1.2, 1.5, 1.8, 2.2, 2.7, 3.3, 3.9, 4.7, 5.6, 6.8, 8.2, 10, 12, 15, 18, 22, 27, 33, 39, 47, 56, 68, 82, 100	B, J, K	\$260.00
KIT01	0.1 - 1.0	12	15	0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1.0, 1.1, 1.2	A	\$120.00
KIT10	0.3 - 3.6	12	15	0.3, 0.5, 0.7, 1.0, 1.2, 1.5, 1.8, 2.0, 2.2, 2.4, 2.7, 3.0,	B & J	\$120.00
KIT20	3.6 - 20	14	15	3.3, 3.6, 3.9, 4.3, 4.7, 5.1, 5.6, 6.2, 6.8, 10, 12, 15, 18, 20	B & J	\$140.00
KIT30	22 - 100	16	15	22, 24, 27, 30, 33, 36, 39, 43, 47, 51, 56, 62, 68, 75, 82,100	J & K	\$160.00
KIT40	120 - 1000	12	15	120, 150, 180, 220, 270, 330, 390, 470, 560, 680, 820, 1000	K & M	\$120.00
KIT50	1,000-10,000	7	15	1000, 1500, 2200, 3300, 4700, 6800, 10000	K & M	\$100.00
KIT60	5,000-100,000	7	15	10000, 15000, 22000, 33000, 47000, 68000, 100000	K & M	\$100.00
KIT99				Contact factory for custom kit		



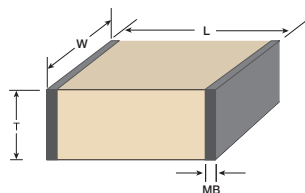
MVP SERIES — GLOBAL PART NUMBER EXAMPLE (How to Order)

M	VP	0505	U	101	K	4	T	1	R	—	*
Test Code	VP = Vertical Electrode Product Series	Size	Dielectric	Capacitance	Capacitance Tolerance	Voltage	Termination	Packaging	RoHS Compliant	Hyphen Required	Design-In Code (See Page 15)

Test Codes, Dielectric Codes and Specifications

						FIT* 85° C	FIT* 100° C	Mil-PRF-38534E Table C-III	-55681 Similar	-123 Similar	Cust. Spec.						
						M	N	H	K	C	S	D					
TEST CODES:						Upgradable to Codes:						H, K	C, S				
ELECTRICAL SPECIFICATIONS	NPO Porcelain Dielectric Code U	P90 Porcelain Dielectric Code V	NPO Ceramic Dielectric Code N	BX Ceramic Dielectric Code B	Testing Method MIL-STD-55681	Test Samples		Test Samples		Test Samples	Test Samples						
Temperature Coefficient of Capacitance, 0 Volt	0 ± 30 ppm/°C	P90 ± 20 ppm/°C	0 ± 30 ppm/°C	± 15%	Para 3.23												
Rated Operating Temperature Range	-55° to +125° C	-55° to +125° C	-55° to +125° C	-55° to +125° C	Para 3.14												
Capacitance up to 1000pF	1 MHz, 1.0 V AC RMS	1 MHz, 1.0 V AC RMS	1 MHz, 1.0 V AC RMS		Para 3.7	100%	100%	100%	100%	100%	100%						
Capacitance >1000pF	1 kHz, 1.0 V AC RMS	1 kHz, 1.0 V AC RMS	1 kHz, 1.0 V AC RMS	1 kHz, 1.0 V AC RMS		100%	100%	100%	100%	100%	100%						
Dissipation Factor, max.	0.05% max.	0.05% max.	0.15% max.	2.5% max.	Para 3.8	100%	100%	100%	100%	100%	100%						
Insulation Resistance @ +25° C at WVDC	1,000,000 MΩ min.	1,000,000 MΩ min.	100,000 MΩ min.	1,000 MΩ Farad	Para 3.9	1% AQL	1% AQL	100%	100%	100%	100%						
Insulation Resistance @ +125° C at WVDC	100,000 MΩ min.	100,000 MΩ min.	10,000 MΩ min.	100 MΩ Farad	Para 3.12					1% AQL	1% AQL						
Dielectric Withstanding Voltage (DWV)	250% of WVDC ≤ 300V 200% of WVDC = 500V	250% of WVDC ≤ 300V 200% of WVDC = 500V	250% of WVDC ≤ 300V 200% of WVDC = 500V	250% of WVDC ≤ 300V 200% of WVDC = 500V		1% AQL	1% AQL	100%	100%	100%	100%						
Aging Effects	None	None	None	2.5% max/decade hr													
VISUAL & MECHANICAL SPECIFICATIONS																	
Visual Inspection, Workmanship					Para 3.26	100%	100%	100%	100%	100%	100%						
Solderability (Term. Code T & N Only)					Para 3.13	13	13	13	13	13	13						
Bond Strength (Term. Code P & G Only)	3 grams, 0.001" dia. Au wire	3 grams, 0.001" dia. Au wire	3 grams, 0.001" dia. Au wire	3 grams, 0.001" dia. Au wire	STD-883 Method 2011			10	10	10	10						
Shear Strength (Term. Code P & G Only)					883 Meth. 2019					10	10						
Physical Dimensions	See Page 5	See Page 5	See Page 5	See Page 5						20	20						
ENVIRONMENTAL TESTS, LEVEL I																	
Voltage Conditioning	100 Hours	100 Hours	100 Hours	100 Hours	Para 3.6				10	100%	N/A						
Constant Acceleration	3,000g's, Y1 Direction	3,000g's, Y1 Direction	3,000g's, Y1 Direction	3,000g's, Y1 Direction	883 Meth. 2001				10								
ENVIRONMENTAL TESTS, LEVEL II																	
Thermal Shock & Voltage Conditioning	20 cycles/168 hr. min.	20 cycles/168 hr. min.	20 cycles/168 hr. min.	20 cycles/168 hr. min.	Para 3.6 & 3.15						100%						
Destructive Physical Analysis Report					EIA-469						Included						
Voltage Temp. Limits	0 ± 30 ppm/°C	P90 ± 20 ppm/°C	0 ± 30 ppm/°C	+15, -25%	Para 3.14						12						
Life Test	1000 Hours Each Lot	1000 Hours Each Lot	1000 Hours Each Lot	1000 Hours Each Lot	Para 3.19						25 min.						
Humidity, Steady State, Low Voltage	240 Hours min.	240 Hours min.	240 Hours min.	240 Hours min.	Para 3.18						12						
RoHS Compliant, Yes/No	Specify	Specify	Specify	Specify													

