

capacitors



5ME SERIES

METALLIZED POLYESTER FILM SWITCHING POWER SUPPLY CAPACITORS

for applications requiring high current carrying capability at elevated temperatures with high DVDT and peak current

- HIGH CURRENT CARRYING CAPABILITY ■ HIGH OPERATING TEMPERATURE ■ LOW ESR AND ESL
- COMPACT CONFIGURATION ■ FIVE TERMINATION STYLES

The **5ME SERIES** is one of a new generation of mil quality film capacitors developed by Electronic Concepts to meet the ever changing, higher performance demands of the electronic industry. The **5ME SERIES** is specifically designed for switch-mode power supplies that require voltages to 400VDC at temperatures to 85°C with DVDT as high as 507V/ μ s and peak current to 6,000 amps. It also offers low ESR, low inductance and current capabilities to 75 amps. In addition styles 5ME28 and 5ME29 offer inductance as low as 12nH to maximize resonant frequency to as high as 1.7MHz.



The tab terminations are mechanically sturdy and can accommodate higher cur-

rent with minimal inductance. Plus they also dissipate heat very efficiently.

Standard configurations:

- 5ME22/axial lead terminations
- 5ME26/tab terminations--low profile
- 5ME27/tab terminations--high profile
- 5ME28/internal coaxial leads
- 5ME29/internal coaxial leads with grounded copper shielding.

With the introduction of the **5ME SERIES**, the circuit designer now has a film capacitor that can increase overall system performance with miniaturization -- and also realize significant cost savings.

SAMPLES FOR EVALUATION AND TESTING AVAILABLE TO QUALIFIED OEMs

electronic concepts, inc.



specifications

CONSTRUCTION

Extended metallized polyester film.

ENCLOSURE

Mylar tape outerwrap, with specially formulated, conductive epoxy end fill to maximize heat exchange.

TERMINATIONS

Tab: tinned solid copper.

Lead wire: number 16AWG tinned solid copper.

All leads 1-1/2" minimum length.

ENVIRONMENTAL

Type 5ME withstands the following tests in accordance with MIL-STD-202:

Test	Method	Test Condition
Vibration	204	D
Immersion	104	B
Shock	213	I
Humidity	103	B
Thermal Shock	107	A

QUALITY CONTROL

Capacitors are tested 100% for:

- CAPACITANCE TOLERANCE
- DISSIPATION FACTOR
- DIELECTRIC WITHSTANDING VOLTAGE
- INSULATION RESISTANCE

Process and inspection data is maintained on file and is available on special request.

MARKING

All capacitors are marked with the company initials EC and/or EC trademark, type (5ME), capacitance, tolerance, rated D.C. working voltage and date code.

DATE CODE

The first two digits of the date code represent the year, the second two digits the week, i.e., 0152 is the 52nd week of 2001, 0202 is the 2nd week of 2002.

QUALITY ASSURANCE

Emphasis is placed on quality assurance. The functions of raw material inspection, manufacturing process inspection and final product inspection are constantly being monitored by our Quality Control Department. Complete procedures are described in our quality control manual. Electronic Concepts, Inc. will continue to advance the state-of-the-art by utilizing leading edge technology, ultra-miniature capacitor designs and establish reliability procedures.

In the construction of the components described, the full intent of the specification will be met. Electronic Concepts, Inc., however, reserves the right to depart from detail specifications to allow for improvement in the design of its products. However, components made under military approvals will be done so in accordance with specification requirements.

