

C.M.RAJGARHIA PVT. LTD.



CMR CAPACITOR



Since 1975



FROM THE FOUNDER'S PEN

I perceive mica not only as nature's unique gift to human civilisation, but also as a link of international friendship. India's contribution to the forging and strengthening of this link is not inconsiderable, and as a part of the total Indian effort in this direction the House of C. M. Rajgarhia, which I founded decades ago, has played a significant role.

In this house, nearly eight years ago, the idea of mica fabrication was first conceived; the idea soon became an ideal for the partners of this Firm, who without much outside aid and entirely with indigenous resources, soon achieved complete self-sufficiency over a large area of the fabrication job, self-sufficiency in tool making from raw steel on one hand and the finished fabricated product from raw mica on another. In the pages that follow will be seen how much can have been achieved by so few within such a short space of time.

The achievement is still incomplete, the process of development and sophistication still continues, and it is hoped that in the near future some of the important gaps in technology will be bridged. Even then the labour and toil will continue, for I feel that the last stage of operational achievement in mica will remain as elusive as it is today.

C. M. RAJGARHIA

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C. M. RAJGARHIA PVT LTD

Mission Statement

M/S: C. M. RAJGARHIA PVT LTD HAS GROWN SINCE LATE CHANDMULL RAJGARHIA A MINING ENGINEER AND PRESIDENT OF MICA COMMITTEE OF THE INTERNATIONAL STANDARD ORGANIZATION FOR 25 YEARS, FORMULATED THE INTERNATIONAL TECHNICAL SPECIFICATION FOR MICA. HIS BOOK MINING, PROCESSING AND USES OF INDIAN MICA PUBLISHED BY MC-GRAW-HILL BOOK COMPANY, INC USA IS RENOWNED REFERENCE FOR INDUSTRIAL USES OF MICA FOUNDED THE COMPANY FOR MANUFACTURING VARIOUS TYPES OF MICA PRODUCTS AND ELECTRONIC COMPONENTS SINCE THE YEAR 1950.

In order to achieve quality standards acceptable in the international market CMR commissioned an in-house modern well-equipped tool-room and sophisticated electronic & electrical research laboratory for R & D purpose with dedicated, quality conscious and qualified personnel.

The CMR tool-room is the heart of all activities. It produces all items for in-house use as well as customized items for overseas customers. The range includes high precision blanking piercing & shearing dies, Mechanical assemblies, jigs, fixtures and various other components. Very close tolerances are maintained with the help of precision machines, optical measuring instruments and strict inspection procedures.

The CMR Electronic & Electrical research laboratory is engaged with continuous development for making High Precision of all types of Capacitors, especially Mica Capacitor.

The CMR Capacitor Division is the ultimate solution for Capacitor to a number of satisfied customer through-out the world. This department is engaged for the production of Medium Voltage & High Voltage Capacitor for High Frequency as well as Radio Frequency application since 1975.



The Team

1. **Mr. Anup Rajgarhia – MANAGING DIRECTOR**
2. **Mr. Sashi Rajgarhia – DIRECTOR**
3. **Mr. Pranay Rajgarhia – DIRECTOR**
4. **Mr. A. Bandyopadhyay – PLANT ENGINEER**

Market Summary

☞ Presently entire production of the Company is being exported to USA, U.K., GERMANY, FRANCE, ITALY, KOREA, and CHINA ETC.

OFFERED SERVICES

- Job work & subsidiary manufacturing
- Mechanical assembly & sub-assemblies
- Ferrous & non-ferrous precision machined components – Heat Sinks, Liquid heat exchangers, Cold Plates etc.
- Electrical Passive Component - like MV & HV Mica Capacitor, Metallized Polypropylene Capacitor for High frequency & High Current application as well as Induction Heating Solution.

FACILITIES

- Over 30,000 square feet of manufacturing space
- Long term relationship with several large OEM's
- Qualified support in all phases of manufacturing
- Since inception has exported 100% of its manufactured products
- Over 400 employees
- Capacity to update facilities

LOCATION

Manufacturing facility is located at Giridih, Jharkhand, which is 4 hours drive from the city of Kolkata the nearest International Airport and Seaport.

Opportunities

☞ Our manufacturing unit is situated at best mica producing area in INDIA that is in GIRIDIH (JHARKHAND) thus source of mica is not a problem to us and we can supply best grade mica to any buyer in world. We are producers of Mica Blocks, Splitting, Cond. Films and plates, wrappers, Discs, Heat Sink, Capacitors, Power Capacitors, Silvered Mica, High frequency welding equipment and High frequency Induction furnace, Polypropylene capacitors etc, as per buyer's specification and drawing.

**Business Concept**

- ☐ Our entire production is based on French Technology
- ☐ We are committed for quality products, timely delivery and full satisfaction of our valued customers.

Contacts :

Contact Person : **Anup Rajgarhia**, Director

GIRIDIH (PLANT) ADDRESS:

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JHARKHAND (INDIA)
PH: (+91) 6532-222041/91
MOB NO: (+91) 9204065481
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OUR SHIPPING OFFICE IS IN KOLKATA AND ADDRESS IS AS FOLLOWS:

KOLKATA ADDRESS:

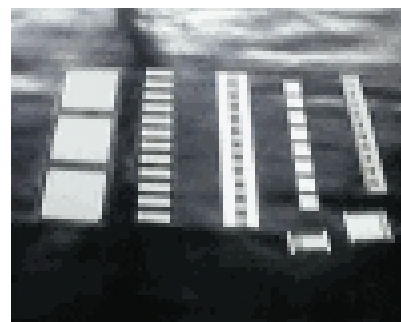
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OUR PRODUCTS



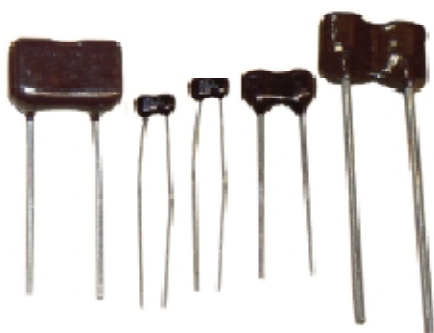
Mica & Mica based Product



Silvered Mica Stacks
& Chips



Silvered Mica
Transmitting Section



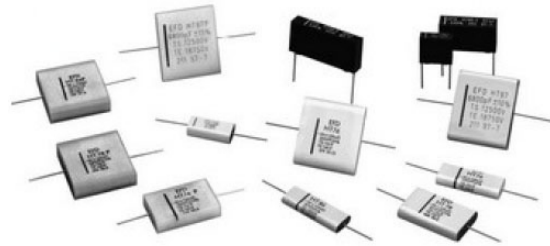
Dipped Mica Capacitor



RTC High Current Mica Capacitor



Casio type HV Mica capacitor



PP- Film Metalised capacitor



PD Coupling Capacitor



RF Capacitor



Manufacturing Setup

MICA PARTS & ASSEMBLY PRODUCT

Tool Room Section



Paint Section



Product Test Lab

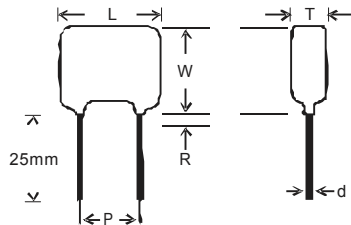
Turning Section

In Customers Service
60 Since More Than
Years.



MICA CAPACITOR SPECIFICATIONS AND DATA

MICA CAPACITOR - GENERAL TECHNICAL DETAILS



For Dipped Mica Capacitors DM type, Radial leads only provided, Leads are of Tinned Copper wire / Copper clad steel wire. Crimped leads or shortened straight leads are provided on special request.

CHART FOR OPERATING TEMPERATURE

TYPE	TEMPERATURE RANGE
DM	- 55°C to + 125°C
MMR, MM. F1	- 40°C to + 100°C
PTC	- 40°C to + 85°C
C ₁ to C ₄	- 40°C to + 85°C

CAPACITANCE TOLERANCE

Capacitors can be supplied with tolerance $\pm 20\%$. However minimum capacitance tolerance is 0.5 pF.

C measurment ≤ 1000 pF at 1 mhz.

C measurment ≥ 1000 pF at 1 kHz.

TEMPERATURE CO-EFFICIENT & CAPACITANCE

pF RANGE	TEMPERATURE CO-EFFICIENT PPM°C	CAPACITANCE DRIFT
C ≤ 50 pF	- 200 to + 200	$\pm (0.5\% + 0.1 \text{ pF})$
C > 50 to ≤ 500 pF	- 100 to + 100	$\pm (0.3\% + 0.1 \text{ pF})$
C > 100 to ≤ 500 pF	- 20 to + 100	$\pm (0.1\% + 0.1 \text{ pF})$
C > 500 pF	0 to + 70	$\pm (0.05\% + 0.1 \text{ pF})$

TANGENT OF LOSS ANGLE

CAPACITANCE pF	MEASUREMENT FREQUENCY	TANGENT OF LOSS ANGLE
C < 50 pF	1 MHz	0.010 max.
C > 10 pF to ≤ 25 pF	1 MHz	0.007 max.
C > 25 pF to ≤ 100 pF	1 MHz	0.003 max.
C > 100 pF to ≤ 1000 pF	1 MHz	0.001 max.
C > 1000 pF	1 MHz	0.001 max.

For more details, see Chart 2 & 3

TEST VOLTAGE

To with stand twice the rated voltage for 1 to 3 seconds.

INSULATION RESISTANCE

For C < 10000 pF, more than 10^5 M. Ohm after one minute application of 100 V.D.C. at 25°C

For C < 10000 pF, more than 10^4 M. Ohm after one minute application of 100 V.D.C. at 25°C

(For more details, see Chart 1)

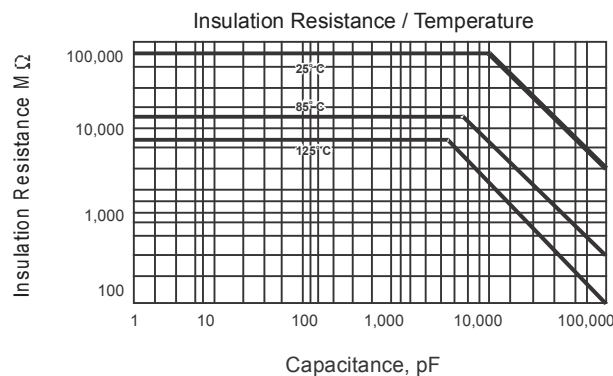


Chart - 1



MICA CAPACITOR SPECIFICATIONS AND DATA

MOULDED MICA CAPACITOR

MOULDED MICA CAPACITOR (AXIAL)

TYPE	10 KV D.C.	5 KV D.C.	500V D.C.	300V D.C.	100V D.C.
MMR-15	100 to 330 pF	100 to 510 pF	1 To 250 pF	251 To 750 pF	751 To 1000 pF
MMR-20	275 to 510 pF	510 to 1200 pF	4.7 To 510 pF	511 To 3300 pF	3301 To 5100 pF
MMR-30	500 to 3000 pF	1100 to 6100 pF	407 To 3300 pF	3301 To 5600 pF	5601 To 10000 pF
MMR-35	3100 to 10000 pF	6000 to 10000 pF	3300 To 5600 pF	5601 To 10000 pF	10001 To 15000 pF

MOULDED MICA CAPACITOR (RADIAL)

TYPE	VOLT	pF RANGE
MMR-1	300 V	5 to 200 pF
MMR-2	300 V	200 to 10000 pF
MMR-3	300 V	10000 to 20000 pF
MMR-4	300 V	20000 to 30000 pF

MOULDED MICA CAPACITOR (FLANGE TERMINAL)

TYPE	CAPACITANCE RANGE						REMARKS
	5000 V	3000 V	2500 V	2000 V	1000 V	500 V	
FT - 1	-	-	100 to 1000 pF	250 to 25000 pF	501 to 125000 pF	100 to 250000 pF	Other type of Terminals and sizes are available as per customers drawing & specification.
FT - 2	100 to 2200 pF	100 to 7500 pF	500 to 10000 pF	-	-	-	

Power Transmitting Capacitors are available in box type PTC1, PTC2, PTC3 also cylindrical shape C₁, C₂, C₃ and C₄ as per details available here.

