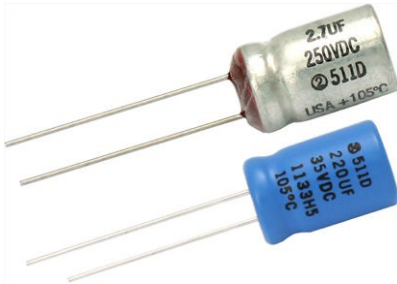


## Aluminum Capacitors General Purpose, Miniature, Radial Lead


**FEATURES**

- +105 °C
- Suitable for long life applications
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



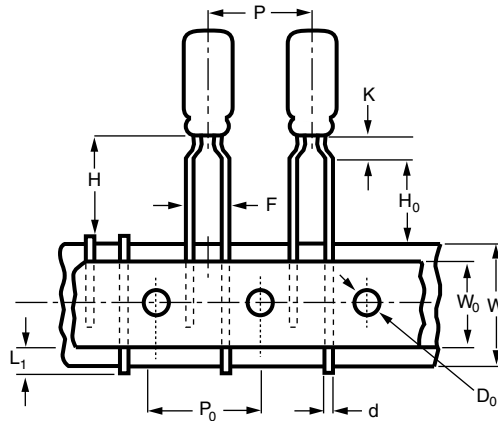
QUICK REFERENCE DATA	
DESCRIPTION	VALUE
Nominal case size Ø D x L in mm	0.236" x 0.433" [6.0 x 11.0] to 0.709" x 1.417" [18.0 x 36.0]
Operating temperature	-40 °C to +105 °C
Rated capacitance range, C <sub>R</sub>	1 µF to 10 000 µF
Tolerance on C <sub>R</sub>	± 20 %
Rated voltage range, U <sub>R</sub>	6.3 WV <sub>DC</sub> to 250 WV <sub>DC</sub>
Termination	2 or 3 radial leads
Life validation test at 105 °C	1000 h (diameter ≤ 0.315" [8.0]): 2000 h (diameter > 0.315" [8.0]): ΔCAP ≤ 15 % (6.3 WV <sub>DC</sub> to 16 WV <sub>DC</sub> ), ≤ 10 % (25 WV <sub>DC</sub> to 250 WV <sub>DC</sub> ) from initial measurement. ΔESR ≤ 1.2 x initial specified limit. ΔDCL ≤ initial specified limit
Shelf life at 105 °C	500 h: ΔCAP ≤ 10 % from initial measurement. ΔESR 1.2 x initial specified limit. ΔDCL ≤ 2 x initial specified limit.
DC leakage current (after 5 min charge)	I = 0.005 CV (6.3 V <sub>DC</sub> to 63 V <sub>DC</sub> ) I = 0.01 CV (100 V <sub>DC</sub> to 250 V <sub>DC</sub> ) I in µA, C in µF, V in Volts

RIPPLE CURRENT MULTIPLIERS				
TEMPERATURE				
AMBIENT TEMPERATURE		MULTIPLIERS		
+105 °C		0.4		
+95 °C		0.7		
+85 °C		1.0		
+75 °C		1.2		
≤ +65 °C		1.4		
FREQUENCY (Hz)				
WV <sub>DC</sub>	50 TO 60	100 TO 120	300 TO 400	1K TO 100K
6.3 to 25	0.85	1.00	1.05	1.1
26 to 250	0.80	1.00	1.30	1.4