This information is believed to be accurate and reliable. However, Electronic Concepts, Inc. assumes no responsibility for its use, nor for any infringement of patents or other rights of third parties which may result.

how to order

5ME 26 B 106 K

TYPE

metallized polyester

STYLE

22: axial leaded
26: radial leaded tabs/low profile
27: radial leaded tabs/high profile
28: internal coaxial leads
29: internal coaxial leads/copper shield

VOLTAGE

A= 30VDC C= 75VDC E= 150VDC H= 300VDC
B=50VDC D= 100VDC F= 200VDC J= 400VDC

CAPACITANCE IN PICOFARADS

The first two digits are significant, the third represents the number of zeros (e.g. 106 = 10,000,000pF)

TOLERANCE

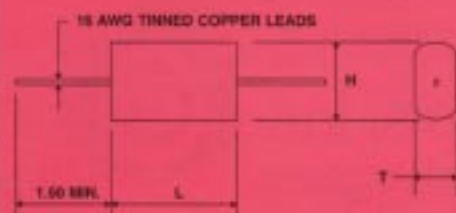
M = ±20% K = ±10% J = ±5%

dimensional data

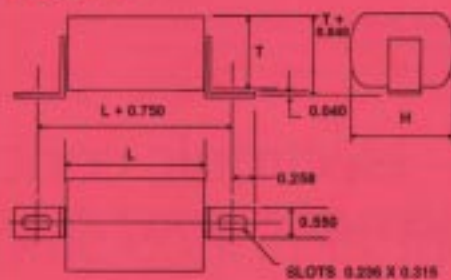
CAPACITANCE µF	AXIAL LEADS			LUGS			RADIAL LEADS		
	5ME22			5ME26, 5ME27			5ME28, 5ME29		
	T MAX	H MAX	L MAX	T MAX	H MAX	L MAX	T MAX	H MAX	L MAX
30 VDC	15.0	0.525	0.895	0.812					
	30.0	0.525	0.895	1.187					
	75.0	1.030	1.440	0.937	1.030	1.440	0.937	1.030	1.440
	100.0	1.030	1.440	1.187	1.030	1.440	1.187	1.030	1.440
	200.0	1.455	1.825	1.187	1.455	1.825	1.187	1.455	1.825
50 VDC	10.0	0.525	0.895	0.937					
	15.0	0.525	0.895	1.062					
	50.0	1.030	1.440	1.062	1.030	1.440	1.062	1.030	1.440
	100.0	1.455	1.825	1.062	1.455	1.825	1.062	1.455	1.825
	150.0	1.455	1.825	1.437	1.455	1.825	1.437	1.455	1.825
75 VDC	10.0	0.525	0.895	1.062					
	15.0	0.525	0.895	1.312					
	30.0	1.030	1.440	0.937	1.030	1.440	0.937	1.030	1.440
	50.0	1.030	1.440	1.312	1.030	1.440	1.312	1.030	1.440
	100.0	1.455	1.825	1.437	1.455	1.825	1.437	1.455	1.825
100 VDC	5.0	0.525	0.895	0.937					
	10.0	0.525	0.895	1.187					
	20.0	1.030	1.440	0.937	1.030	1.440	0.937	1.030	1.440
	50.0	1.455	1.825	1.062	1.455	1.825	1.062	1.455	1.825
	75.0	1.455	1.825	1.437	1.455	1.825	1.437	1.455	1.825
150 VDC	10.0	1.030	1.440	0.937	1.030	1.440	0.937	1.030	1.440
	15.0	1.030	1.440	1.062	1.030	1.440	1.062	1.030	1.440
	20.0	1.030	1.440	1.312	1.030	1.440	1.312	1.030	1.440
	30.0	1.455	1.825	1.187	1.455	1.825	1.187	1.455	1.825
	40.0	1.455	1.825	1.312	1.455	1.825	1.312	1.455	1.825
200 VDC	3.0	0.525	0.895	1.312					
	5.0	1.030	1.440	0.937	1.030	1.440	0.937	1.030	1.440
	10.0	1.030	1.440	1.312	1.030	1.440	1.312	1.030	1.440
	15.0	1.455	1.825	1.187	1.455	1.825	1.187	1.455	1.825
	20.0	1.455	1.825	1.437	1.455	1.825	1.437	1.455	1.825
300 VDC	1.0	0.525	0.895	0.937					
	2.0	1.030	1.440	0.812	1.030	1.440	0.812	1.030	1.440
	3.0	1.030	1.440	0.937	1.030	1.440	0.937	1.030	1.440
	5.0	1.030	1.440	1.312	1.030	1.440	1.312	1.030	1.440
	10.0	1.455	1.825	1.312	1.455	1.825	1.312	1.455	1.825
400 VDC	1.0	1.030	1.440	0.812	1.030	1.440	0.812	1.030	1.440
	2.0	1.030	1.440	1.187	1.030	1.440	1.187	1.030	1.440
	3.0	1.455	1.825	1.062	1.455	1.825	1.062	1.455	1.825
	4.0	1.455	1.825	1.312	1.455	1.825	1.312	1.455	1.825
	5.0	1.455	1.825	1.437	1.455	1.825	1.437	1.455	1.825

