

LDB Series Unencapsulated Winding, Size 1206 – 1812, 16 & 50 VDC

Overview

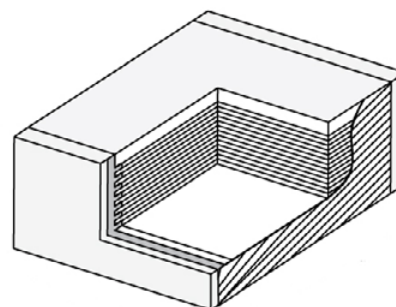
Polyphenylene sulphide (PPS) film capacitor for surface mounting.

Applications

Typical applications include timing, filtering and use as a memory capacitor. The LDB Series is designed for high stability, accuracy and temperature.

Benefits

- Rated voltage: 16 & 50 VDC
- Capacitance range: 0.0033 – 0.1 μ F
- EIA size: 1206 – 1812
- Capacitance tolerance: $\pm 2\%$, $\pm 5\%$
- Climatic category: 55/125/56
- RoHS Complaint and lead-free terminations
- Operating temperature range of -55°C to $+125^{\circ}\text{C}$



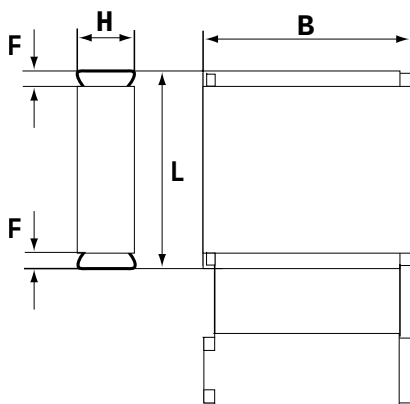
Part Number System

LDB	A	A	2120	G	C5	N	0
Series	Rated Voltage (VDC)	Size Code	Capacitance Code (pF)	Capacitance Tolerance	Version	Packaging Code	Internal Use
Metallized PPS	A = 16 C = 50	See Dimension Table	Digits 2 – 4 indicate the first three digits of the capacitance value. First digit indicates the number of zeros to be added.	G = $\pm 2\%$ J = $\pm 5\%$	C5 = Standard	See Ordering Options Table	0 (Standard)

Ordering Options Table

Packaging Type	Packaging Code
Standard Packaging Options	
Tape & Reel (Standard Reel)	N

Dimensions – Millimeters



Size Code	Chip Size (EIA)	B		H	L	
		Nominal	Tolerance		Nominal	Tolerance
A	1206	1.7	+/-0.2	See Part Number Table	3.3	+0.3/-0.1
B	1210	2.5	+/-0.3		3.3	+0.3/-0.1
C	1812	3.3	+/-0.3		4.7	+0.3/-0.2

Performance Characteristics

Rated Voltage (VDC)	16	50
Capacitance Range (μF)	0.012 – 0.1	0.0033 – 0.1
Chip Size (EIA)	1206 – 1812	
Capacitance Values	E12 series	
Capacitance Tolerance	±2%, ±5%	
Category Temperature Range	-55°C to +125°C	
Rated Temperature	+105°C	
Voltage Derating	The rated voltage is decreased with 1.25%/°C from +105°C to +125°C	
Climatic Category	55/125/56	
Insulation Resistance	Measured at +25°C ±5°C	
	Minimum Value Between Terminals	
	3,000 MΩ	
Dissipation Factor	Maximum Values at 25°C ±5°C	
	1 kHz	0.6%
Surge Voltage Test	1.75 x V _R (5 seconds; T = 25 ± 5°C)	