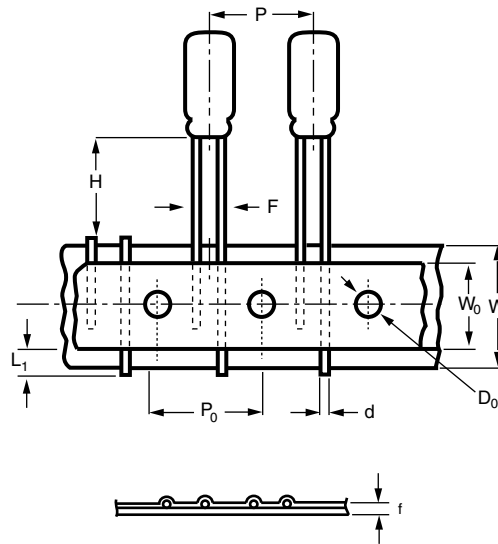
LEAD LENGTH FOR D TERMINATION		
CASE CODE	L <sub>1</sub> (-)	L <sub>2</sub> (+)
D	0.591 [15.0]	0.787 [20.0]

DIMENSIONS in inches [millimeters]										
CASE CODE	NOMINAL		STYLES 2 AND 4		STYLES 3 AND 5		LEAD SPACING		LEAD DIAMETER	
	D	L	D (max.)	L (max.)	D (max.)	L (max.)	S ± 0.024 [0.60]	T ± 0.02 [0.50]	NOMINAL	AWG NO.
AA	0.236 [6.0]	0.433 [11.0]	0.256 [6.5]	0.472 [12.0]	0.256 [6.5]	0.512 [13.0]	0.098 [2.5]	n/a	0.025 [0.63]	22
BB	0.315 [8.0]	0.472 [12.0]	0.335 [8.5]	0.512 [13.0]	0.335 [8.5]	0.551 [14.0]	0.138 [3.5]	n/a	0.025 [0.63]	22
CC	0.394 [10.0]	0.512 [13.0]	0.413 [10.5]	0.563 [14.3]	0.413 [10.5]	0.630 [16.0]	0.197 [5.0]	n/a	0.025 [0.63]	22
CD	0.394 [10.0]	0.630 [16.0]	0.413 [10.5]	0.669 [17.0]	0.413 [10.5]	0.740 [18.8]	0.197 [5.0]	n/a	0.025 [0.63]	22
CG	0.394 [10.0]	0.787 [20.0]	0.413 [10.5]	0.846 [21.5]	0.413 [10.5]	0.906 [23.0]	0.197 [5.0]	n/a	0.025 [0.63]	22
DG	0.492 [12.5]	0.787 [20.0]	0.512 [13.0]	0.846 [21.5]	0.512 [13.0]	0.906 [23.0]	0.197 [5.0]	0.098 [2.5]	0.032 [0.81]	20
DK	0.492 [12.5]	0.984 [25.0]	0.512 [13.0]	1.043 [26.5]	0.512 [13.0]	1.142 [29.0]	0.197 [5.0]	0.098 [2.5]	0.032 [0.81]	20
EK	0.630 [16.0]	0.984 [25.0]	0.650 [16.5]	1.031 [26.2]	0.650 [16.5]	1.098 [27.9]	0.295 [7.5]	0.150 [3.8]	0.032 [0.81]	20
EN	0.630 [16.0]	1.260 [32.0]	0.650 [16.5]	1.319 [33.5]	0.650 [16.5]	1.417 [36.0]	0.295 [7.5]	0.150 [3.8]	0.032 [0.81]	20
ER	0.630 [16.0]	1.417 [36.0]	0.650 [16.5]	1.476 [37.5]	0.650 [16.5]	1.575 [40.0]	0.295 [7.5]	0.150 [3.8]	0.032 [0.81]	20
FR	0.709 [18.0]	1.417 [36.0]	0.728 [18.5]	1.476 [37.5]	0.728 [18.5]	1.575 [40.0]	0.295 [7.5]	0.150 [3.8]	0.032 [0.81]	20

**TAPE AND REEL, SPECIFICATIONS TO EIA-468** in inches [millimeters]

**Formed Leads**


DIMENSIONS in inches [millimeters]		
CASE SIZE	F LEAD SPACING	STD. QTY/REEL
0.236 x 0.433 [6.0 x 11.0]	0.197 [5.0]	800
0.315 x 0.472 [8.0 x 12.0]	0.197 [5.0]	700