Note :

For Robustness of terminals, Impact (Byp), Impact (shock), Vibration, Damp Heat Severity, Temperature Cycling climatic. Our Capacitors conform to JSS 50100, JSS 50200, JSS 50201.

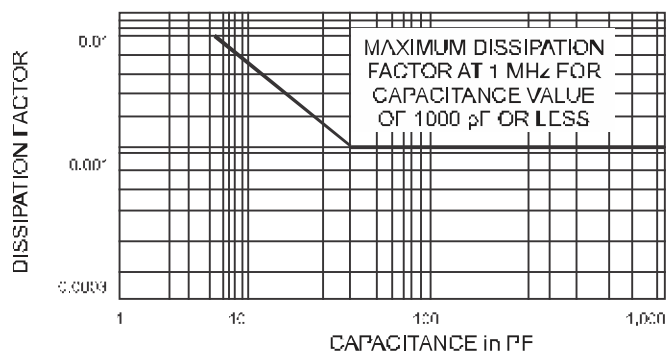


Chart - 2

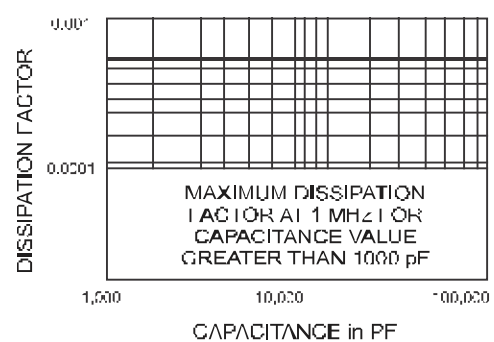
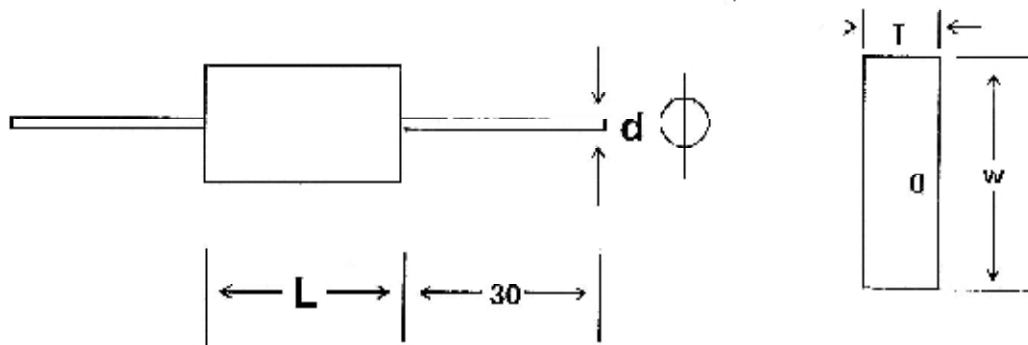


Chart - 3



MICA CAPACITOR SPECIFICATIONS AND DATA

MOULDED MICA CAPACITOR (WITH AXIAL LEADS)



TYPE	CAPACITANCE (pF)	W.V. (DC)	DIMENSIONS IN MM			
			L MAX	W MAX	T MAX	D MAX
MM-15	100-300	10000	36	26	7	0.8
	100-500	5000	36	26	7	0.8
	1-250	500	14	8	5	0.65
	251-750	300	14	8	5	0.65
	751-1000	100	14	8	5	0.65
MM-20	300-500	10000	36	26	7	0.8
	1000-1200	5000	36	26	7	0.8
	4.7-510	500	20	12	6	0.85
	511-3300	300	20	12	6	0.85
	3301-5100	100	20	12	6	0.85
MM-30	500-1200	10000	36	26	7	0.8
	1100-2400	5000	36	26	7	0.8
	470-3300	500	21.5	21.5	7.5	1.1
	3301-5600	300	21.5	21.5	7.5	1.1
	5601-10000	100	21.5	21.5	7.5	1.1
MM-35	2500-10000	10000	45	30	10	0.8
	2500-20000	5000	45	30	10	0.8
	3300-5600	500	21.5	21.5	9	1.1
	5601-10000	300	21.5	21.5	9	1.1
	1001-15000	100	21.5	21.5	9	1.1

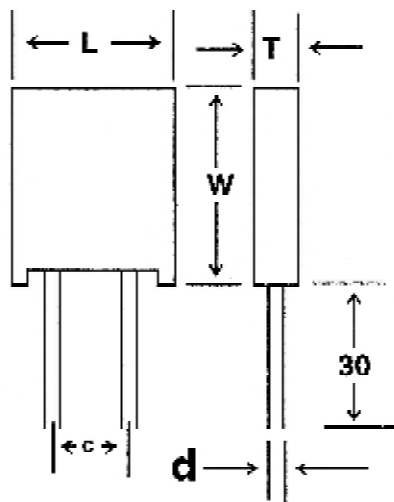
* Capacitance of higher working voltage & beyond the range can be supplied against specific enquiries.

* Customized dimension could be available as per request.

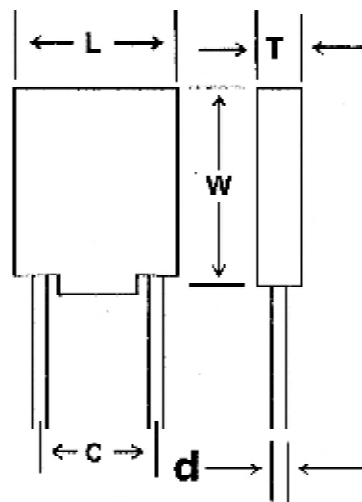


MICA CAPACITOR SPECIFICATIONS AND DATA

MOULDED MICA CAPACITOR (WITH RADIAL LEADS)



MMR -2, 4, 3,



MMR -1

TY PE	WORKING VOLTAGE	μF RANGE	L MAX	W MAX	T MAX	C MAX	d MAX
MMR - 1	300 V	5 - 200	8.0	8.0	3.0	5.5	0.60
MMR - 2	300 V	200 - 10000	12.5	12.5	6.0	10.0	0.80
MMR - 3	300 V	10000 - 20000	12.5	12.5	8.0	10.0	0.80
MMR - 4	300 V	20000 - 30000	12.5	12.5	10.0	10.0	0.80

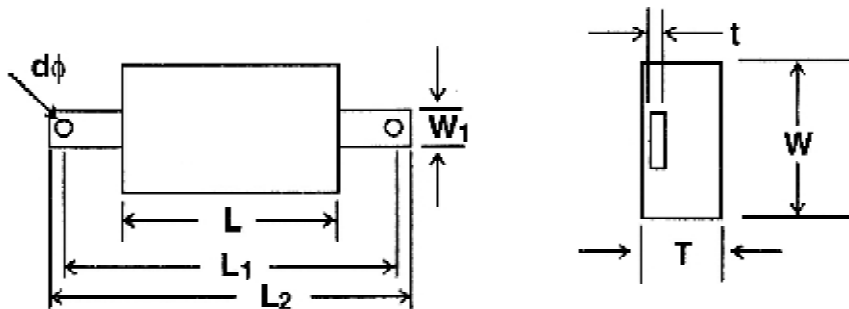
ALL DIMENSIONS ARE IN MM

- * Capacitance of higher working voltage & beyond the range can be supplied against specific enquiries.
- * Customized dimension could be available as per request.



MICA CAPACITOR SPECIFICATIONS AND DATA

MOULDED MICA CAPACITOR (FLAT TERMINALS)



DIMENSION IN MM. Maximum

TYPE	L	L ₁	L ₂	W	W ₁	t	d ϕ
FT - 1	36	51	60	25	10	0.3	3.5
FT - 2	49	60	73	31	12	0.8	5

pF RANGE FOR DIFFERENT VOLTAGE (DC)

FT-1	FT-1	FT-1	FT-2	FT-2	T-MAX IN MM
500 V	1000V	2000 V	3000 V	5000 V	
100 - 25000	501 - 10000	250 - 2500	100 - 1000	100 - 500	8.0
25001 - 75000	10001 - 25000	2501 - 7500	1001 - 1500	501 - 750	9.0
75001 - 125000	25001 - 50000	7501 - 12000	1501 - 3900	751 - 1500	12.0
125001 - 175000	50001 - 75000	12001 - 16000	3901 - 5000	1501 - 1800	14.0
175001 - 225000	75001 - 100000	16001 - 20000	5001 - 6200	1801 - 2000	16.0
225001 - 250000	100001 - 125000	20001 - 25000	6201 - 7500	2001 - 2200	18.00

- * Capacitance of higher working voltage & beyond the range can be supplied against specific enquiries.
- * Customized dimension could be available as per request.



MICA CAPACITOR SPECIFICATIONS AND DATA

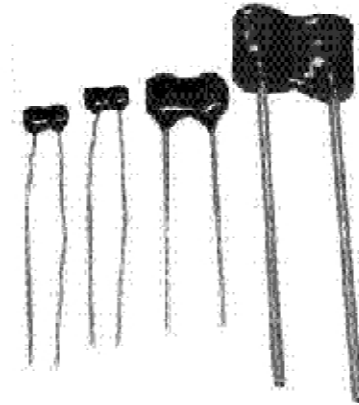
STANDARD DIPPED MICA CAPACITOR

Types: DM 05, DM 10, DM 15, DM 19, DM 20, DM 30, DM 42, DMV 19, DMV 20, DMV 30, DMV 42

As per reliability and stability of Mica capacitors, CMR would like to introduce standard dipped silvered mica capacitors with a stable capacitance over a wide temperature range. This contribution in electronics world is our another step through widely available distribution for standard types.

Highlights

- High temperature up to 150 °C
- 100,000 V/μs dv/dt minimum pulse capability
- Dimensions meet EIA R50.333 specification
- Non-ferromagnetic units that meet EC 6095-2-2 are available
- Test packaging available on demand



Specifications

Capacitance Range	1 pF to 100,000 pF
Capacitance Tolerance	±1/2 pF to ±1 pF and ±1 % to ±5 %
Rated Voltage	100 VDC to 2500 VDC
Operating Temperature Range	-55°C to +125°C (Q) and -55°C to +150°C (R)*
Dielectric Strength Test	200 % of rated voltage
RoHS Compliant	

*R temperature range available for types DM20, DM15, DM19, DM30 and DM42

Dimensions

Construction Details	
Case Material	Epoxxy
Terminal Material	Copper clad steel, Nickel undercoat, 100% tin finish

