

MVG(MV)-BP Series

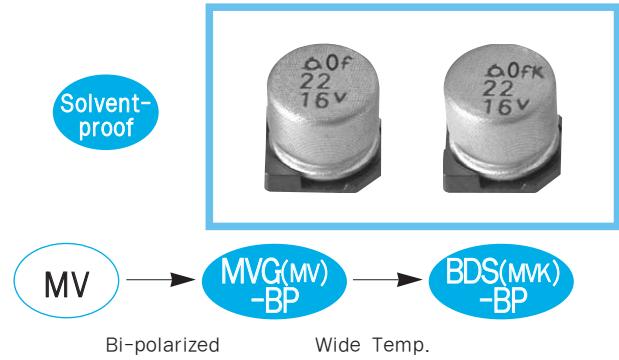
• 85°C 2,000Hrs assured.

- Vertical SMD type.
- Bi-polarized.
- For LCD MT / TV
- RoHS compliant.
- Halogen-free capacitors are also available.

BDS(MVK)-BP Series

• 105°C 1,000Hrs assured.

- Vertical SMD type.
- Bi-polarized.
- Wide temperature range.
- For LCD MT / TV
- RoHS compliant.
- Halogen-free capacitors are also available.

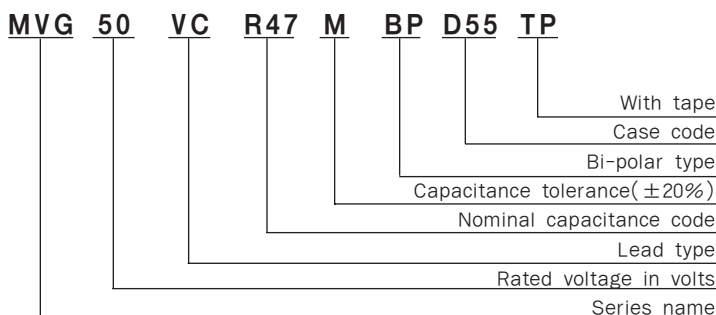


SPECIFICATIONS

Item	Characteristics																						
	MVG(MV)-BP	BDS(MVK)-BP																					
Series Name	MVG(MV)-BP	BDS(MVK)-BP																					
Rated Voltage Range	4 ~ 50 V _{DC}	6.3 ~ 50 V _{DC}																					
Operating Temperature Range	-40 ~ +85°C	-40 ~ +105°C																					
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)																						
Leakage Current (In both directions)	I=0.05CV or 10μA, whichever is greater. Where, I:Max. Leakage current(μA), C:Nominal capacitance(μF), V:Rated voltage(V _{DC}) (at 20°C, after 2 minutes)																						
Dissipation Factor Tanδ(Max.)	<table border="1"> <thead> <tr> <th>Rated Voltage(V_{DC})</th> <th>4</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35~50</th> </tr> </thead> <tbody> <tr> <td>MV-BP</td> <td>0.45</td> <td>0.32</td> <td>0.26</td> <td>0.24</td> <td>0.22</td> <td>0.20</td> </tr> <tr> <td>MVK-BP</td> <td>-</td> <td>0.35</td> <td>0.26</td> <td>0.24</td> <td>0.20</td> <td>0.18</td> </tr> </tbody> </table> (at 20°C, 120Hz)		Rated Voltage(V _{DC})	4	6.3	10	16	25	35~50	MV-BP	0.45	0.32	0.26	0.24	0.22	0.20	MVK-BP	-	0.35	0.26	0.24	0.20	0.18
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Temperature Characteristics (Max. Impedance ratio)	<table border="1"> <thead> <tr> <th>Rated Voltage(V_{DC})</th> <th>4</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35~50</th> </tr> </thead> <tbody> <tr> <td>Z(-25°C)/Z(20°C)</td> <td>7</td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>Z(-40°C)/Z(20°C)</td> <td>15</td> <td>10</td> <td>8</td> <td>6</td> <td>4</td> <td>3</td> </tr> </tbody> </table> (at 120Hz)		Rated Voltage(V _{DC})	4	6.3	10	16	25	35~50	Z(-25°C)/Z(20°C)	7	4	3	2	2	2	Z(-40°C)/Z(20°C)	15	10	8	6	4	3
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Z(-40°C)/Z(20°C)	15	10	8	6	4	3																	
Load Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied with the following conditions with its polarization reversed every 250 hours. <table border="1"> <thead> <tr> <th>Series Name</th> <th>MVG(MV)-BP</th> <th>BDS(MVK)-BP</th> </tr> </thead> <tbody> <tr> <td>Test time & temperature</td> <td>2,000 hours at 85°C</td> <td>1,000 hours at 105°C</td> </tr> <tr> <td>Capacitance change</td> <td>≤ ±20% of the initial value</td> <td>≤ ±30% of the initial value</td> </tr> <tr> <td>Tanδ</td> <td>≤ 200% of the initial specified value</td> <td>≤ 300% of the initial specified value</td> </tr> <tr> <td>Leakage current</td> <td>≤ The initial specified value</td> <td>≤ The initial specified value</td> </tr> </tbody> </table>		Series Name	MVG(MV)-BP	BDS(MVK)-BP	Test time & temperature	2,000 hours at 85°C	1,000 hours at 105°C	Capacitance change	≤ ±20% of the initial value	≤ ±30% of the initial value	Tanδ	≤ 200% of the initial specified value	≤ 300% of the initial specified value	Leakage current	≤ The initial specified value	≤ The initial specified value						
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Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 500 hours at 85°C (MVG(MV)-BP) or 105°C (BDS(MVK)-BP) without voltage applied. The rated voltage shall be applied to the capacitors for a minimum of 30 minutes, at least 24 hours and not more than 48 hours before the measurements. <table border="1"> <thead> <tr> <th>Series Name</th> <th>MVG(MV)-BP</th> <th>BDS(MVK)-BP</th> </tr> </thead> <tbody> <tr> <td>Capacitance change</td> <td>≤ ±15% of the initial value</td> <td>≤ ±25% of the initial value</td> </tr> <tr> <td>Tanδ</td> <td>≤ 150% of the initial specified value</td> <td>≤ 200% of the initial specified value</td> </tr> <tr> <td>Leakage current</td> <td>≤ The initial specified value</td> <td>≤ The initial specified value</td> </tr> </tbody> </table>		Series Name	MVG(MV)-BP	BDS(MVK)-BP	Capacitance change	≤ ±15% of the initial value	≤ ±25% of the initial value	Tanδ	≤ 150% of the initial specified value	≤ 200% of the initial specified value	Leakage current	≤ The initial specified value	≤ The initial specified value									
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Others	Satisfied characteristics KS C IEC 60384-4																						