**Unformed Leads**


DIMENSIONS in inches [millimeters]		
CASE SIZE	F LEAD SPACING	STD. QTY/REEL
0.236 x 0.433 [6.0 x 11.0]	0.098 <sup>(1)</sup> [2.5]	800
0.315 x 0.472 [8.0 x 12.0]	0.140 <sup>(1)</sup> [3.5]	700
0.394 x 0.512 [10.0 x 13.0]	0.197 [5.0]	500
0.394 x 0.630 [10.0 x 16.0]	0.197 [5.0]	500
0.394 x 0.787 [10.0 x 20.0]	0.197 [5.0]	500

**Note**
<sup>(1)</sup> Available as special order



DIMENSIONS in inches [millimeters]					
ITEM	CASE SIZE (Diameter x Length)				
	0.236 x 0.433 [6.0 x 11.0]	0.315 x 0.472 [8.0 x 12.0]	0.394 x 0.512 [10.0 x 13.0]	0.394 x 0.630 [10.0 x 16.0]	0.394 x 0.787 [10.0 x 20.0]
d - Lead-wire diameter	0.025 [0.63]	0.025 [0.63]	0.025 [0.63]	0.025 [0.63]	0.020 [0.5]
P - Pitch of component	0.500 [12.7]	0.500 [12.7]	0.500 [12.7]	0.500 [12.7]	0.500 [12.7]
P <sub>0</sub> - Feed hole pitch	0.500 [12.7]	0.500 [12.7]	0.500 [12.7]	0.500 [12.7]	0.500 [12.7]
F - Lead-to-lead distance	0.197 [5.0]	0.197 [5.0]	0.197 [5.0]	0.197 [5.0]	0.197 [5.0]
K - Clinch height	0.098 [2.5]	0.157 [4.0]	n/a	n/a	n/a
H - Height of component from tape center	0.728 [18.5]	0.787 [20.0]	0.906 [23.0]	0.906 [23.0]	0.906 [23.0]
H <sub>0</sub> - Lead-wire clinch height	0.630 [16.0]	0.630 [16.0]	n/a	n/a	n/a
W - Tape width	0.709 [18.0]	0.709 [18.0]	0.709 [18.0]	0.709 [18.0]	0.709 [18.0]
W <sub>0</sub> - Hold down tape width	0.591 [15.0]	0.591 [15.0]	0.591 [15.0]	0.591 [15.0]	0.591 [15.0]
D <sub>0</sub> - Feed hole diameter	0.157 [4.0]	0.157 [4.0]	0.157 [4.0]	0.157 [4.0]	0.157 [4.0]
t - Total tape thickness	0.028 [0.7]	0.028 [0.7]	0.157 [4.0]	0.157 [4.0]	0.157 [4.0]
L <sub>1</sub> - Maximum lead protrusion	0.118 [3.0]	0.118 [3.0]	0.118 [3.0]	0.118 [3.0]	0.118 [3.0]

**Note**

- Terminal code "I" = Tape and reel. Terminal code "+" = Tape and ammo. Positive leader is standard. Negative leader is available by special order.

**ORDERING EXAMPLE**

Electrolytic capacitor 511D series: 511D 157 M 063 CG 4 D

DESCRIPTION	
CODE	EXPLANATION
511D	Product type
157	Capacitance value (150 μF)
M	Tolerance (M = ± 20 %)
063	Voltage rating at 105 °C (063 = 63 V)
DF	Can size (see dimensions table)
4	Sleeve and sealing (4 = P.V.C. sleeve)
D	Packaging (D = Bulk; straight leads)

**Note**

- For lead (Pb)-free/RoHS compliant products add suffix "E3" to part number.  
Example: 511D157M063CG4DE3

