

MVG(MV)-BP Series

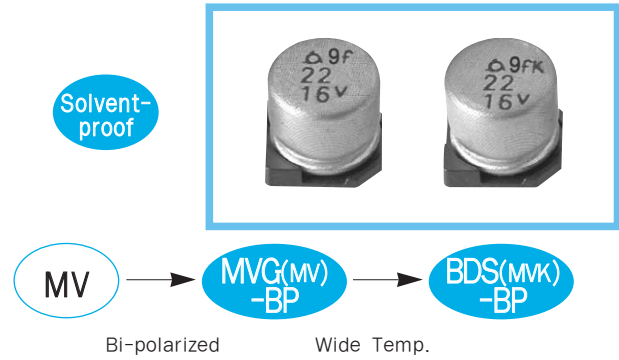
• 85°C 2,000Hrs assured.

- 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.

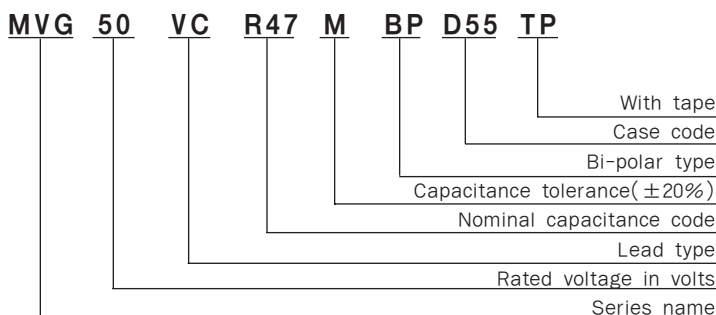


SPECIFICATIONS

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"> <tr> <td>Rated Voltage(V_{DC})</td> <td>4</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35~50</td> </tr> <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> </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
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																	
Temperature Characteristics (Max. Impedance ratio)	<table border="1"> <tr> <td>Rated Voltage(V_{DC})</td> <td>4</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35~50</td> </tr> <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> </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
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																	
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						
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																					
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									
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																					
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	ϕD	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 \ Vdc	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	F55 14
(6.8)			D55 12		E55 15	F55 17	
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 \ Vdc	6.3	10	16	25	35	50
0.10						D55 1.2
(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

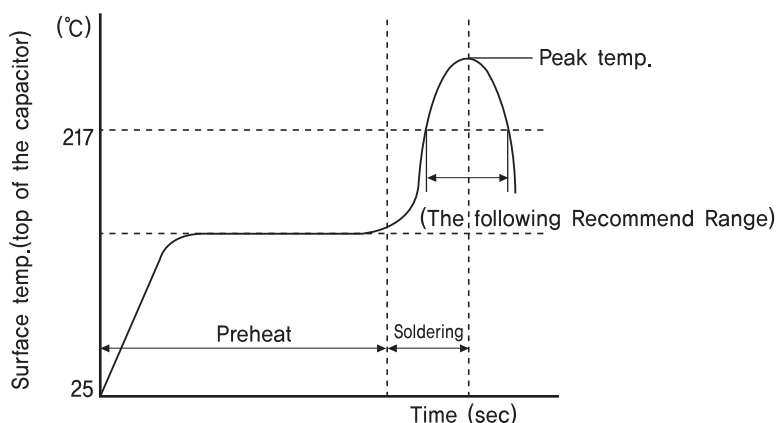
Inner pressure of a capacitor slowly increases over the service life of the capacitor with gas being produced by internal chemical reaction. If the end seal of the capacitor is completely be in danger. Also if the resin contains a large amount of chlorine ion, it will penetrate into the end seal, get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