MVG(MV)-BP / BDS(MVK)-BP Series

PART NUMBERING SYSTEM



Capacitance	Code
0.1μF	R1
0.47μF	R47
1.0μF	1
4.7μF	4R7
10μF	10
100μF	100



SURFACE MOUNT ALUMINUM ELECTROLYTIC CAPACITORS

DIMENSIONS OF MVG(MV)-BP, BDS(MVK)-BP Series(Type :VC)

Unit(mm)

Recommended solder land on PC board

Solder land on PC board

Case code	∅D	L	A	B	C	W	P	a	b	c
D55	4	5.2	4.3	4.3	5.1	0.5-0.8	1.0	1.0	2.6	1.6
E55	5	5.2	5.3	5.3	5.9	0.5-0.8	1.4	1.4	3.0	1.6
F55	6.3	5.2	6.6	6.6	7.2	0.5-0.8	1.9	1.9	3.5	1.6
F60	6.3	5.7	6.6	6.6	7.2	0.5-0.8	1.9	1.9	3.5	1.6

RATINGS OF MVG(MV)-BP, BDS(MVK)-BP Series

MVG(MV)-BP

μF \ V _{dc}	4		6.3		10		16		25		35		50		
	0.10													D55	1.3
(0.15)														D55	1.9
0.22														D55	2.3
0.33														D55	2.8
0.47														D55	3.4
(0.68)														D55	4.1
1.0														D55	5.5
(1.5)														D55	6.5
2.2											D55	8	E55	9	
3.3								D55	9				E55	11	
4.7							D55	11					E55	13	
(6.8)					D55	12			E55	15	F55	17	F55	14	
10			D55	13			E55	18			F55	21			
(15)	D55	14			E55	21			F55	24					
22			E55	23			F55	28							
33					F55	33									
47			F55	36											

← Rated Ripple Current(mA rms/ 85°C, 120Hz)
 Case code

BDS(MVK)-BP

μF \ V _{dc}	6.3		10		16		25		35		50	
	0.10											D55
(0.15)											D55	1.7
0.22											D55	2.2
0.33											D55	2.7
0.47											D55	3.2
(0.68)											D55	4.0
1.0											D55	5.3
(1.5)											D55	7.2
2.2									D55	7	E55	9.0
3.3							D55	8			E55	12
4.7						D55	10		E55	14	F60	16
(6.8)				D55	11			E55	16		F60	20
10	D55	12			E55	18			F60	23		
(15)			E55	20			F60	28				
22	E55	23			F60	32						
33			F60	35								
47	F60	39										

← Rated Ripple Current (mA rms/ 105°C, 120Hz)
 Case code

Note : → Use next higher voltage part.
 Parenthesized capacitance is not standard part.