ELECTRICAL DATA AND ORDERING INFORMATION							
CAPACITANCE (μF)	PART NUMBER	NOMINAL CASE SIZE D x L IN INCHES [mm]	MAX. ESR AT +25 °C (mΩ)		MAX. RIPPLE AT +85 °C (A)		MAX. IMPEDANCE AT +25 °C (mΩ) 100 Hz
			120 Hz	20 kHz TO 40 kHz	120 Hz	20 kHz TO 40 kHz	
<b>6.3 WV<sub>DC</sub> AT +105 °C, SURGE = 8 V</b>							
150.0	511D157M6R3AA4D	0.236 x 0.433 [6.0 x 11.0]	3.130	2.720	0.123	0.132	2.800
1200.0	511D128M6R3CG4D	0.394 x 0.787 [10.0 x 20.0]	0.420	0.270	0.590	0.741	0.286
4700.0	511D478M6R3EK4D	0.630 x 0.984 [16.0 x 25.0]	0.121	0.075	1.580	2.010	0.090
10 000.0	511D109M6R3FR4D	0.630 x 1.417 [16.0 x 36.0]	0.068	0.050	2.640	3.070	0.061
<b>10 WV<sub>DC</sub> AT +105 °C, SURGE = 13 V</b>							
100.0 <sup>(1)</sup>	511D107M010AA4D	0.236 x 0.433 [6.0 x 11.0]	4.073	2.800	0.108	0.131	2.900
220.0 <sup>(1)</sup>	511D227M010BB4D	0.315 x 0.472 [8.0 x 12.0]	1.855	1.150	0.198	0.252	1.300
1000.0	511D108M010CG4D	0.394 x 0.787 [10.0 x 20.0]	0.407	0.290	0.603	0.715	0.290
3300.0	511D338M010EK4D	0.630 x 0.984 [16.0 x 25.0]	0.166	0.086	1.350	1.880	0.094
4700.0	511D478M010EN4D	0.630 x 1.260 [16.0 x 32.0]	0.122	0.060	1.740	2.480	0.067

**Note**

<sup>(1)</sup>These values are normally stocked. See Original Ratings for more values that are stocked.