Environmental Test Data

Damp Heat, Steady State	
Test Conditions	
Temperature	+40°C ±2°C
Relative Humidity (RH)	93% ±2%
Test Duration	56 days
Performance	
Capacitance Change $\Delta C/C$	≤ 5%
DF Change ($\Delta \tan \delta$)	≤ 30 x 10 ⁻⁴ at 1 kHz
Insulation Resistance	≥ 50% of limit value
Endurance	
Test Conditions	
Temperature	125°C ±2°C
Test Duration	2,000 hours
Voltage Applied	1.25 x V _C
Performance	
Capacitance Change $\Delta C/C$	≤ 3%
DF Change ($\Delta \tan \delta$)	≤ 30 x 10 ⁻⁴ at 1 kHz
Insulation Resistance	≥ 50% of limit value
Rapid Change of Temperature	
Test Conditions	
Temperature	1 hour at -55°C, 1 hour at +125°C
Number of Cycles	1,000
Performance	
Capacitance Change $\Delta C/C$	≤ 5%
DF Change ($\Delta \tan \delta$)	≤ 50 x 10 ⁻⁴ at 1 kHz
Insulation Resistance	≥ limit value
No Mechanical Damage	

Environmental Compliance

All KEMET surface mount capacitors are RoHS Compliant.



RoHS Compliant

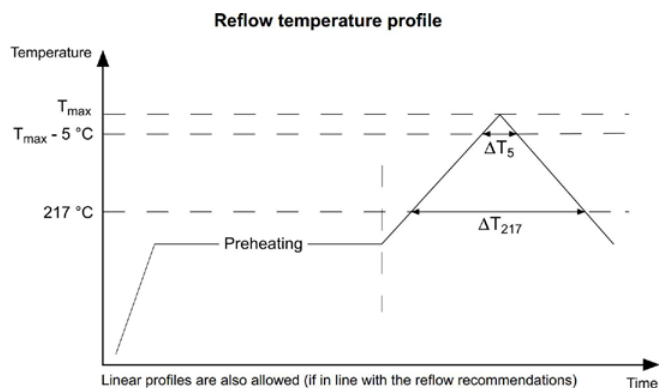
Table 1 – Ratings & Part Number Reference