*FIT (Failure In Time) Calculations are based on assumed CONTINUOUS operating temperatures 85° C and 100° C



Capacitance Codes for Multilayer Capacitor

First Two Digits = Significant Figures of Capacitance in Picofarads
Third Digit = Additional Number of Zeros
Example: 100 = 10 pF
 102 = 1,000 pF
 104 = 100,000 pF

Capacitance Tolerance Codes

Code	Tolerance	Cap Range	Dielectrics
A	± .05 pF	< 2.2 pF	U, V, N
B	± .1 pF	< 10 pF	U, V, N
C	± .25 pF	< 10 pF	U, V, N
D	± .5 pF	< 10 pF	U, V, N
F	± 1%	> 4.1 pF	U, V, N
G	± 2%	> 9.1 pF	U, V, N
J	± 5%	> 9.1 pF	U, V, N
K	± 10%	> 0.45 pF	all
M	± 20%	> 0.45 pF	all

Termination Codes

Code	RoHS Comp.	Typical Application	Termination Build up	Recommended Reflow Temp.
T	Yes	Solder Reflow	Palladium-Silver Nickel Barrier Plated 100% Tin	220°C to 260°C Typical*
N	No	Solder Reflow	Palladium-Silver Nickel Barrier Plated 90/10 Tin Lead	220°C to 260°C Typical*
P	Yes	Conductive Epoxy Non-Magnetic	Palladium-Silver	Cure Epoxy as per Manufacturer's Spec.
G	Yes	Conductive Epoxy, Wire Bondable	Palladium-Silver Nickel Barrier 50 μ" Thick Gold Typical	Cure Epoxy as per Manufacturer's Spec.

Working Voltage

Code	WVDC
2	50
3	100
A	150
4	200
5	300
6	500

Packaging Codes

1 = Tape and Reel
 5 = Waffle Pack

RoHS

Code	Compliant
N	No
R	Yes, ends Dec. 2012
C	Yes, starts Jan. 2013

SELECTION TABLE: VERTICAL ELECTRODE™ CAPACITORS — SURFACE MOUNT

SIZE CODE	W inch (mm)	L inch (mm)	T inch (mm)	MB max. inch (mm)	Working Voltage (WVDC) Max.	Capacitance (pF)	INDUSTRIAL Test Code M				MILITARY/SPACE Test Code N				S2P Files Dielectric Codes				Performance Curves Dielectric Codes				
							NPO Porcelain Code U (pF)	P90 Porcelain Code V (pF)	NPO Ceramic Code N (pF)	BX Ceramic Code B (pF)	NPO Porcelain Code U (pF)	P90 Porcelain Code V (pF)	NPO Ceramic Code N (pF)	BX Ceramic Code B (pF)	U	V	N	B	U	V	N	B	
0505	0.055 (1.397) ± 0.015 (0.381)	0.055 (1.397) ± 0.015 (0.381)	0.040 (1.397) ± 0.015 (0.381)	0.020 (0.508)	200	Min:	0.1	0.1															
					200	Max:	100	100															
					150	Min:	0.1	0.1	110		0.1	0.1											
					150	Max:	100	100	620		100	100											
					50	Min:			110	1,000	0.1	0.1	110	1,000									
					50	Max:			1,000	10,000	100	100	1,000	10,000									
1010	0.110 (2.794) ± 0.015 (0.381)	0.110 +0.020 -0.010 (2.794 +0.508 -0.254)	0.087 (2.210) ± 0.015 (0.381)		500	Min:	0.1	0.1			0.1	0.1											
					500	Max:	100	100			100	100											
					300	Min:	110	110			110	110											
					300	Max:	200	200			200	200											
					200	Min:	220	220			220	220											
					200	Max:	470	470			470	470											
					100	Min:	510	510			510	510											
					100	Max:	620	620			620	620											
					50	Min:	680	680	1,200	5,000	680	680	1,200	5,000									
					50	Max:	1000	1000	5,100	100,000	1,000	1,000	5,100	100,000									

● = Web Link