Other characteristics

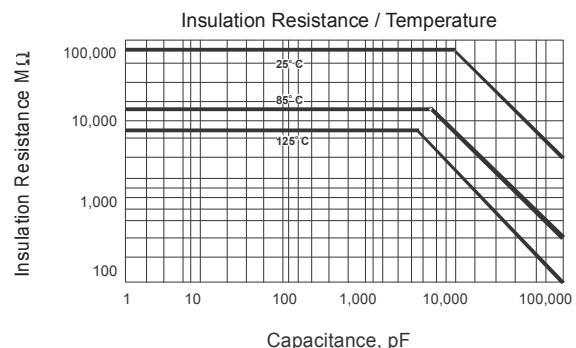
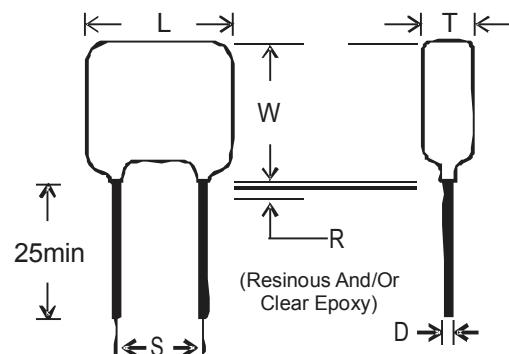
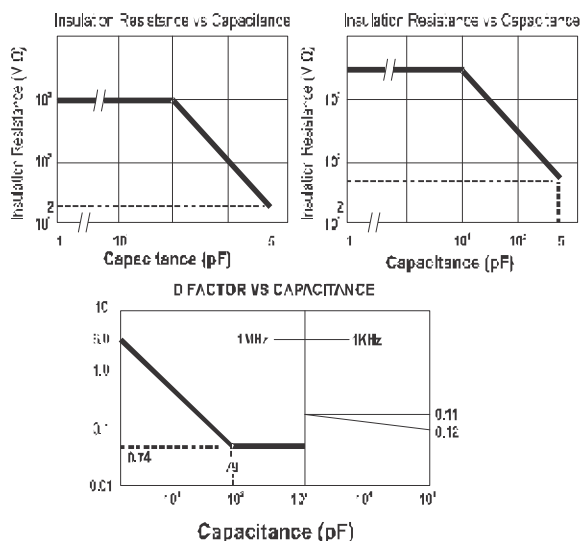


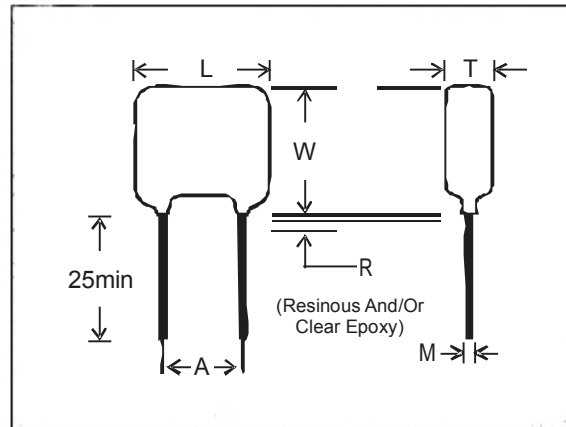
Chart - 1



MICA CAPACITOR SPECIFICATIONS AND DATA

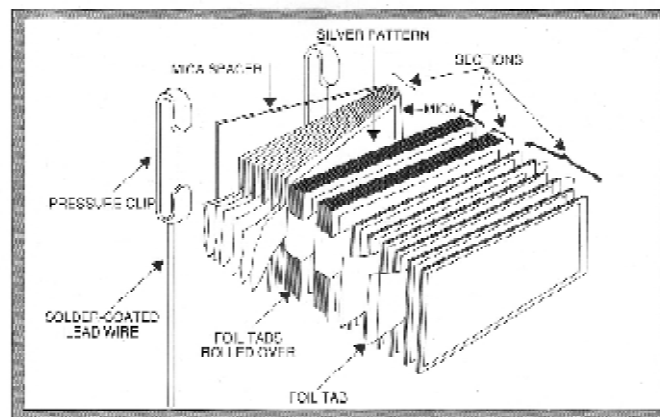
D I M E N S I O N A L D E T A I L S

DIMENSION IN MM			
SIZE	A ± 0.7	M	R max.
DM05	3.0	0.4	3.2
DM10	3.5	0.4	3.2
DM15	6.0	0.6	3.2
DM19	9.0	0.8	3.6
DM20	11.0	0.8	3.6
DM30	11.1	1.0	4.4
DM42	27.0	1.0	4.4



APPLICABLE TEMPERATURE CHARACTERISTIC					
Capacitance pF	D $\pm 0.5\text{pF}$	F ($\pm 1\%$)	G ($\pm 2\%$)	J ($\pm 5\%$)	K ($\pm 10\%$)
0 - 3	C	-	-	-	-
5 - 10	C	-	-	-	C
12 - 18	C	-	-	C	C
20 - 24	-	-	-	CDE	CDE
27 - 47	-	-	CDE	CDE	CDE
51 - 82	-	CDE	CDE	CDE	CDE
>91	-	CDEF	CDEF	CDEF	CDEF

TEMPERATURE COEFFICIENT AND CAPACITANCE DRIFT		
Characteristic	Temperature Coefficient (ppm/°C)	Capacitance Drift
C	200 ~ 200	$\pm(0.5\%+0.1\text{pF})$
D	100 ~ 100	$\pm(0.3\%+0.1\text{pF})$
E	20 ~ 100	$\pm(0.1\%+0.1\text{pF})$
F	0 ~ 70	$\pm(0.05\%+0.1\text{pF})$



Constructional Photograph of Dipped Mica Capacitor



MICA CAPACITOR SPECIFICATIONS AND DATA

D M 05

Maximum Dimensions

Capacitance (pF)	300WV			100WV			50WV		
	L	W	T	L	W	T	L	W	T
5 - 82	7.1	7.1	4.6	7.1	7.1	4.6	7.1	7.1	4.0
9 - 160	7.4	7.4	4.9	7.4	7.4	4.9	7.1	7.1	4.0
180 - 330	7.6	7.6	5.1	7.6	7.6	5.1	7.1	7.1	4.6
360 - 430	-	-	-	7.6	7.6	5.1	7.4	7.4	4.9

D M 10

Maximum Dimensions

Capacitance (pF)	500WV			300WV			100WV		
	L	W	T	L	W	T	L	W	T
1 - 24	9.2	8.4	4.8	9.2	8.4	4.8	9.2	8.4	4.8
27 - 75	9.4	8.6	4.9	9.4	8.6	4.9	9.4	8.6	4.9
82 - 110	9.4	8.9	5.1	9.4	8.6	5.1	9.4	8.6	4.9
120 - 160	9.7	9.1	5.3	9.7	8.9	5.1	9.4	8.9	5.1
180 - 270	9.9	9.6	5.6	9.9	9.5	5.6	9.7	9.5	5.4
300 - 360	-	-	-	9.9	9.9	5.8	9.9	9.7	5.6

D M 15

Maximum Dimensions

Capacitance (pF)	500WV			300WV			100WV		
	L	W	T	L	W	T	L	W	T
1 - 62	11.4	9.1	4.3	11.4	9.1	4.3	11.4	9.1	4.3
68 - 100	11.7	9.1	4.6	11.7	9.1	4.6	11.7	9.1	4.6
110 - 240	11.7	9.6	5.1	11.7	9.6	5.1	11.7	9.6	5.1
270 - 430	12.0	9.9	5.3	11.7	9.6	5.1	11.7	9.6	5.1
470 - 620	12.2	10.4	5.9	11.7	9.6	5.1	11.7	9.6	5.1
680 - 750	12.7	10.9	6.4	12.0	9.9	5.3	12.0	9.9	5.3
820 - 910	-	-	-	12.0	10.2	5.6	12.0	10.2	5.6
1000 - 1200	-	-	-	12.7	10.9	6.4	12.4	10.7	6.1
1300 - 1500	-	-	-	-	-	-	12.7	11.0	6.4

ALL DIMENSIONS ARE IN MM



MICA CAPACITOR SPECIFICATIONS AND DATA

D M 19

Maximum Dimensions

Capacitance (pF)	500VV			300VV			100VV		
	L	W	T	L	W	T	L	W	T
47-330	16.3	12.7	4.8	16.3	12.7	4.8	16.3	12.7	4.8
360-470	16.3	12.9	5.1	16.3	12.9	5.1	16.3	12.9	5.1
510-620	16.5	12.9	5.1	16.5	12.9	5.1	16.5	12.9	5.1
680-910	16.5	12.9	5.3	16.9	12.9	5.3	16.5	12.9	5.3
1000-1100	16.5	13.2	5.6	16.5	13.2	5.6	16.5	13.2	5.6
1200-1300	16.8	13.2	5.6	16.8	13.2	5.6	16.8	13.2	5.6
1500-1600	16.8	13.5	5.8	16.8	13.5	5.8	16.8	13.5	5.8
1800-2000	17.0	13.5	6.1	17.0	13.5	6.1	17.0	13.5	6.1
2200-2400	17.0	13.7	6.6	17.0	13.7	6.6	17.0	13.7	6.6
2700-3000	17.3	14.0	7.1	17.0	13.7	6.6	17.0	13.7	6.6
3300-3600	17.3	14.2	7.6	17.3	13.7	6.9	17.3	13.7	6.9
3900-4300	17.5	14.5	8.4	17.3	14.0	7.1	17.3	14.0	7.1
4700-5100	18.0	15.0	9.4	17.3	14.0	7.6	17.3	14.0	7.6
5600-6800	-	-	-	17.5	14.5	8.4	17.5	14.5	8.1
7500-8200	-	-	-	-	-	-	17.8	14.7	8.9

D M 20

Maximum Dimensions

Capacitance (pF)	500VV			300VV			100VV		
	L	W	T	L	W	T	L	W	T
47-620	19.0	12.7	4.8	19.0	12.7	4.8	19.0	12.7	4.8
680-1200	19.0	13.0	5.1	19.0	13.0	5.1	19.0	13.0	5.1
1300-1600	19.3	13.0	5.3	19.3	13.0	5.3	19.3	13.0	5.3
1800-2200	19.3	13.2	5.6	19.3	13.2	5.6	19.3	13.2	5.6
2400-3000	19.6	13.7	6.9	19.6	13.7	6.9	19.6	13.7	6.9
3300-3600	19.8	14.0	7.4	19.6	13.7	6.9	19.6	13.7	6.9
3900-4300	19.8	14.2	7.9	19.6	13.7	6.9	19.6	13.7	6.9
4700-5100	20.1	14.5	8.4	19.8	14.0	7.1	19.8	14.0	7.1
5600-6200	20.1	14.7	8.9	19.8	14.2	7.6	19.8	14.2	7.4
6800-7500	20.3	15.2	9.9	20.1	14.5	8.4	19.8	14.2	7.6
8200-10000	20.8	16.0	11.4	20.3	15.0	9.4	20.1	14.5	8.6
11000-12000	-	-	-	20.6	15.2	10.2	20.3	14.7	9.1
13000-15000	-	-	-	-	-	-	20.6	15.2	10.2
16000-18000	-	-	-	-	-	-	20.8	15.7	11.2

ALL DIMENSIONS ARE IN MM



MICA CAPACITOR SPECIFICATIONS AND DATA

D M 30

Maximum Dimensions

Capacitance (pF)	500VV			300VV			100VV		
	L	W	T	L	W	T	L	W	T
470-1000	19.3	21.3	5.8	19.3	21.3	5.8	19.3	21.3	5.8
1100-2000	19.6	21.6	6.1	19.6	21.6	6.1	19.6	21.6	6.1
2200-3000	19.6	21.8	6.3	19.6	21.8	6.3	19.6	21.8	6.3
3300-3900	19.6	21.8	6.6	19.6	21.8	6.6	19.6	21.8	6.6
4300-5100	19.8	21.8	7.1	19.8	21.8	6.9	19.8	21.8	6.9
5600-6800	19.8	22.1	7.6	19.8	21.8	6.9	19.8	21.8	6.9
7500-9100	20.1	22.3	8.4	19.8	22.1	7.1	19.8	22.1	7.1
10000-12000	20.3	22.6	9.1	20.1	22.1	7.1	20.1	22.3	7.9
13000-15000	20.6	22.9	9.9	20.1	22.3	8.4	20.1	22.3	8.4
16000-18000	20.8	23.1	10.9	20.3	22.6	9.1	20.3	22.6	9.1
20000-22000	21.3	23.6	12.2	20.6	22.9	9.9	20.6	22.6	9.4
24000-30000	-	-	-	21.1	23.4	11.7	20.8	23.1	10.7
33000-36000	-	-	-	-	-	-	21.1	23.4	11.4
39000-40000	-	-	-	-	-	-	21.3	23.4	11.9