ELECTRICAL DATA AND ORDERING INFORMATION								
CAPACITANCE (µF)	PART NUMBER	NOMINAL CASE SIZE D x L IN INCHES [mm]	MAX. ESR AT +25 °C (mΩ)		MAX. RIPPLE AT +85 °C (A)		MAX. IMPEDANCE AT +25 °C (mΩ) 100 Hz	
			120 Hz	20 kHz TO 40 kHz	120 Hz	20 kHz TO 40 kHz		
<b>16 WV<sub>DC</sub> AT +105 °C, SURGE = 20 V</b>								
150.0	511D157M016BB4D	0.315 x 0.472 [8.0 x 12.0]	2.433	1.250	0.173	0.241	1.250	
470.0 <sup>(1)</sup>	511D477M016CD4D	0.394 x 0.630 [10.0 x 16.0]	0.748	0.442	0.419	0.522	0.442	
1500.0	511D158M016DK4D	0.492 x 0.984 [12.5 x 25.0]	0.243	0.140	0.971	1.270	0.140	
2200.0	511D228M016EK4D	0.630 x 0.984 [16.0 x 25.0]	0.176	0.090	1.310	1.840	0.098	
3300.0	511D338M016EN4D	0.630 x 1.260 [16.0 x 32.0]	0.147	0.062	1.580	2.440	0.067	
<b>20 WV<sub>DC</sub> AT +105 °C, SURGE = 25 V</b>								
120.0	511D127M020BB4D	0.315 x 0.472 [8.0 x 12.0]	2.650	1.350	0.166	0.232	1.350	
220.0	511D227M020CC4D	0.394 x 0.512 [10.0 x 13.0]	1.472	0.950	0.266	0.331	0.900	
330.0	511D337M020CD4D	0.394 x 0.630 [10.0 x 16.0]	0.981	0.550	0.350	0.468	0.500	
470.0	511D477M020CG4D	0.394 x 0.787 [10.0 x 20.0]	0.679	0.300	0.467	0.703	0.305	
1500.0	511D158M020EK4D	0.630 x 0.984 [16.0 x 25.0]	0.243	0.110	1.120	1.660	0.100	
2200.0	511D228M020EN4D	0.630 x 1.260 [16.0 x 32.0]	0.163	0.080	1.510	2.150	0.080	
3300.0	511D338M020FR4D	0.630 x 1.417 [16.0 x 36.0]	0.128	0.060	1.920	2.810	0.064	
<b>25 WV<sub>DC</sub> AT +105 °C, SURGE = 32 V</b>								
47.0 <sup>(1)</sup>	511D476M025AA4D	0.236 x 0.433 [6.0 x 11.0]	6.120	2.940	0.089	0.127	2.950	
100.0	511D107M025BB4D	0.315 x 0.472 [8.0 x 12.0]	2.914	1.350	0.158	0.232	1.350	
1200.0	511D128M025EK4D	0.630 x 0.984 [16.0 x 25.0]	0.239	0.110	1.127	1.660	0.105	
2200.0	511D228M025ER4D	0.630 x 1.417 [16.0 x 36.0]	0.162	0.064	1.580	2.520	0.074	
<b>35 WV<sub>DC</sub> AT +105 °C, SURGE = 44 V</b>								
120.0	511D127M035CC4D	0.394 x 0.512 [10.0 x 13.0]	1.830	1.010	0.239	0.323	0.980	
330.0	511D337M035CG4D	0.394 x 0.787 [10.0 x 20.0]	0.677	0.305	0.468	0.697	0.310	
1000.0	511D108M035EK4D	0.630 x 0.984 [16.0 x 25.0]	0.223	0.110	1.170	1.660	0.112	
1500.0	511D158M035EN4D	0.630 x 1.260 [16.0 x 32.0]	0.165	0.078	1.490	2.180	0.078	
2200.0	511D228M035FR4D	0.709 x 1.417 [18.0 x 36.0]	0.121	0.060	1.980	2.810	0.062	
<b>40 WV<sub>DC</sub> AT +105 °C, SURGE = 50 V</b>								
100.0	511D107M040CC4D	0.394 x 0.512 [10.0 x 13.0]	1.939	1.010	0.232	0.323	0.981	
220.0	511D227M040CG4D	0.394 x 0.787 [10.0 x 20.0]	0.883	0.305	0.411	0.698	0.311	
330.0	511D337M040DG4D	0.492 x 0.787 [12.5 x 20.0]	0.588	0.210	0.573	0.959	0.221	
470.0	511D477M040DK4D	0.492 x 0.984 [12.5 x 25.0]	0.407	0.151	0.719	1.190	0.157	
1000.0	511D108M040EN4D	0.630 x 1.260 [16.0 x 32.0]	0.193	0.078	1.390	2.180	0.078	
<b>50 WV<sub>DC</sub> AT +105 °C, SURGE = 63 V</b>								
47.0	511D476M050BB4D	0.315 x 0.472 [8.0 x 12.0]	3.884	1.510	0.137	0.221	1.450	
120.0	511D127M050CD4D	0.394 x 0.630 [10.0 x 16.0]	1.320	0.466	0.302	0.509	0.488	
270.0	511D277M050DG4D	0.492 x 0.787 [12.5 x 20.0]	0.601	0.221	0.567	0.937	0.231	
1000.0	511D108M050ER4D	0.630 x 1.417 [16.0 x 36.0]	0.161	0.065	1.590	2.510	0.068	
1500.0	511D158M050FR4D	0.709 x 1.417 [18.0 x 36.0]	0.153	0.065	1.760	2.710	0.068	
<b>63 WV<sub>DC</sub> AT +105 °C, SURGE = 79 V</b>								
47.0	511D476M063CC4D	0.394 x 0.512 [10.0 x 13.0]	3.076	1.170	0.184	0.299	1.110	
150.0	511D157M063CG4D	0.394 x 0.787 [10.0 x 20.0]	1.010	0.331	0.385	0.671	0.341	
470.0	511D477M063EK4D	0.630 x 0.984 [16.0 x 25.0]	0.307	0.125	0.995	1.560	0.125	
1200.0	511D128M063FR4D	0.709 x 1.417 [18.0 x 36.0]	0.165	0.065	1.690	2.710	0.068	
<b>75 WV<sub>DC</sub> AT +105 °C, SURGE = 90 V</b>								
33.0	511D336M075CC4D	0.394 x 0.512 [10.0 x 13.0]	4.440	1.210	0.153	0.295	1.210	
100.0	511D107M075CG4D	0.394 x 0.787 [10.0 x 20.0]	1.460	0.341	0.318	0.661	0.341	
150.0	511D157M075DG4D	0.492 x 0.787 [12.5 x 20.0]	1.010	0.261	0.439	0.862	0.261	
220.0	511D227M075DK4D	0.492 x 0.984 [12.5 x 25.0]	0.666	0.211	0.589	1.050	0.211	
470.0	511D477M075EN4D	0.630 x 1.260 [16.0 x 32.0]	0.307	0.105	1.110	1.880	0.105	
<b>100 WV<sub>DC</sub> AT +105 °C, SURGE = 125 V</b>								
4.7 <sup>(1)</sup>	511D475M100AA4D	0.236 x 0.433 [6.0 x 11.0]	30.79	4.310	0.041	0.106	4.210	
10.0 <sup>(1)</sup>	511D106M100BB4D	0.314 x 0.472 [8.0 x 12.0]	14.63	1.810	0.071	0.202	1.710	
33.0	511D336M100CD4D	0.394 x 0.630 [10.0 x 16.0]	4.440	0.531	0.165	0.477	0.531	
120.0	511D127M100DK4D	0.492 x 0.984 [12.5 x 25.0]	1.210	0.215	0.437	1.030	0.215	
330.0	511D337M100ER4D	0.630 x 1.260 [16.0 x 32.0]	0.444	0.076	0.958	2.320	0.078	
470.0	511D477M100FR4D	0.709 x 1.417 [18.0 x 36.0]	0.361	0.071	1.150	2.610	0.074	