NOTE: OTHER SIZES, VALUES AND VOLTAGES ARE AVAILABLE UPON REQUEST

5ME22



5ME26



5ME27



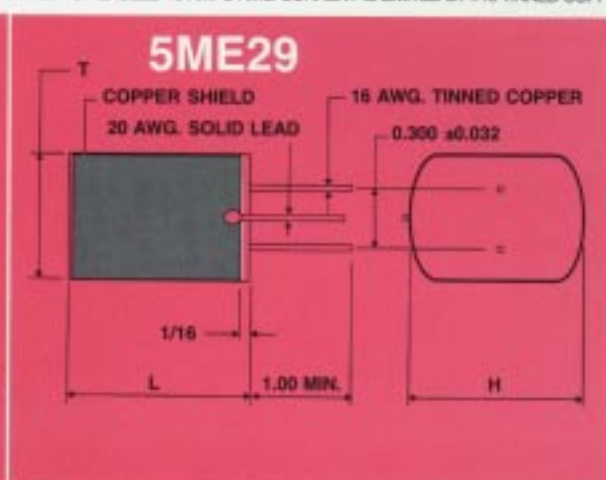
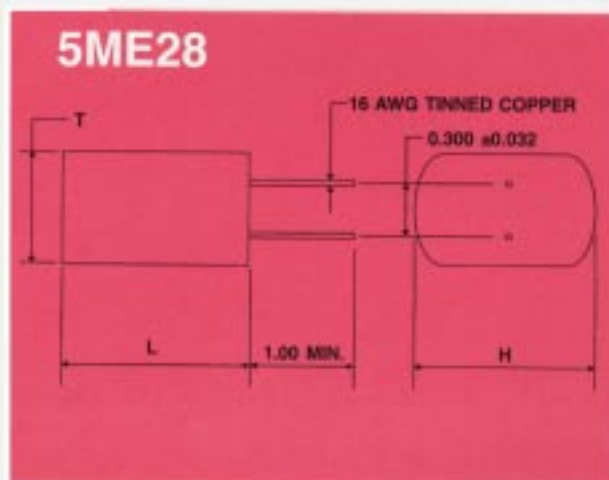
electrical data