D M 42

Maximum Dimensions

Capacitance (pF)	500VV			300VV			100VV		
	L	W	T	L	W	T	L	W	T
16000-18000	35.8	22.1	7.4	35.8	22.1	7.4	35.8	22.1	7.1
20000-22000	36.1	22.1	7.6	36.1	22.1	7.4	35.8	22.1	7.4
24000-27000	36.3	22.3	7.6	36.1	22.3	7.9	35.8	22.1	7.9
30000-36000	36.8	22.9	9.6	36.6	22.6	8.9	36.1	22.3	7.9
39000-43000	37.1	23.1	10.7	36.8	22.9	9.4	36.3	22.3	8.4
47000-51000	37.6	23.4	11.9	37.1	22.9	10.2	36.6	22.6	9.1
56000-68000	-	-	-	37.6	23.4	11.9	37.1	22.9	10.4
75000-82000	-	-	-	-	-	-	37.6	23.4	21.7
91000-100000	-	-	-	-	-	-	38.1	23.9	12.7

ALL DIMENSIONS ARE IN MM



MICA CAPACITOR SPECIFICATIONS AND DATA

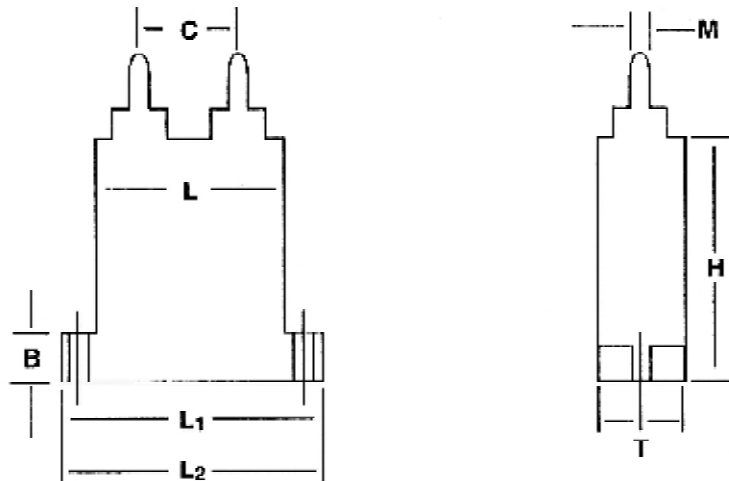
CMR DIPPED MICA CAPACITOR

QUICK REFERENCE GUIDE												
DIMENSIONS							CAPACITANCE RANGE AVAILABLE					
	SIZE	A	M	L _{max}	W _{max}	T _{max}	100V/V	300V/V	500V/V	1000V/V	1500V/V	2000V/V
	DM05	3.0	0.4	7.1~ 7.6	7.1~ 7.6	4.6~ 5.1	5~ 430	5~ 330				
	DM10	3.5	0.4	9.2~ 9.9	8.4~ 9.7	4.8~ 5.6	1~ 470	1~ 360	1~ 270			
	DM15	6.0	0.6	11.4~ 12.7	9.1~ 11.0	4.3~ 6.4	1~ 1500	1~ 1200	1~ 750			
	DM19	9.0	0.8	16.3~ 18.0	12.7~ 15.0	4.8~ 9.4	47~ 8200	47~ 6800	47~ 5100	10~ 3000		
	DM20	11.0	0.8	19.0~ 20.8	12.7~ 16.0	4.6~ 11.4	47~ 18000	47~ 12000	47~ 10000	10~ 5600	10~ 3000	
	DM30	11.0	1.0	19.3~ 21.4	21.3~ 23.6	5.8~ 12.2	470~ 40000	470~ 30000	470~ 22000	10~ 11000	10~ 8200	10~ 3000
	DM42	27.0	1.0	35.8~ 37.6	22.1~ 23.4	7.1~ 12.4	16000~ 100000	16000~ 68000	16000~ 51000	2400~ 32000	1600~ 20000	1000~ 13000



MICA CAPACITOR SPECIFICATIONS AND DATA

TRANSMITTING CAPACITOR (HIGH VOLTAGE)



TYPE	L MAX	L1 MAX	L2 MAX	H MAX	T MAX	B MAX	Terminal Screw	C
PTC - 1	50	70	80	55	30	8	M - 4	40
PTC - 2	80	90	100	75	45	10	M - 6	60
PTC - 3	105	115	125	100	55	10	M - 8	80

ALL DIMENSIONS ARE IN MM

CAP RANGE MAX IN pF

TYPE	1000 VDC	2000 VDC	5000 VDC	7500 VDC	10000 VDC	15000 VDC	20000 VDC	25000 VDC	30000 VDC
PTC - 1	100000	50000	20000	10000	2000	1000	500	-	-
PTC - 2	500000	250000	100000	50000	20000	10000	5000	1000	500
PTC - 3	1000000	500000	200000	100000	30000	20000	10000	3000	2500

* Capacitance of higher working voltage & beyond the range can be supplied against specific enquiries.

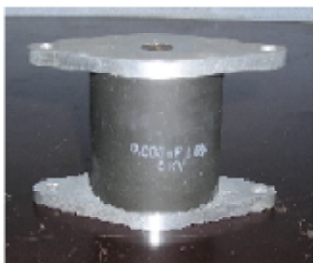
* Customized dimension could be available as per request.



MICA CAPACITOR SPECIFICATIONS AND DATA

RF & POWER TRANSMITTING CAPACITOR

IRP SERIES



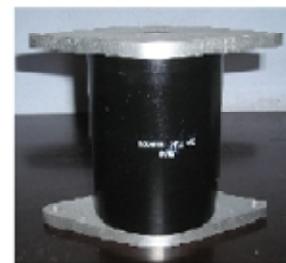
IRP-FI



IRP-WFII



IRP-WFIII



IRP-FIV

IRP SERIES epoxy casted mica capacitors, which are designed especially for RF and Power transmitting circuitry for the frequency ranging from 0.1 MHz to 3.0 MHz. These are also ideal for high current and high voltage circuits like broadcasting, welding, induction heating and other high frequency applications. IRP SERIES mica capacitors are electrically and dimensionally equivalent to MIL - C - 5 Style CM - 76 through CM - 91 in capacitance as well as current ratings for different frequencies.

In RF power circuit, the voltage across the capacitor has often both DC (V_{dc}) and RF component (v_{rms}) added up to each other. IRP SERIES capacitors are based on such construction and design so that it can withstand under such condition. Electrical discharge sets a limit to the total voltage of V_{dc} and v_{rfp} that can be applied to the capacitor. In HF application such limit is considered to be independent of frequency.

SALIENT FEATURES OF IRP SERIES

Maximum value of DC + peak rf voltage can be applied steadily without shortening the life.

Maximum value of i_{rms} can steadily flow through the capacitor without overheating.

Maximum value of reactive power can be handled without overheating.

WITHSTAND VOLTAGE

AC voltage is applied across the capacitor and increased the potential gradually from zero to the specified value, which is rms value equal to the rated peak voltage, and full potential is applied for 5 seconds minimum at a frequency 100 Hz less, there will be no arc, damage or breakdown.

DISSIPATION FACTOR

DF limit 1000 pF – below than 0.00096 measured at 1 MHz
1000 pF – below than 0.001 measured at 1 KHz

INSULATION RESISTANCE

Greater than 7500 MΩ after one minute application of 100 Volt DC

OPERATING TEMPERATURE

-55°C to + 130°C

TEMPERATURE COEFFICIENT

0 to 70 ppm/°C

CASE INSULATION

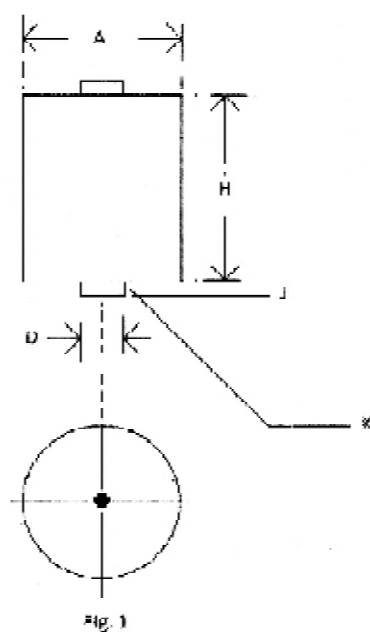
Encasing of the capacitor will withstand a voltage after the terminals are connected and the case is touched by a metal electrode at 50 Hz peak AC potential equal to two times rated PWV for a duration of 1 to 5 seconds without arc, physical & Electrical damage or breakdown.

FLANGE

Optional.



MICA CAPACITOR SPECIFICATIONS AND DATA



DIMENSION :

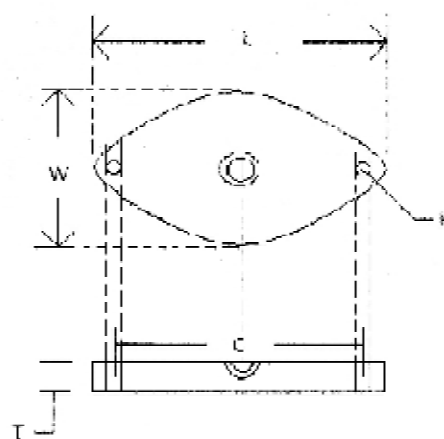


Fig. 2

Electrical

TYPE	Commercial equiv. (MIL-C-5)	CAPACITANCE RANGE (pf)	TOLERANCE	PWV (KV)	CURRENT (rms Amp) at 1.0 MHz
IRP - I	CM 76	100000 - 47	$\pm 5.0\%$	1.0 to 6.0	22.0 to 1.2
IRP - II	CM 81	100000 - 47	$\pm 5.0\%$	1.5 to 10.0	39.0 to 2.0
IRP - III	CM 86	100000 - 47	$\pm 5.0\%$	2.0 to 20.0	51.0 to 2.0
IRP - IV	CM 91	100000 - 100	$\pm 5.0\%$	3.0 to 30.0	62.0 to 5.1

Physical

A.

TYPE	Fig.	CASE DIMENSION (IN INCH)				
		A	H	J	D	C
IRP - I	1	2.0	2.0	0.062 $\pm$ 0.010	0.50	1/4 - 28 0.219 deep
IRP - II	1	2.5	2.5	0.062 $\pm$ 0.010	0.50	1/4 - 28 0.219 deep
IRP - III	1	3.5	3.25	0.062 $\pm$ 0.010	0.75	3/8 - 24 0.219 deep
IRP - IV	1	3.5	5.0	0.062 $\pm$ 0.010	0.75	3/8 - 24 0.219 deep

B.