VDC	Capacitance Value (µF)	Size Code	Dimensions in mm			Chip Size	New KEMET Part Number	Legacy Part Number
			B	H	L			
16	0.012	A	1.7	1.1	3.3	1206	DBAA2120(1)C5N0	LDBAA2120(1)C5N0
16	0.015	A	1.7	1.1	3.3	1206	DBAA2150(1)C5N0	LDBAA2150(1)C5N0
16	0.018	A	1.7	1.1	3.3	1206	DBAA2180(1)C5N0	LDBAA2180(1)C5N0
16	0.022	A	1.7	1.1	3.3	1206	DBAA2220(1)C5N0	LDBAA2220(1)C5N0
16	0.027	A	1.7	1.1	3.3	1206	DBAA2270(1)C5N0	LDBAA2270(1)C5N0
16	0.033	A	1.7	1.1	3.3	1206	DBAA2330(1)C5N0	LDBAA2330(1)C5N0
16	0.039	A	1.7	1.2	3.3	1206	DBAA2390(1)C5N0	LDBAA2390(1)C5N0
16	0.047	A	1.7	1.3	3.3	1206	DBAA2470(1)C5N0	LDBAA2470(1)C5N0
16	0.056	B	2.5	1.7	3.3	1210	DBAB2560(1)C5N0	LDBAB2560(1)C5N0
16	0.068	B	2.5	1.7	3.3	1210	DBAB2680(1)C5N0	LDBAB2680(1)C5N0
16	0.082	B	2.5	1.7	3.3	1210	DBAB2824(1)C5N0	LDBAB2824(1)C5N0
16	0.10	B	2.5	2.0	3.3	1210	DBAB3100(1)C5N0	LDBAB3100(1)C5N0
50	0.0033	A	1.7	1.1	3.3	1206	DBCA1330(1)C5N0	LDBCA1330(1)C5N0
50	0.0039	A	1.7	1.1	3.3	1206	DBCA1390(1)C5N0	LDBCA1390(1)C5N0
50	0.0047	A	1.7	1.1	3.3	1206	DBCA1470(1)C5N0	LDBCA1470(1)C5N0
50	0.0056	A	1.7	1.1	3.3	1206	DBCA1560(1)C5N0	LDBCA1560(1)C5N0
50	0.0068	A	1.7	1.1	3.3	1206	DBCA1680(1)C5N0	LDBCA1680(1)C5N0
50	0.0082	A	1.7	1.1	3.3	1206	DBCA1820(1)C5N0	LDBCA1820(1)C5N0
50	0.010	A	1.7	1.1	3.3	1206	DBCA2100(1)C5N0	LDBCA2100(1)C5N0
50	0.012	A	1.7	1.1	3.3	1206	DBCA2120(1)C5N0	LDBCA2120(1)C5N0
50	0.015	B	2.5	1.4	3.3	1210	DBCB2150(1)C5N0	LDBCB2150(1)C5N0
50	0.018	B	2.5	1.5	3.3	1210	DBCB2180(1)C5N0	LDBCB2180(1)C5N0
50	0.022	B	2.5	1.5	3.3	1210	DBCB2220(1)C5N0	LDBCB2220(1)C5N0
50	0.027	B	2.5	1.5	3.3	1210	DBCB2270(1)C5N0	LDBCB2270(1)C5N0
50	0.033	B	2.5	1.7	3.3	1210	DBCB2330(1)C5N0	LDBCB2330(1)C5N0
50	0.039	B	2.5	1.9	3.3	1210	DBCB2390(1)C5N0	LDBCB2390(1)C5N0
50	0.047	B	2.5	2.3	3.3	1210	DBCB2470(1)C5N0	LDBCB2470(1)C5N0
50	0.056	C	3.3	1.7	4.7	1812	DBCC2560(1)C5N0	LDBCC2560(1)C5N0
50	0.068	C	3.3	1.7	4.7	1812	DBCC2680(1)C5N0	LDBCC2680(1)C5N0
50	0.082	C	3.3	1.7	4.7	1812	DBCC2824(1)C5N0	LDBCC2824(1)C5N0
50	0.10	C	3.3	2.0	4.7	1812	DBCC3100(1)C5N0	LDBCC3100(1)C5N0
VDC	Capacitance Value (µF)	Size Code	B (mm)	H (mm)	L (mm)	Chip Size	New KEMET Part Number	Legacy Part Number

(1) G = ±2%, J = ±5%.

Soldering Process

Reflow Recommendations	
Preheating	
Maximum Preheating Time	180 seconds
Minimum Temperature	150°C
Maximum Temperature	200°C
Maximum Time within T_{max} and $T_{max} - 5^{\circ}\text{C}$ (ΔT_5)	30 seconds ($T_{max} \leq 250^{\circ}\text{C}$) 10 seconds ($250^{\circ}\text{C} < T_{max} \leq 260^{\circ}\text{C}$)
Maximum Time Over 217°C (ΔT_{217})	150 seconds
Maximum Temperature Ramp Rate	3°C/seconds (heating) 6°C/seconds (cooling)
Second reflow	
If two reflow processes are needed, be sure that before the second reflow, the temperature on the capacitor's surface is lower than 50°C.	



Maximum Temperature on Component Body (T_{max})

Capacitor	Capacitor Volume (mm ³)		
H_{max} (mm)	< 350	350 – 2,000	> 2,000
< 1.6	255°C *	255°C *	255°C *
1.6 – 2.5	255°C *	250°C	245°C
> 2.5	250°C	245°C	245°C

*In line with JEDEC STD 020D ed. June 2007 with some limitations.