Note

<sup>(1)</sup>These values are normally stocked. See Original Ratings for more values that are stocked.



**ELECTRICAL DATA AND ORDERING INFORMATION**

CAPACITANCE ( $\mu$ F)	PART NUMBER	NOMINAL CASE SIZE D x L IN INCHES [mm]	MAX. ESR AT +25 °C (m $\Omega$ )		MAX. RIPPLE AT +85 °C (A)		MAX. IMPEDANCE AT +25 °C (m $\Omega$ ) 100 Hz
			120 Hz	20 kHz TO 40 kHz	120 Hz	20 kHz TO 40 kHz	
<b>160 WV<sub>DC</sub> AT +105 °C, SURGE = 185 V</b>							
10.0	511D106M160CD4D	0.394 x 0.630 [10.0 x 16.0]	16.09	4.910	0.086	0.157	4.910
22.0	511D226M160DG4D	0.492 x 0.787 [12.5 x 20.0]	7.330	3.210	0.162	0.245	3.210
33.0	511D336M160DK4D	0.492 x 0.984 [12.5 x 25.0]	4.880	2.250	0.216	0.319	2.250
100.0	511D107M160ER4D	0.630 x 1.260 [16.0 x 32.0]	1.610	0.531	0.504	0.876	0.531
<b>200 WV<sub>DC</sub> AT +105 °C, SURGE = 225 V</b>							
1.5	511D155M200AA4D	0.236 x 0.433 [6.0 x 11.0]	110.010	33.110	0.021	0.038	33.010
22.0	511D226M200DG4D	0.492 x 0.787 [12.5 x 20.0]	7.330	3.210	0.162	0.245	3.210
33.0	511D336M200DK4D	0.492 x 0.984 [12.5 x 25.0]	4.880	2.250	0.216	0.319	2.250
47.0	511D476M200EK4D	0.630 x 0.984 [16.0 x 25.0]	3.384	1.210	0.299	0.501	1.210
120.0	511D127M200FR4D	0.709 x 1.417 [18.0 x 36.0]	1.420	0.481	0.577	0.991	0.491
<b>250 WV<sub>DC</sub> AT +105 °C, SURGE = 275 V</b>							
10.0	511D106M250CG4D	0.394 x 0.787 [10.0 x 20.0]	16.090	3.760	0.096	0.198	3.760
33.0	511D336M250EK4D	0.630 x 0.984 [16.0 x 25.0]	4.880	1.270	0.249	0.489	1.270
47.0	511D476M250EN4D	0.630 x 1.260 [16.0 x 32.0]	3.380	0.721	0.331	0.717	0.721