TYPE	FLANGE DIMENSION (IN INCH)					Fig.
	L	W	T	C		
IRP - I	3.8	2.0	0.250	3.250	0.272	2
IRP - II	5.0	2.5	0.250	4.250	0.272	2
IRP - III	6.5	5.0	0.375	5.750	0.383	2
IRP - IV	6.5	5.0	0.375	5.750	0.383	2



MICA CAPACITOR SPECIFICATIONS AND DATA

IRP SERIES

TYPE	CAPACITANCE (pF)	PWV (Volts)	RATED CURRENT (RMS AMP) CORRESPONDING TO FREQUENCY			
			3.0 MHz	10.0 MHz	0.3 MHz	0.1 MHz
IRP - I	47	6000	2.0	1.2	0.51	0.16
	4700	6000	16.0	16.0	12.0	6.2
	5100	4000	16.0	16.0	12.0	6.2
	10000	4000	18.0	20.0	15.0	9.1
	12000	3000	18.0	20.0	16.0	9.1
	15000	3000	18.0	20.0	16.0	10.0
	20000	2000	18.0	22.0	18.0	11.0
	27000	2000	18.0	22.0	18.0	12.0
	30000	1500	18.0	22.0	18.0	12.0
	68000	1500	18.0	22.0	22.0	16.0
IRP - II	75000	1000	18.0	22.0	22.0	16.0
	100000	1000	18.0	22.0	22.0	18.0
	47	10000	2.7	2.0	0.91	0.27
	1000	10000	12.0	10.0	6.2	2.4
	2000	10000	16.0	13.0	8.2	3.6
	3300	8000	20.0	16.0	11.0	4.7
	5000	6000	20.0	20.0	13.0	6.2
	10000	5000	20.0	24.0	18.0	9.1
	15000	4000	20.0	27.0	20.0	11.0
	22000	3000	20.0	30.0	22.0	13.0
IRP - III	36000	2000	20.0	33.0	27.0	16.0
	68000	2000	20.0	39.0	33.0	20.0
	100000	1500	20.0	39.0	36.0	20.0
	47	20000	5.1	2.2	0.47	0.12
	510	20000	12.0	9.1	5.1	2.4
	1000	20000	15.0	13.0	7.5	3.6
	1500	15000	16.0	16.0	9.1	4.7
	2200	12000	20.0	20.0	12.0	5.6
	4300	12000	22.0	27.0	16.0	8.2
	5000	10000	24.0	30.0	18.0	9.1
IRP - IV	8200	10000	24.0	36.0	22.0	11.0
	10000	8000	24.0	39.0	24.0	12.0
	18000	5000	24.0	47.0	30.0	16.0
	51000	3000	24.0	51.0	36.0	24.0
	100000	2000	24.0	51.0	39.0	24.0
	100	30000	7.5	5.1	2.0	0.68
	1000	30000	18.0	16.0	10.0	5.1
	1500	25000	20.0	20.0	12.0	6.2
	30000	20000	24.0	27.0	18.0	9.1
	5600	15000	27.0	36.0	22.0	13.0
IRP - V	10000	10000	30.0	43.0	30.0	18.0
	15000	8000	30.0	47.0	33.0	20.0
	27000	6000	30.0	56.0	39.0	27.0
	51000	5000	30.0	56.0	39.0	33.0
	75000	4000	30.0	62.0	43.0	36.0
	82000	3000	30.0	62.0	43.0	39.0
	100000	3000	30.0	62.0	43.0	39.0

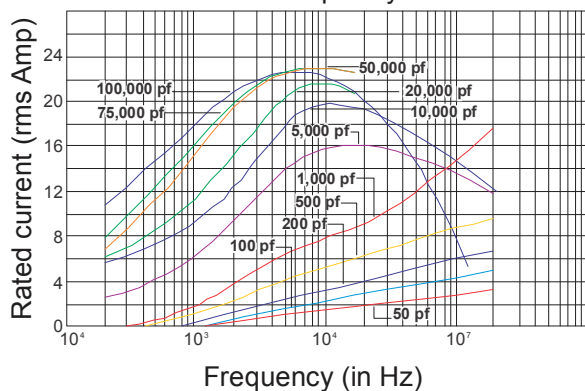
* Capacitance of higher working voltage & beyond the range can be supplied against specific enquiries.

* Customized dimension could be available as per request.

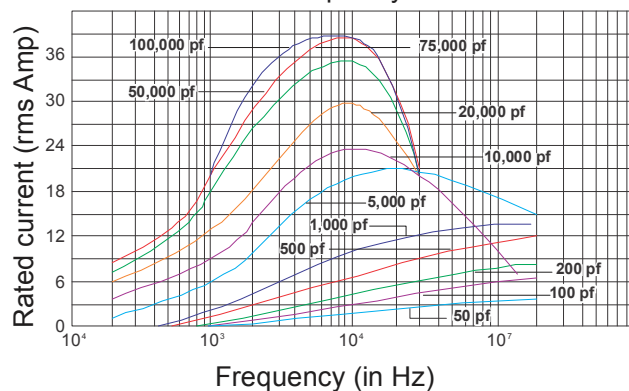


MICA CAPACITOR SPECIFICATIONS AND DATA

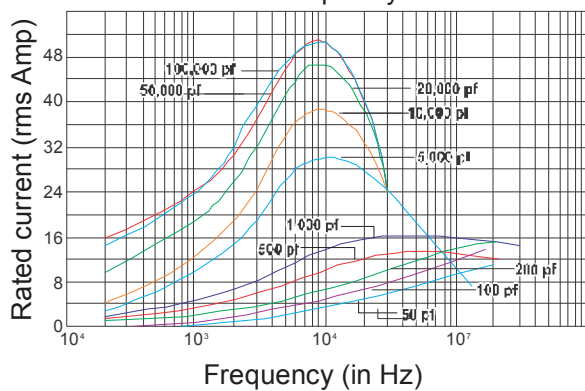
Type IRP-1
Rated current Vs frequency



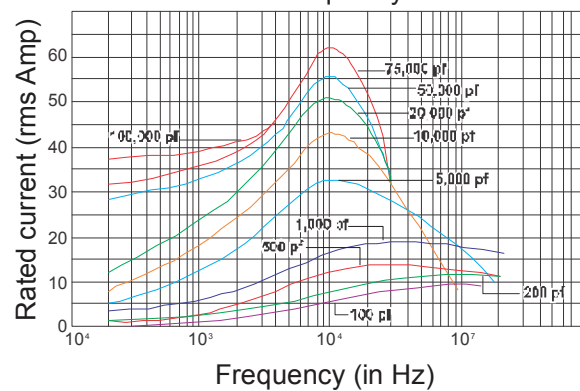
Type IRP-II
Rated current Vs frequency



Type IRP-III
Rated current Vs frequency



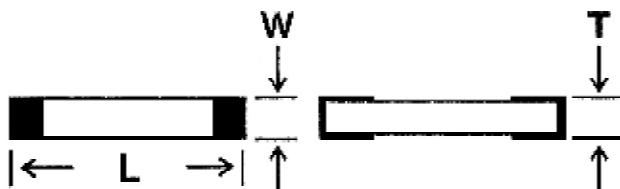
Type IRP-IV
Rated current Vs frequency





MICA CAPACITOR SPECIFICATIONS AND DATA

SINTERED SILVERED MICA CHIPS



TYPE	DIMENSION (mm)		CAPACITANCE RANGE pF			THICKNESS (T) MAXIMUM	REMARKS
	L MAX	W MAX	500 V	300 V	100 V		
SC-05	4.5	3.5	1 to 120	1 to 300	1 to 500	2mm ± 0.25	Actual thickness of chips depends on particular pF values.
SC-10	6.8	3.5	51 to 500	51 to 750	51 to 1000	2mm ± 0.25	
SC-15	8.2	4.2	100 to 1000	100 to 1500	100 to 2000	2mm ± 0.25	
SC-19	10.2	8.2	250 to 5000	250 to 8200	250 to 10000	2mm ± 0.25	Chips can be supplied upto 1000V working in Type SC-30 & SC-42 but pF range will be low.
SC-30	14.2	14.2	5001 to 8200	8201 to 12000	10001 to 15000	3mm ± 0.25	
			1000 to 9000	1000 to 13000	1000 to 18000	2mm ± 0.25	
			9001 to 15000	13001 to 19000	18001 to 27000	3mm ± 0.25	
SC-42	25.2	12.2	15001 to 20000	19001 to 27000	27001 to 39000	4mm ± 0.25	
			2500 to 19000	2500 to 26000	2500 to 30000	3mm ± 0.25	
			19001 to 24000	26001 to 34000	30001 to 41000	4mm ± 0.25	
			24001 to 30000	34001 to 43000	41001 to 50000	5mm ± 0.25	

* Capacitance of higher working voltage & beyond the range can be supplied against specific enquiries.

* Customized dimension could be available as per request.

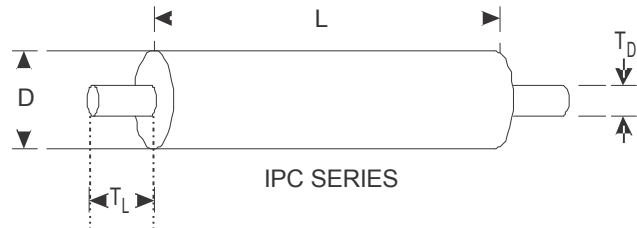
Note :

1. Silvered Mica Chips are relatively very high Capacitance value to low volume ratio, without any compromise of mica dielectric in terms of high reliability.
2. Chips are without connection as both output edges are designed to be soldered directly to the point of contact with the substrate. Soldering at 180°C is possible but it needs care as soldering time should be very short and soldering iron should be temperature controlled.
3. Chips are uncapsulated and final encapsulation is designed to be common with rest of the circuit.
4. The quality of final protection determines the performance of these chips. The characteristics of Mica Capacitors as per technical specification P.3 and P.4 can be upheld only after complete encapsulation. This encapsulation plays a vital role.
5. It is important for these chips before using them to stove at 125° for a few hours.



MICA CAPACITOR SPECIFICATIONS AND DATA

IPC SERIES MICA CAPACITOR



TYPE	CAPACITANCE (pF)	VOLTAGE (KV)	DIMENSION (mm)					APPROX	COLOUR
	RANGE	RANGE	L	D	T _L	L _D	TAP	MASS (Kg)	
IPC - I	100 - 2000	5.0 - 20.0	102.0	70.0	25.4	8.0	M8	1.100	GREEN / BLACK
IPC - II	100 - 3000	5.0 - 30.0	153.0	70.0	25.4	8.0	M8	1.600	GREEN / BLACK
IPC - III	100 - 5000	10.0 - 40.0	203.0	70.0	25.4	8.0	M8	2.200	GREEN / BLACK
IPC - IV	100 - 10000	15.0 - 60.0	303.0	70.0	25.4	8.0	M8	3.000	GREEN / BLACK

TERMINAL :	PRASS BOLT TYPE
ENCAPSULATION :	EPOXY CASTING
CAPACITANCE	MEASURED AT 1.0 KHz
TOLERANCE :	± 10%

Application

IPC SERIES epoxy casted mica capacitor, especially designed for PLC and high voltage application circuitry to extract HF signal from LF HV transmission line. It can also be used in very high voltage circuit. Utmost care has been taken in every step of manufacturing process covering with high withstanding voltage capabilities of dielectric.

Withstand voltage

AC voltage is applied across the capacitor and increased the potential gradually from zero to the specified value, which is rms value equal to the rated peak voltage, and full potential is applied for 5 seconds minimum at a frequency 100 Hz less, there will be no arc, damage or breakdown.

Dissipation factor

Less than 0.001 at 1.0 KHz

Insulation resistance

Greater than 7500 MΩ after one minute application of 100 Volt DC.

Operating temperature

- 55°C to + 130°C

Temperature coefficient

0 to 70 ppm/°C

Case insulation

Encasing of the capacitor will withstand a voltage after the terminals are connected and the case is touched by a metal electrode at 50 Hz peak AC potential equal to two times rated PWV for a duration of 1 to 5 second without arc, damage or breakdown.



MICA CAPACITOR SPECIFICATIONS AND DATA

PD COUPLING CAPACITOR

Partial discharge coupling capacitor (EMC)



Top view



Bottom view



Mounted with hardware



Mounting Hardware

Specification of IDC series

Type	Capacitance (pF)	Tolerance	Temperature (deg C)	CEV (KV)	AC Hipot (KV)	Mass (Kg)	Diameter (Inch)	Heigh (Inch)
IDCG80V07	80	± 5%	– 30 to 130	7.0	18.0	1.650	4.0	6.0
IDCG80V10	80	± 5%	– 30 to 130	10.0	23.0	2.000	4.0	8.0
IDCG80V15	80	± 5%	– 30 to 130	15.0	32.0	2.100	4.0	8.0
IDCG80V20	80	± 5%	– 30 to 130	20.0	43.0	2.300	4.0	8.0
IDCG80V25	80	± 5%	– 30 to 130	25.0	54.0	2.800	4.0	10.0

* Capacitance of higher working voltage & beyond the range can be supplied against specific enquiries.