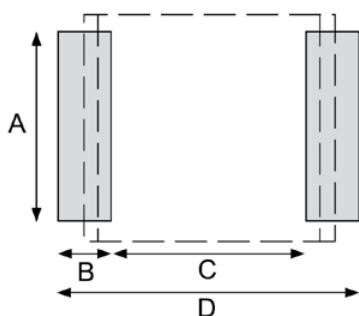
Marking

- KEMET
- Capacitance
- Rated voltage

Packaging Quantities

Chip Size (EIA)	Height (mm)	Reel
1206	1.1	3000
1206	1.2	3000
1210	1.5	2250
1210	1.6	2250
1210	1.7	2250
1210	1.8	2250
1210	2.0	2250
1210	2.1	2250
1812	1.7	4000
1812	1.8	4000
1812	2.2	3000
1812	2.5	3000
1812	2.6	3000

Landing



Size	Dimensions in mm			
	A	B	C	D
1206	1.5	1.1	2.3	4.5
1210	2.3	1.1	2.3	4.5
1812	3	1.7	3.1	6.5

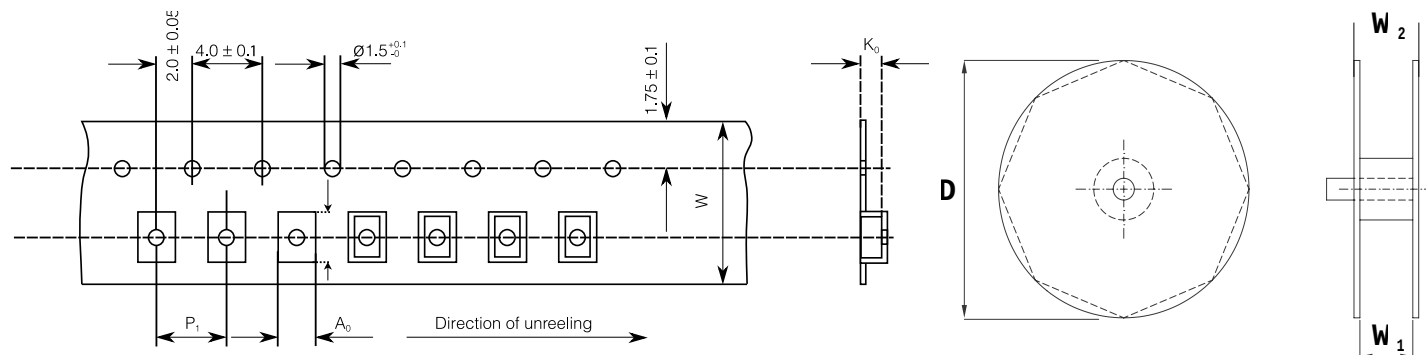
These landing area dimensions have the aim of taking full advantage of the new RoHS 6 terminations design.

We suggest to use a Sn/Ag/Cu solder paste (suggested thickness: 0.10 – 0.15 mm).

If a NOT Lead Free solder paste is used, a minimum peak temperature of 210°C on the component's body is suggested.

Carrier Taping & Packaging (IEC 60286-2)

Horizontal Taping Orientation



Chip Size (EIA) Horizontal Mounting	Dimensions in mm			Taping Specification							
	B	H	L	W	P ₁	A ₀	B ₀	K ₀	D	W ₁	W ₂
	Nominal	Nominal	Nominal	-0.1/+0.3	+/-0.1	Nominal	Nominal	Nominal	-/+2.0	-0/+2	Maximum
1206	1.7	All	3.3	8	4	2	3.8	1.3	180	8	12
1210	2.5	All	3.3	8	4	3	3.8	2.1	180	8	12
1812	3.3	≤ 1.9	4.7	12	8	3.8	5.3	2	330	12	16
1812	3.3	2.1 – 2.4	4.7	12	8	3.9	5.2	2.6	330	12	16