**Note**

(1) These values are normally stocked. See Original Ratings for more values that are stocked.

**ORIGINAL RATINGS**

CAPACITANCE ( $\mu$ F)	CASE CODE	PART NUMBER
<b>6.3 WV<sub>DC</sub> AT +105 °C, SURGE = 8 V</b>		
470.0	CC	511D477M6R3CC4D
1000.0	CG	511D108M6R3CG4D
2200.0	DK	511D228M6R3DK4D
<b>10 WV<sub>DC</sub> AT +85 °C, SURGE = 13 V</b>		
470.0	CD	511D477M010CD4D
1000.0	DG	511D108M010DG4D
4700.0	ER	511D478M010ER4D
<b>16 WV<sub>DC</sub> AT +105 °C, SURGE = 20 V</b>		
47.0 (1)	AA	511D476M016AA4D
100.0 (1)	BB	511D107M016BB4D
220.0	CC	511D227M016CC4D
<b>25 WV<sub>DC</sub> AT +105 °C, SURGE = 32 V</b>		
220.0	CD	511D227M025CD4D
470.0	DG	511D477M025DG4D
1000.0	EK	511D108M025EK4D
<b>35 WV<sub>DC</sub> AT +105 °C, SURGE = 44 V</b>		
22.0	AA	511D226M035AA4D
47.0	BB	511D476M035BB4D
100.0 (1)	CC	511D107M035CC4D
220.0	CG	511D227M035CG4D
470.0	DK	511D477M035DK4D
1000.0	EN	511D108M035EN4D
<b>50 WV<sub>DC</sub> AT +105 °C, SURGE = 63 V</b>		
47.0	CC	511D476M050CC4D
220.0	DK	511D227M050DK4D
<b>63 WV<sub>DC</sub> AT +105 °C, SURGE = 70 V</b>		
10.0 (1)	AA	511D106M063AA4D
22.0	BB	511D226M063BB4D
47.0 (1)	CD	511D476M063CD4D
100.0	CG	511D107M063CG4D
220.0	EK	511D227M063EK4D
470.0	EN	511D477M063EN4D
<b>100 WV<sub>DC</sub> AT +105 °C, SURGE = 125 V</b>		
22.0	CD	511D226M100CD4D
47.0	CG	511D476M100CG4D
220.0	EN	511D227M100EN4D

**Note**

(1) These values are normally stocked.



## Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and/or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.

## Material Category Policy

**Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.**

**Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.**

**Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.**



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

**Телефон:** 8 (812) 309 58 32 (многоканальный)

**Факс:** 8 (812) 320-02-42

**Электронная почта:** [org@eplast1.ru](mailto:org@eplast1.ru)

**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.