* Customized dimension could be available as per request.



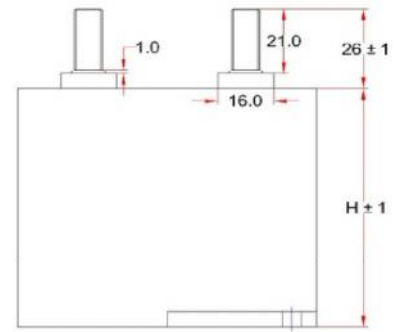
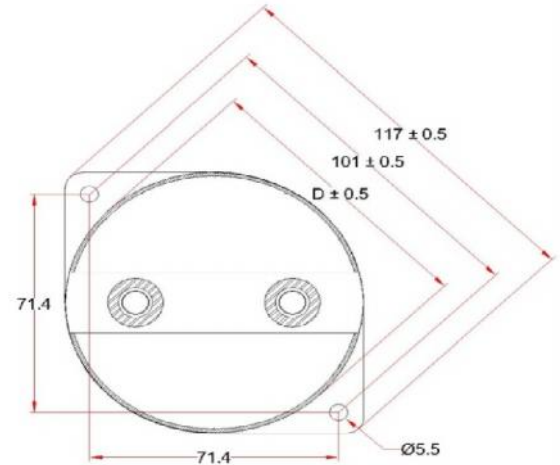
DC LINK CAPACITOR (CAN TYPE)

FEATURES

- Non - inductive
- Low ESR, low ESL
- Self-healing property
- High thermal withstand capacity
- Integrated mounting flanges
- Flame retardant outer cover UL 94 - V0

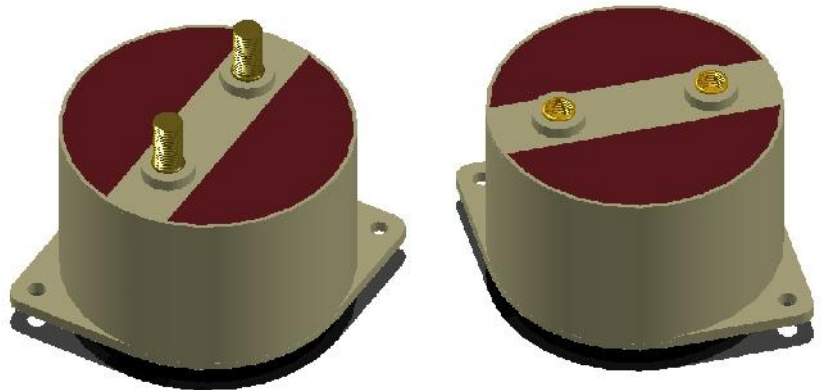
SPECIFICATION

Capacitance Range:	47 μ F - 380 μ F
Capacitance Tolerance:	$\pm 5\%$ and $\pm 10\%$
Voltage Range:	Upto 1000 V _{dc}
Dissipation Factor (tan δ):	$\leq 5 \times 10^{-4}$ @ 50Hz.
Dielectric:	Self-healing metalized polypropylene film
Winding Type:	Non-inductive
Test Voltage:	Terminal to terminal = 1.5 U _{NDc} @ 10 Sec
Operating Temperature:	- 40°C to - 70°C at U _{NDc} - 40°C to - 85°C at 0.7U _{NDc} - 40°C to - 105°C at 0.5U _{NDc}
Casing Material:	Self extinguishing plastic case UL 94 - V0
Filling:	Epoxy resin filled
Terminals:	M6, M8 or M10 threaded Tinned coated brass bolts; also available with threaded Female Connections.
Torque of terminals:	5 Nm for M6, 6 Nm for M8 & 8 Nm for M10
Life time expectancy:	$\geq 1,00,000$ hrs. at U _{NDc} and 70°C
Reference Standard:	IEC 1071, EN 61071



APPLICATION

- DC filtering
- Hybrid vehicles
- Solar power plant
- Wind power plant
- Motor Drives
- Induction heater
- Industrial equipment
- Railway, car, welding & other electronic equipments



Product Code	Cap. (μ F)	Un (V _{dc})	dv/dt (v/ μ s)	I _{pk} (Amp)	I _{rms} * at Ambient Temp.				ESR* m Ω	ESL nH	Dimension(mm)	
					25 °C	45 °C	65 °C	85 °C			D	H
CMRDE6175BMEAJ	175	400	24	4200	100	100	80	46	0.50	25	85.5	55.5
CMRDE6260BMEBJ	260	400	19	4940	100	100	77	45	0.62	32	85.5	63.0
CMRDE6380BMECJ	380	400	15	5700	100	94	73	42	0.81	40	85.5	40.0
CMRDI6100BMEAJ	100	600	30	3000	100	93	72	42	0.60	25	85.5	55.5
CMRDI6150BMEBJ	150	600	24	3600	100	90	70	40	0.75	32	85.5	63.0
CMRDI6200BMECJ	200	600	19	3800	94	81	62	36	0.96	40	85.5	78.0
CMRDM5660BMEAJ	66	800	34	2244	100	87	68	40	0.70	25	85.5	25.0
CMRDM6100BMEBJ	100	800	30	3000	100	84	65	37	0.90	32	85.5	63.0
CMRDM6140BMECJ	140	800	24	3360	91	77	60	35	1.20	40	85.5	78.0
CMRDM6200BMECJ	200	800	19	3800	85	61	55	32	1.35	52	85.5	78.0
CMRDP5470BMEAJ	47	1000	35	1645	96	81	63	36	0.80	25	85.5	63.0
CMRDP5680BMECJ	68	1000	30	2040	92	77	60	35	1.10	32	85.5	78.0
CMRDP6100BMECJ	100	1000	25	2500	86	72	56	32	1.30	40	85.5	78.0

*NOTE: @ 10 kHz at 20 °C (for ESR)



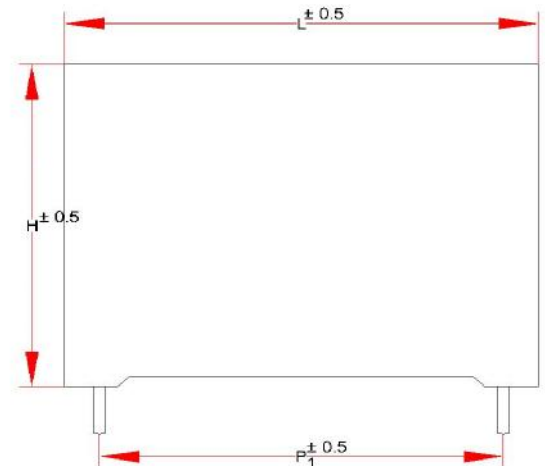
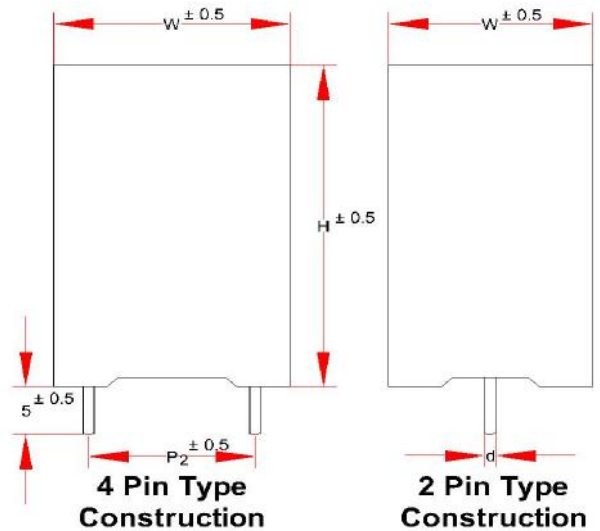
DC LINK CAPACITOR (BOX TYPE)

FEATURES

- Non - inductive
- Low ESR, low ESL
- Self-healing property
- High thermal withstand capacity
- Integrated mounting flanges
- Flame retardant outer cover UL 94 - V0

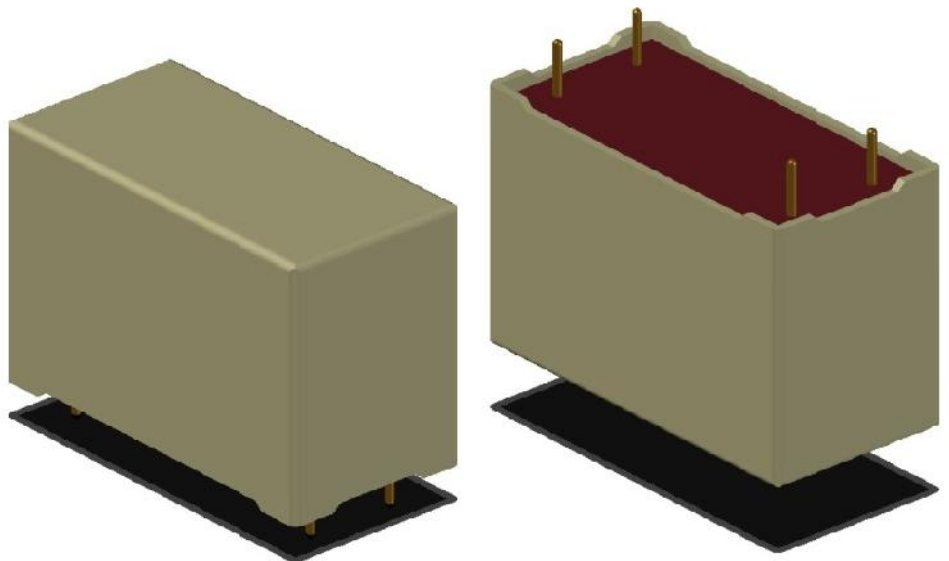
SPECIFICATION

Capacitance Range:	1 μ F - 200 μ F
Capacitance Tolerance:	$\pm 5\%$ and $\pm 10\%$
Voltage Range:	Upto 800 V _{dc}
Dissipation Factor (tan δ):	$\leq 5 \times 10^{-4}$ @ 50Hz.
Dielectric:	Self-healing metalized polypropylene film
Winding Type:	Non-inductive
Test Voltage:	Terminal to terminal = 1.5 U _{NDC} @ 10 s
Operating Temperature:	- 40°C to - 70°C at U _{NDC} - 40°C to - 85°C at 0.7U _{NDC} - 40°C to - 105°C at 0.5U _{NDC}
Casing Material:	Self extinguishing plastic case UL 94 - V0
Filling:	Epoxy resin filled
Terminals:	Tinned coated brass pin suitable for mounting in PCB also.
Life time expectancy:	$\geq 1,00,000$ at U _{NDC} and 70°C
Reference Standard:	IEC 1071, EN 61071



APPLICATION

- DC filtering
- Hybrid vehicles
- Solar power plant
- Wind power plant
- Motor Drives
- Induction heater
- Industrial equipment
- Railway, car, welding & other electronic equipments





DC LINK CAPACITOR

(BOX TYPE, 2 Pin)