PRECAUTIONS TO USERS

Soldering method

The capacitors of Alchip have no capability to withstand such dip or wave soldering as totally immerses a components into a solder bath.

Reflow soldering

Use the capacitors within the Recommended Reflow Soldering Conditions, and also make sure to check the temperature stress to the capacitors because the following makes a difference in the stress to the capacitors. If any other reflow soldering conditions are applied, please consult us.

- ① Location of components. (The edge sides of a PC board increases its temperature more than the center does.)
- ② Population of components. The less the component population is the more the temperature is increased.
- ③ Material of printed circuit board. As a ceramic board needs heating up more than a glass epoxy board to reach the same board temperature, the capacitors may be damaged.
- ④ Thickness of PC board. A thick PC board needs heating up more than a thin board. It may damage the capacitors.
- ⑤ Size of PC board. A large PC board needs heating up more than a small board, and it may damage the capacitors.
- ⑥ Location of infrared ray lamps. On IR reflow as well as hot plate reflow, heating only the reverse side of the PC board will reduce stress to the capacitors.

Rework of soldering

Avoid soldering more than once by reflow. Use a soldering iron for rework of solder, and do not exceed an iron tip temperature of 300°C and a max. exposure time of 5 seconds.

Mechanical stress

Do not lift up or push the capacitor after soldering. Avoid curvature of the PC board. These may damage the capacitor.

Cleaning of assembly board

For the cleaning conditions, see page 32~33.

Immediately after solvent cleaning, evaporate a residual solvent for at least 10 minutes with a hot forced air. If the assembly board is inadequately dried after a washing process, the capacitors will keep suffering from a residual solvent for long periods of time, and will be corrosion while in service.

Coating on assembly board

- ① Before coating, evaporate cleaning solvents from the assembly board.
- ② Before the conformal coating, using a buffer pre-coat which does not contain chloride is recommended to reduce stress to the capacitors.

Molding by resin

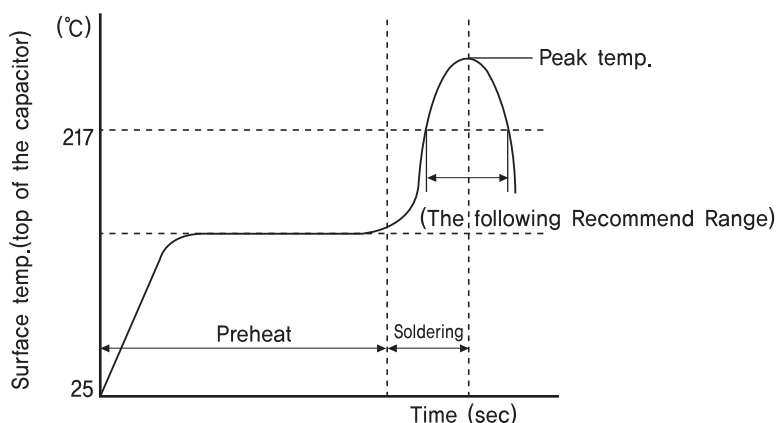
Inner pressure of a capacitor slowly increases over the service life of the capacitor with gas being produced by internal chemical reaction. If the end seal of the capacitor is completely be in danger. Also if the resin contains a large amount of chlorine ion, it will penetrate into the end seal, get into the inside element of the capacitor, and damage the capacitor while in service.

Others

The Precautions to Users for Aluminum Electrolytic Capacitors shall be applied. (page 31)

RECOMMENDED PB-FREE REFLOW SOLDERING CONDITIONS

The following conditions are recommended for air or infrared reflow soldering of the surface mount capacitors onto a glass epoxy circuit board of 90 × 50 × 0.8mm (with resist) by cream solder (eutectic solder) . The temperatures shown are the surface temperature values of the top of the capacitor.



TEMPERATURE PROFILE

CASE CODE	Time of Preheat temp. (from 150°C to 200°C)	Time to be Maintained Above 217°C	Time to be Maintained Above 230°C	Peak Temp.	Reflow Cycle
B55, D55, D56 E55, F55, F60, F80 H63, H10, J10, K14	60 ~ 100 Sec	60 ~ 70 Sec	20 ~ 30 Sec	250 (10 Sec ↓)	1 TIME
L17, L22 M17, M22	60 ~ 100 Sec	50 ~ 60 Sec	-	230 (10 Sec ↓)	1 TIME