KEMET Corporation World Headquarters

2835 KEMET Way
Simpsonville, SC 29681

Mailing Address:
P.O. Box 5928
Greenville, SC 29606

www.kemet.com
Tel: 864-963-6300
Fax: 864-963-6521

Corporate Offices
Fort Lauderdale, FL
Tel: 954-766-2800

North America

Southeast

Lake Mary, FL
Tel: 407-855-8886

Northeast

Wilmington, MA
Tel: 978-658-1663

Central

Novi, MI
Tel: 248-994-1030

West

Milpitas, CA
Tel: 408-433-9950

Mexico

Guadalajara, Jalisco
Tel: 52-33-3123-2141

Europe

Southern Europe

Paris, France
Tel: 33-1-4646-1006

Sasso Marconi, Italy
Tel: 39-051-939111

Central Europe

Landsberg, Germany
Tel: 49-8191-3350800

Kamen, Germany
Tel: 49-2307-438110

Northern Europe

Bishop's Stortford, United Kingdom
Tel: 44-1279-460122

Espoo, Finland
Tel: 358-9-5406-5000

Asia

Northeast Asia

Hong Kong
Tel: 852-2305-1168

Shenzhen, China
Tel: 86-755-2518-1306

Beijing, China
Tel: 86-10-5829-1711

Shanghai, China
Tel: 86-21-6447-0707

Taipei, Taiwan
Tel: 886-2-27528585

Southeast Asia

Singapore
Tel: 65-6586-1900

Penang, Malaysia
Tel: 60-4-6430200

Bangalore, India
Tel: 91-806-53-76817

Note: KEMET reserves the right to modify minor details of internal and external construction at any time in the interest of product improvement. KEMET does not assume any responsibility for infringement that might result from the use of KEMET Capacitors in potential circuit designs. KEMET is a registered trademark of KEMET Electronics Corporation.

Other KEMET Resources

Tools	
Resource	Location
Configure A Part: CapEdge	http://capacitoredge.kemet.com
SPICE & FIT Software	http://www.kemet.com/spice
Search Our FAQs: KnowledgeEdge	http://www.kemet.com/keask
Electrolytic LifeCalculator	http://www.kemet.com:8080/elc

Product Information	
Resource	Location
Products	http://www.kemet.com/products
Technical Resources (Including Soldering Techniques)	http://www.kemet.com/technicalpapers
RoHS Statement	http://www.kemet.com/rohs
Quality Documents	http://www.kemet.com/qualitydocuments

Product Request	
Resource	Location
Sample Request	http://www.kemet.com/sample
Engineering Kit Request	http://www.kemet.com/kits

Contact	
Resource	Location
Website	www.kemet.com
Contact Us	http://www.kemet.com/contact
Investor Relations	http://www.kemet.com/ir
Call Us	1-877-MyKEMET
Twitter	http://twitter.com/kemetcapacitors

Disclaimer

All product specifications, statements, information and data (collectively, the "Information") in this datasheet are subject to change. The customer is responsible for checking and verifying the extent to which the Information contained in this publication is applicable to an order at the time the order is placed.

All Information given herein is believed to be accurate and reliable, but it is presented without guarantee, warranty, or responsibility of any kind, expressed or implied.

Statements of suitability for certain applications are based on KEMET Electronics Corporation's ("KEMET") knowledge of typical operating conditions for such applications, but are not intended to constitute – and KEMET specifically disclaims – any warranty concerning suitability for a specific customer application or use. The Information is intended for use only by customers who have the requisite experience and capability to determine the correct products for their application. Any technical advice inferred from this Information or otherwise provided by KEMET with reference to the use of KEMET's products is given gratis, and KEMET assumes no obligation or liability for the advice given or results obtained.

Although KEMET designs and manufactures its products to the most stringent quality and safety standards, given the current state of the art, isolated component failures may still occur. Accordingly, customer applications which require a high degree of reliability or safety should employ suitable designs or other safeguards (such as installation of protective circuitry or redundancies) in order to ensure that the failure of an electrical component does not result in a risk of personal injury or property damage.

Although all product-related warnings, cautions and notes must be observed, the customer should not assume that all safety measures are indicated or that other measures may not be required.