Product Code	Cap. (μ F)	Un (Vdc)	dv/dt (v/ μ s)	Current(Amp)		ESR* (m Ω)	ESL (nH)	Dimensions (mm)			P1 (mm)
				I pk	I rms*			W	H	L	
CMRDF4100AP2AAJ	1	450	45.0	45	1.0	16.5	20	10.0	18.0	34.0	27.5
CMRDF4200AP2A1BJ	2	450	45.0	90	1.5	16.0	20	14.5	20.5	34.0	27.5
CMRDF4300AP2A1BJ	3	450	45.0	135	2.0	15.5	20	14.5	20.5	34.0	27.5
CMRDF4400AP2A1CJ	4	450	45.0	180	2.0	15.0	20	17.0	26.0	34.0	27.5
CMRDF4500AP2A1CJ	5	450	45.0	225	2.5	14.5	20	17.0	26.0	34.0	27.5
CMRDF4600AP2A1DJ	6	450	45.0	270	3.0	14.0	20	20.0	28.0	34.0	27.5
CMRDF4700AP2A1DJ	7	450	27.5	193	3.5	15.0	20	20.0	28.0	34.0	27.5
CMRDF4800AP2A1EJ	8	450	27.5	220	4.0	14.5	20	22.0	34.0	34.0	27.5
CMRDF4900AP2A1EJ	9	450	27.5	248	3.5	14.0	20	22.0	34.0	34.0	27.5
CMRDF5100AP2A1EJ	10	450	27.5	275	4.5	13.0	20	22.0	34.0	34.0	27.5
CMRDF5120AP2B2FJ	12	450	27.5	330	5.0	12.5	25	22.0	34.0	44.0	37.5
CMRDF5150AP2B2FJ	15	450	27.5	413	5.5	12.0	25	22.0	34.0	44.0	37.5
CMRDF5200AP2B2GJ	20	450	27.5	550	6.0	11.5	25	26.0	37.0	44.0	37.5
CMRDF5250AP2B2HJ	25	450	20.5	513	6.5	11.5	25	30.5	45.0	44.0	37.5
CMRDF5300AP2B2HJ	30	450	20.5	615	7.0	11.0	30	30.5	45.0	44.0	37.5
CMRDF5350AP2B2HJ	35	450	20.5	718	8.0	10.0	30	30.5	45.0	44.0	37.5
CMRDF5400AP2C3IJ	40	450	20.5	820	9.0	8.5	30	30.5	48.0	61.5	52.5
CMRDF5500AP2C3IJ	50	450	20.5	1025	11.0	7.0	30	30.5	48.0	61.5	52.5
CMRDF5600AP2C3JJ	60	450	13.5	810	11.5	6.5	35	38.0	54.0	61.5	52.5
CMRDF5700AP2C3JJ	70	450	13.5	945	12.5	6.0	35	38.0	54.0	61.5	52.5
CMRDF5800AP2C3JJ	80	450	13.5	1080	13.5	5.5	35	38.0	54.0	61.5	52.5
CMRDF5900AP2C3KJ	90	450	13.5	1215	14.0	5.0	35	50.5	50.5	61.5	52.5
CMRDF6100AP2C3KJ	100	450	13.5	1350	14.5	4.5	35	50.5	50.5	61.5	52.5
CMRDF6200AP2C3LJ	200	450	9.5	1900	28.0	4.0	45	68.5	68.5	61.5	52.5
CMRDM4100AP2A1BJ	1	800	20.0	20	2.0	9.0	20	14.5	20.5	34.0	27.5
CMRDM4200AP2A1BJ	2	800	20.0	40	3.0	8.5	20	14.5	20.5	34.0	27.5
CMRDM4300AP2A1CJ	3	800	20.0	60	3.5	8.5	20	17.0	26.0	34.0	27.5
CMRDM4400AP2A1DJ	4	800	20.0	80	4.0	8.0	20	20.0	28.0	34.0	27.5
CMRDM4500AP2A1EJ	5	800	20.0	100	4.5	7.3	25	22.0	34.0	34.0	27.5
CMRDM4600AP2A1EJ	6	800	20.0	120	5.0	6.5	25	22.0	34.0	34.0	27.5
CMRDM4700AP2A1FJ	7	800	20.0	140	5.5	8.0	25	22.0	34.0	44.0	27.5
CMRDM4800AP2B2FJ	8	800	20.0	160	6.5	7.5	25	22.0	34.0	44.0	37.5
CMRDM4900AP2B2FJ	9	800	20.0	180	7.5	7.0	25	22.0	34.0	44.0	37.5
CMRDM5100AP2B2GJ	10	800	20.0	200	8.5	6.0	30	26.0	37.0	44.0	37.5
CMRDM5120AP2B2GJ	12	800	15.0	180	9.0	7.0	30	26.0	37.0	44.0	37.5
CMRDM5150AP2B2HJ	15	800	15.0	225	10.0	6.0	30	30.5	45.0	44.0	37.5
CMRDM5200AP2C3MJ	20	800	15.0	300	13.5	4.5	30	30.0	41.0	59.0	52.5
CMRDM5250AP2C3MJ	25	800	15.0	375	14.0	4.5	30	30.0	41.0	59.0	52.5
CMRDM5300AP2C3NJ	30	800	11.0	330	15.0	4.5	35	34.5	46.5	59.0	52.5
CMRDM5350AP2C3NJ	35	800	11.0	385	17.0	4.0	35	34.5	46.5	59.0	52.5
CMRDM5400AP2C3OJ	40	800	11.0	440	18.0	3.5	35	48.0	48.0	59.0	52.5
CMRDM5500AP2C3OJ	50	800	11.0	550	19.0	3.3	35	48.0	48.0	59.0	52.5

*NOTE: @ 100 kHz at 70 °C (for I rms) & 20 °C (for ESR)



DC LINK CAPACITOR

(BOX TYPE, 4 Pin)

Product Code	Cap. (μF)	Un (Vdc)	dv/dt (v/ μs)	Current(Amp)		ESR* (m Ω)	ESL (nH)	Dimensions(mm)			Pin Dist(mm)	
				I pk	I rms*			W	H	L	P1	P2
CMRDF5150AP4B2FJ	15	450	27.5	413	4.8	11.5	25	22.0	34.0	44.0	37.5	12.5
CMRDF5200AP4B2GJ	20	450	27.5	550	6.0	11.0	25	26.0	37.0	44.0	37.5	12.5
CMRDF5250AP4B2HJ	25	450	20.5	513	5.9	11.2	25	30.5	45.0	44.0	37.5	20.0
CMRDF5300AP4B2HJ	30	450	20.5	615	7.5	10.6	30	30.5	45.0	44.0	37.5	20.0
CMRDF5350AP4B2HJ	35	450	20.5	718	8.5	9.2	30	30.5	45.0	44.0	37.5	20.0
CMRDF5400AP4C3IJ	40	450	20.5	820	9.5	8.1	30	30.5	48.0	61.5	52.5	20.0
CMRDF5500AP4C3IJ	50	450	20.5	1025	11.5	6.6	30	30.5	48.0	61.5	52.5	20.0
CMRDF5600AP4C3JJ	60	450	13.5	810	12.5	6.0	35	38.0	54.0	61.5	52.5	20.0
CMRDF5700AP4C3JJ	70	450	13.5	945	13.5	5.6	35	38.0	54.0	61.5	52.5	20.0
CMRDF5800AP4C3JJ	80	450	13.5	1080	15.0	5.1	35	38.0	54.0	61.5	52.5	20.0
CMRDF5900AP4C3KJ	90	450	13.5	1215	16.0	4.7	35	50.5	50.5	61.5	52.5	20.0
CMRDF6100AP4C3KJ	100	450	13.5	1350	17.0	4.3	35	50.5	50.5	61.5	52.5	20.0
CMRDF6200AP4C3LJ	200	450	9.5	1900	31.0	3.8	45	68.5	68.5	61.5	52.5	30.0
CMRDM4700AP4A1FJ	7	800	20.0	140	6.0	6.8	25	22.0	34.0	44.0	27.5	12.5
CMRDM4800AP4B2FJ	8	800	20.0	160	7.0	6.6	25	22.0	34.0	44.0	37.5	12.5
CMRDM4900AP4B2FJ	9	800	20.0	180	8.0	6.3	25	22.0	34.0	44.0	37.5	12.5
CMRDM5100AP4B2GJ	10	800	20.0	200	9.0	5.9	30	26.0	37.0	44.0	37.5	12.5
CMRDM5120AP4B2GJ	12	800	15.0	180	9.5	6.5	30	26.0	37.0	44.0	37.5	12.5
CMRDM5150AP4B2HJ	15	800	15.0	225	10.5	5.2	30	30.5	45.0	44.0	37.5	20.0
CMRDM5200AP4C3MJ	20	800	15.0	300	14.5	4.0	30	30.0	41.0	59.0	52.5	20.0
CMRDM5250AP4C3MJ	25	800	15.0	375	15.0	3.8	30	30.0	41.0	59.0	52.5	20.0
CMRDM5300AP4C3NJ	30	800	11.0	330	16.0	4.1	35	34.5	46.5	59.0	52.5	20.0
CMRDM5350AP4C3NJ	35	800	11.0	385	18.0	3.7	35	34.5	46.5	59.0	52.5	20.0
CMRDM5400AP4C3OJ	40	800	11.0	440	19.5	3.2	35	48.0	48.0	59.0	52.5	20.0
CMRDM5500AP4C3OJ	50	800	11.0	550	20.5	2.9	35	48.0	48.0	59.0	52.5	20.0

***NOTE:** @ 100 kHz at 70 °C (for I rms) & 20 °C (for ESR)



GTO CAPACITOR

FEATURES

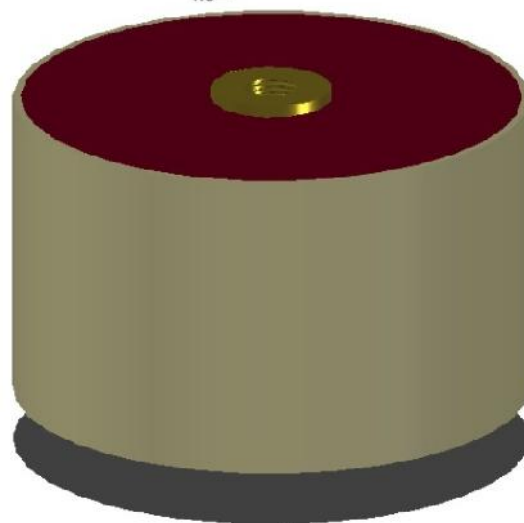
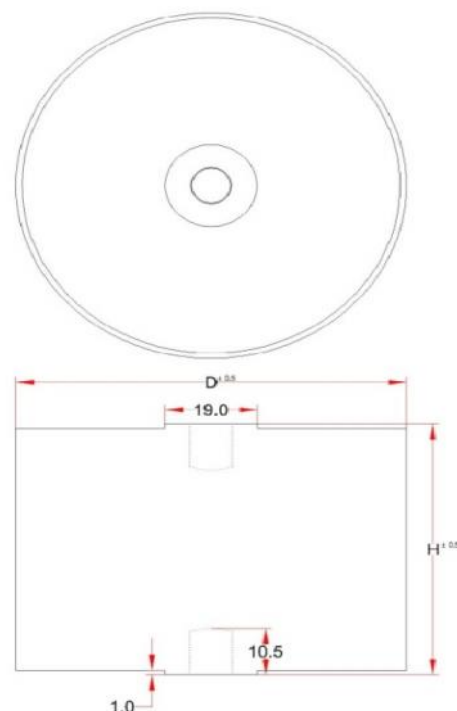
- Non - inductive
- Low ESR, low ESL
- Self-healing property
- High thermal withstand capacity
- Rigid mechanical mounting and excellent terminal contacts are achieved by the strong axial connections
- Flame retardant outer cover UL 94 - V0

