MMX-E Series (Metallized Polyphenylene Sulfide Film Chip Capacitors)

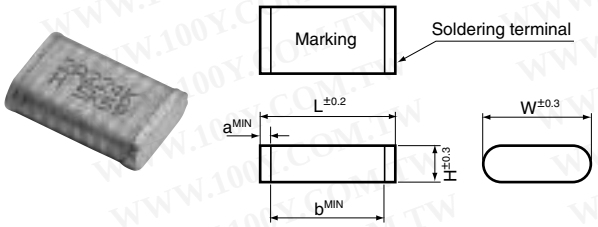
Case-less, high-performance, high-reliability film chip capacitors, which are developed by improving the MMX type (enclosed in a resin mold casing) performance and heat resistance making use of new materials and Hitachi AIC's unique technologies, and suitable for downsizing and thinning of notebook computer and navigation system backlight LCD power supplies and the like.

Product Specifications

Items	Specifications
Temperature range	–40°C ~ +105°C (+125°C, with derating over 105°C)
Rated voltage	50 ~ 250 V.DC
Capacitance tolerance	±5% (J), ±10% (K)
Dielectric dissipation factor	0.15% or less (20°C,1KHz)
Withstanding voltage	Rated voltage · 1.5 for one min.
Insulation resistance	15,000MW or more
Solder heat resistance	Reflow : Peak 240°C for 5 sec. or less (Capacitor surface)

For standard soldering conditions, see page 99 and 100.

Outline of drawings and dimensions



Product symbol : (Example) MMX-E Series 100V.DC 0.22μF ±10%

MMX-E 2A 224 K T F

- MMX-E: Type of series
- 2A: Rated voltage code
- 224: Capacitance code
- K: Capacitance tolerance code
- T: Packing polarity code
- F: Lead free terminal code

For MMX-E type taping, see page 102.

Standard value and case size (Unit : mm)

Capacitance		Rated valtage (Code)																			
		50V.DC / 35V.AC (1H)					63V.DC / 40V.AC (1J)					100V.DC / 63V.AC (2A)					250V.DC / 80V.AC (2E)				
μF	Code	H	W	L	a	b	H	W	L	a	b	H	W	L	a	b	H	W	L	a	b
0.010	103	1.2	3.6	5.2	0.2	2.5	1.4	4.0	5.7	0.2	3.0	2.2	4.5	5.7	0.2	3.0	2.2	4.5	5.7	0.2	3.0
0.012	123	1.3	3.7	5.2	0.2	2.5	1.5	4.1	5.7	0.2	3.0	2.2	4.6	5.7	0.2	3.0	2.2	4.6	5.7	0.2	3.0
0.015	153	1.5	3.9	5.2	0.2	2.5	1.5	4.0	5.7	0.2	3.0	2.4	4.8	5.7	0.2	3.0	2.4	4.8	5.7	0.2	3.0
0.018	183	1.2	3.6	5.2	0.2	2.5	1.4	4.0	5.7	0.2	3.0	1.7	5.5	7.7	0.2	5.0	1.7	5.5	7.7	0.2	5.0
0.022	223	1.2	3.7	5.2	0.2	2.5	1.3	3.9	5.7	0.2	3.0	1.8	5.4	7.7	0.2	5.0	1.8	5.4	7.7	0.2	5.0
0.027	273	1.4	3.9	5.2	0.2	2.5	1.4	4.0	5.7	0.2	3.0	2.2	5.9	7.7	0.2	5.0	2.2	5.9	7.7	0.2	5.0
0.033	333	1.1	3.6	5.2	0.2	2.5	1.3	3.9	5.7	0.2	3.0	2.4	6.2	7.7	0.2	5.0	2.4	6.2	7.7	0.2	5.0
0.039	393	1.2	3.7	5.2	0.2	2.5	1.5	4.0	5.7	0.2	3.0	1.7	5.4	7.7	0.2	5.0	2.8	6.1	7.7	0.2	5.0
0.047	473	1.3	3.9	5.2	0.2	2.5	1.6	4.2	5.7	0.2	3.0	1.9	5.6	7.7	0.2	5.0	2.4	6.1	10.2	0.2	7.5
0.056	563	1.4	4.1	5.2	0.2	2.5	1.7	4.3	5.7	0.2	3.0	2.1	5.8	7.7	0.2	5.0	2.6	6.4	10.2	0.2	7.5
0.068	683	1.5	4.2	5.2	0.2	2.5	2.1	4.5	5.7	0.2	3.0	2.3	6.2	7.7	0.2	5.0	3.0	6.7	10.2	0.2	7.5
0.082	823	1.7	4.5	5.2	0.2	2.5	2.3	4.8	5.7	0.2	3.0	2.8	6.0	7.7	0.2	5.0	3.2	7.0	10.2	0.2	7.5
0.10	104	2.0	4.7	5.2	0.2	2.5	2.4	5.0	5.7	0.2	3.0	3.0	6.2	7.7	0.2	5.0	3.8	7.6	10.2	0.2	7.5
0.12	124	1.9	4.6	7.2	0.2	4.5	2.7	5.3	5.7	0.2	3.0	2.9	6.2	7.7	0.2	5.0					
0.15	154	2.0	4.6	7.2	0.2	4.5	3.0	5.7	5.7	0.2	3.0	3.3	6.6	7.7	0.2	5.0					
0.18	184	2.2	5.1	7.2	0.2	4.5	3.5	6.0	5.7	0.2	3.0	2.8	6.6	10.2	0.2	7.5					
0.22	224	2.5	5.3	7.2	0.2	4.5	3.8	6.5	5.7	0.2	3.0	3.1	7.2	10.2	0.2	7.5					

* For rotings that are not described in the table, ask us for further information.

Special cautions when design in MMX-E capacitors

- Recent trend of P. C. B. for Inverter Circuit is becoming thin and slender. When P. C. B. sheet to be cut in piece, bending or strains may happen and result failure of termination tearing off from board.
- To prevent failure when handling P. C. B, capacitor should not be design to locate them near V cut ditch or areas where strains may happen.
- In case capacitor should be placed in the area where strains may happen, consider to layout as shown in the right. Glass epoxy material is recommended for P. C. B. Ceramic (Alumina) materials is not prefered because it may cause cracking on capacitor body by expansion ratio difference.
  * make slit on P. C. B.
  * Reduce mechanical stress into capacitor (P. C. B should not be bent by more than 3mm) when there has no slit.
  * take deeper ditch as much as possible