SPECIFICATION

Capacitance Range:	0.1 μ F - 5 μ F
Capacitance Tolerance:	$\pm 5\%$ and $\pm 10\%$
Voltage Range:	Upto 1000 V _{dc}
Dissipation Factor (tan δ):	$\leq 3 \times 10^{-4}$ @ 1 kHz at 40°C .
Winding Type:	Non-inductive
Operating Temperature:	- 40°C to - 85°C at U _{NDC}
Dielectric:	Self-healing metalized polypropylene film
Climatic Category:	40/85/56 according to IEC 60068
Casing Material:	Self extinguishing plastic case UL 94 - V0
Filling:	Epoxy resin filled
Terminals:	M6, M8 or M10 Threaded Tinned coated brass female type connections
Test voltage terminal to case (UTC):	5 kV, 50 Hz for 60 sec
Life time expectancy:	$\geq 1,00,000$ hrs at U _{RMS}
Reference Standard:	IEC 1071, EN 61071

APPLICATION

- GTO protection
- High ripple current DC filtering
- Medium frequency converter
- Medium frequency tuning
- Pulsed lasers
- Traction Industry



Product Code	Cap. (μ F)	Un (V _{dc})	U _{RMS} (V _{ac})	dv/dt (v/ μ s)	Current(Amp)		ESR * (m Ω)	Dimension(mm)	
					I _{pk}	I _{rms} *		D	H
CMRGN4150AFECJ	1.5	850	500	500	668	38	1.8	60	56
CMRGN4200AFECJ	2.0	850	500	500	893	42	1.6	60	56
CMRGN4300AFECJ	3.0	850	500	500	1341	51	1.3	72	56
CMRGN4350AFECJ	3.5	850	500	500	1564	53	1.2	72	56
CMRGN4400AFECJ	4.0	850	500	500	1786	58	1.2	80	56
CMRGN4500AFECJ	5.0	850	500	500	2219	61	1.2	80	56
CMRGN4600AFECJ	6.0	850	500	500	2679	67	1.1	90	56
CMRGP4100AFECJ	1.0	1000	1000	600	519	35	2.3	60	56
CMRGP4200AFECJ	2.0	1000	1000	600	1037	48	1.5	72	56
CMRGP4250AFECJ	2.5	1000	1000	600	1298	54	1.5	80	56
CMRGP4300AFECJ	3.0	1000	1000	600	1567	57	1.3	80	56
CMRGP4100AFECJ	3.5	1000	1000	600	1823	63	1.2	90	56
CMRGP4200AFECJ	4.0	1000	1000	600	2084	65	1.1	90	56

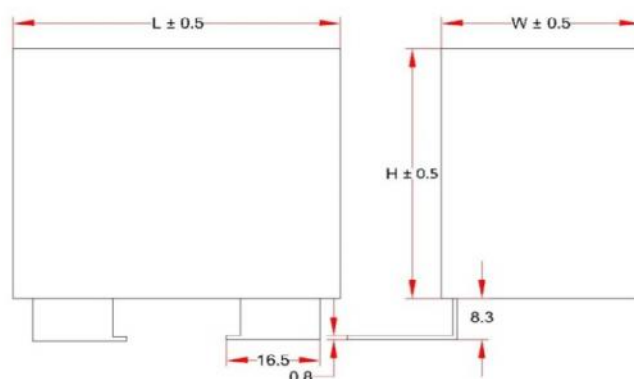
*NOTE: @ 100 kHz at 70 °C (for I_{rms}) & 20 °C (for ESR)



IGBT CAPACITOR

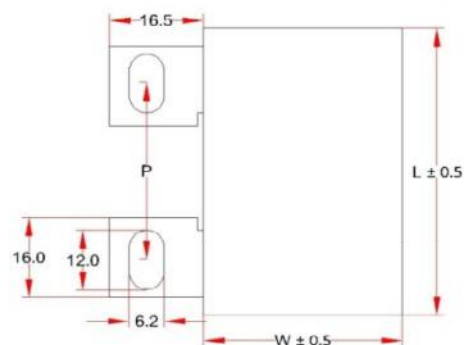
FEATURES

- High pulse load capability due to double sided metalization
- Excellent self-healing property
- High voltage or over voltage withstand strength
- Very low inductance
- Various terminal configuration
- Direct terminal contact arrangement with IGBT module for safe operation
- High contact reliability
- Flame retardant outer cover UL 94 - V0



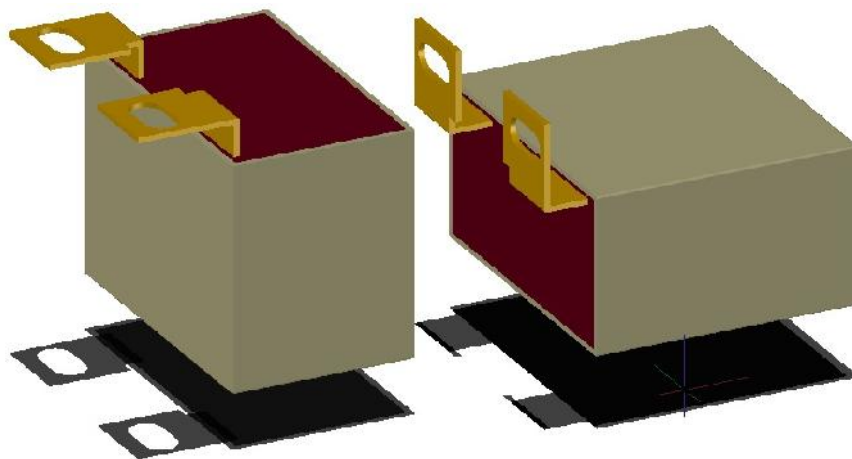
SPECIFICATION

Capacitance Range:	0.1 μ F - 5 μ F
Capacitance Tolerance:	$\pm 5\%$ and $\pm 10\%$
Voltage Range:	Upto 2000 V _{dc}
Dissipation Factor (tan δ):	$\leq 5.0 \times 10^{-4}$ @ 1 kHz at 40°C
Dielectric:	Self-healing metalized polypropylene film
Winding Type:	Non-inductive
Operating Temperature:	- 40°C to - 85°C at U _{NDC}
Climatic Category:	40/85/56 according to IEC 60068
Casing Material:	Self extinguishing plastic case UL 94 - V0
Filling:	Epoxy resin filled
Terminals:	Tinned coated brass faston terminal
Test voltage terminal to case (UTC):	3 kV, 50 Hz for 60 sec
Test voltage terminal to terminals (UTT):	2 x U _n for 10 sec
Life time expectancy:	$\geq 1,00,000$ at U _{NDC} or $\geq 30,000$ at U _{RMS} and 70°C
Reference Standard:	IEC 1071, EN 61071



APPLICATION

- IGBT module
- Hybrid vehicles
- Solar power plant
- Wind power plant
- Motor Drives
- Induction heater
- Industrial equipment
- Railway, car, welding & other electronic equipments





IGBT CAPACITOR

Product Code	Cap. (μ F)	Un (Vdc)	URMS (Vac)	dv/dt (v/ μ s)	Current(Amp)		ESR* m Ω	ESL nH	Dimensions (mm)			P# (mm)
					I pk	I rms*			W	H	L	
CMRIN3470AF2AJ	0.47	850	550	753	354	16	8.2	41	20	40	41.5	22.0
CMRIN3680AF2AJ	0.68	850	550	753	512	19	5.7	41	20	40	41.5	22.0
CMRIN4100AF2AJ	1.00	850	550	753	753	22	4.0	41	20	40	41.5	22.0
CMRIN4150AF2BJ	1.50	850	550	753	1130	29	2.7	36	28	37	42.5	22.0
CMRIN4200AF2CJ	2.00	850	550	753	1506	36	2.1	43	30	45	42.0	22.0
CMRIN4220AF2CJ	2.20	850	550	753	1657	37	1.9	43	30	45	42.0	22.0
CMRIN4250AF2DJ	2.50	850	550	465	1163	39	1.7	45	30	45	57.5	37.0
CMRIN4300AF2DJ	3.00	850	550	465	1395	32	3.0	45	30	45	57.5	37.0
CMRIN4330AF2DJ	3.30	850	550	465	1535	33	2.8	45	30	45	57.5	37.0
CMRIN4400AF2EJ	4.00	850	550	465	1860	36	2.3	48	35	50	57.5	37.0
CMRIN4500AF2EJ	5.00	850	550	465	2325	42	1.9	48	35	50	57.5	37.0
CMRIP3470AF2AJ	0.47	1000	600	821	386	16	7.6	41	20	40	41.5	22.0
CMRIP3680AF2AJ	0.68	1000	600	821	558	20	5.3	41	20	40	41.5	22.0
CMRIP4100AF2AJ	1.00	1000	600	821	821	23	3.7	41	20	40	41.5	22.0
CMRIP4150AF2BJ	1.50	1000	600	821	1232	30	2.5	36	28	37	42.5	22.0
CMRIP4200AF2CJ	2.00	1000	600	821	1642	36	2.0	43	30	45	42.0	22.0
CMRIP4220AF2DJ	2.20	1000	600	505	1111	29	3.8	45	30	45	57.5	37.0
CMRIP4250AF2DJ	2.50	1000	600	505	1263	30	3.3	45	30	45	57.5	37.0
CMRIP4300AF2DJ	3.00	1000	600	505	1515	33	2.8	45	30	45	57.5	37.0
CMRIP4330AF2DJ	3.30	1000	600	505	1667	34	2.6	45	30	45	57.5	37.0
CMRIP4400AF2EJ	4.00	1000	600	505	2020	40	2.2	78	35	50	57.5	37.0
CMRIR3330AF2AJ	0.33	1200	630	958	316	15	9.5	41	20	40	41.5	22.0
CMRIR3470AF2AJ	0.47	1200	630	958	450	18	6.7	41	20	40	41.5	22.0
CMRIR3680AF2AJ	0.68	1200	630	958	651	21	4.7	41	20	40	41.5	22.0
CMRIR4100AF2BJ	1.00	1200	630	958	958	27	3.3	36	28	37	42.5	22.0
CMRIR4120AF2BJ	1.20	1200	630	958	1150	29	2.8	36	28	37	42.5	22.0
CMRIR4150AF2CJ	1.50	1200	630	958	1437	34	2.3	43	30	45	42.0	22.0
CMRIR4200AF2DJ	2.00	1200	630	587	1174	29	3.6	45	30	45	57.5	37.0
CMRIR4220AF2DJ	2.20	1200	630	587	1291	30	3.3	45	30	45	57.5	37.0
CMRIR4250AF2DJ	2.50	1200	630	587	1468	32	2.9	45	30	45	57.5	37.0
CMRIR4300AF2EJ	3.00	1200	630	587	1761	37	2.5	48	35	50	57.5	37.0
CMRIR4330AF2EJ	3.30	1200	630	587	1937	39	2.3	48	35	50	57.5	37.0
CMRIX3100AF2AJ	0.10	2000	700	1367	137	10	23.3	41	20	40	41.5	22.0
CMRIX3150AF2AJ	0.15	2000	700	1367	205	12	15.6	41	20	40	41.5	22.0
CMRIX3220AF2AJ	0.22	2000	700	1367	301	14	10.7	41	20	40	41.5	22.0
CMRIX3330AF2AJ	0.33	2000	700	1367	451	17	7.2	41	20	40	41.5	22.0
CMRIX3470AF2AJ	0.47	2000	700	1367	642	20	5.1	41	20	40	41.5	22.0
CMRIX3680AF2FJ	0.68	2000	700	1367	930	26	3.6	43	24	44	41.5	22.0
CMRIX3820AF2CJ	0.82	2000	700	1367	1121	30	3.0	43	30	45	42.0	22.0
CMRIX4100AF2DJ	1.00	2000	700	847	847	24	5.1	45	30	45	57.5	37.0
CMRIX4120AF2DJ	1.20	2000	700	847	1016	26	4.3	45	30	45	57.5	37.0
CMRIX4150AF2EJ	1.50	2000	700	847	1271	31	3.5	48	35	50	57.5	37.0

* **NOTE:** @ 100 kHz at 70 °C (for I rms) & 20 °C (for ESR)

NOTE: As per request other Patterns of electrode terminations may be considered.

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