CAPACITANCE μF	E.S.R. 100kHz m OHMS	MAXIMUM RIPPLE CURRENT IN AMPS 20kHz TO 100kHz TEMPERATURES				I PEAK AMPS	dv/dt v/us	(TYP) L nH	5MC22 5MC26 5MC27 f RES (TYP) kHz	5MC28 5MC29 f RES (TYP) kHz	
		25°C	45°C	65°C	85°C						
30 VDC	15.0	9	9.0	7.4	5.3	1.4	950	63	12	375	
	30.0	5	13.6	11.2	8.0	2.1	905	30	24	167	
	75.0	5	31.4	25.8	18.6	4.8	3476	46	16	145	174
	100.0	5	35.3	29.0	20.9	5.3	3017	30	24	102	122
	200.0	5	63.2	51.9	37.3	9.6	6034	30	24	72	86
50 VDC	10.0	14	7.5	6.1	4.4	1.1	618	62	16	454	
	15.0	10	9.9	8.2	5.9	1.5	731	49	20	290	
	50.0	5	26.2	21.5	15.4	4.0	2437	49	20	159	191
	100.0	5	47.2	38.7	27.8	7.1	4873	49	20	112	134
	150.0	5	56.4	46.3	33.3	8.5	4472	30	32	72	86
75 VDC	10.0	14	8.3	6.9	4.9	1.3	609	61	20	355	
	15.0	10	10.9	8.9	6.4	1.6	642	43	28	245	
	30.0	5	21.3	17.5	12.6	3.2	2318	77	16	229	275
	50.0	5	28.3	23.3	16.7	4.3	2140	43	28	134	161
	100.0	5	48.3	39.7	28.5	7.3	3727	37	32	89	107
100 VDC	5.0	26	5.6	4.6	3.3	0.8	464	93	16	562	
	10.0	14	9.2	7.5	5.4	1.4	603	60	24	325	
	20.0	7	17.3	14.2	10.2	2.6	1854	93	16	281	337
	50.0	5	35.8	29.4	21.2	5.4	3655	73	20	159	191
	75.0	5	44.0	36.2	26.0	6.7	3254	45	32	102	122
150 VDC	10.0	13	11.9	9.7	7.0	1.8	1236	124	16	398	478
	15.0	9	15.9	13.1	9.4	2.4	1462	97	20	290	348
	20.0	7	18.9	15.5	11.2	2.9	1370	68	28	212	254
	30.0	5	27.5	22.6	16.3	4.2	2413	80	24	187	224
	40.0	5	33.8	27.7	19.9	5.1	2740	68	28	150	180
200 VDC	3.0	5	5.4	4.5	3.2	0.8	308	103	28	549	
	5.0	25	8.8	7.3	5.2	1.3	927	185	16	562	674
	10.0	13	14.3	11.7	8.4	2.2	1027	103	28	300	360
	15.0	9	20.7	17.0	12.2	3.1	1810	121	24	265	318
	20.0	7	24.8	20.4	14.7	3.8	1789	89	32	199	239
300 VDC	1.0	123	2.8	2.3	1.7	0.4	247	247	16	1260	
	2.0	61	5.3	4.4	3.1	0.8	676	338	12	1030	1236
	3.0	41	7.1	5.8	4.2	1.1	742	247	16	726	871
	5.0	26	9.9	8.1	5.8	1.5	685	137	28	425	510
	10.0	13	17.6	14.5	10.4	2.7	1370	137	28	300	360
400 VDC	1.0	121	3.9	3.2	2.3	0.6	507	507	12	1450	1740
	2.0	63	6.2	5.1	3.7	0.9	483	241	24	726	871
	3.0	41	9.1	7.5	5.4	1.4	877	292	20	649	779
	4.0	32	10.9	9.0	6.4	1.7	822	205	28	475	570
	5.0	26	12.9	10.6	7.6	2.0	894	179	32	398	478

MOST CAPACITOR RATINGS AND STYLES BUILT IN ACCORDANCE WITH THE MIL-C-55514 STANDARD

OTHER RATINGS/STYLES SHOWN ON DESC DRAWING 89062

NOTE: CURRENT RATINGS ARE REFLECTIVE OF TYPES 5ME26 AND 5ME27. OTHER STYLES SHALL NOT EXCEED 19 AMPS RMS. CURRENT IS LIMITED BY #16 TINNED COPPER LEADS.



performance

CHARACTERISTICS

OPERATING TEMPERATURE RANGE

Operating: -40°C to $+85^{\circ}\text{C}$.
Storage: -55°C to $+85^{\circ}\text{C}$.

INSULATION RESISTANCE

When measured at test temperature and rated voltage for a minimum of five (5) minutes, the insulation resistance equals or exceeds the following values:

Temperature	25°C
Megohms x Microfarads	20,000

Insulation resistance in megohms need not exceed: 40,000.

DISSIPATION FACTOR

When measured at 1kHz and 25°C , the dissipation factor will not exceed 1.0%.

CAPACITANCE RANGE

From 1.0 to 200.0 microfarads. Capacitance is measured at 25°C at/or referenced to a frequency of 1kHz.

CAPACITANCE CHANGE

Capacitance change versus temperatures for these capacitors will not exceed the following:

Temperature degree C	-40	+85
Percent change	-3.0	+3.0

DIELECTRIC STRENGTH

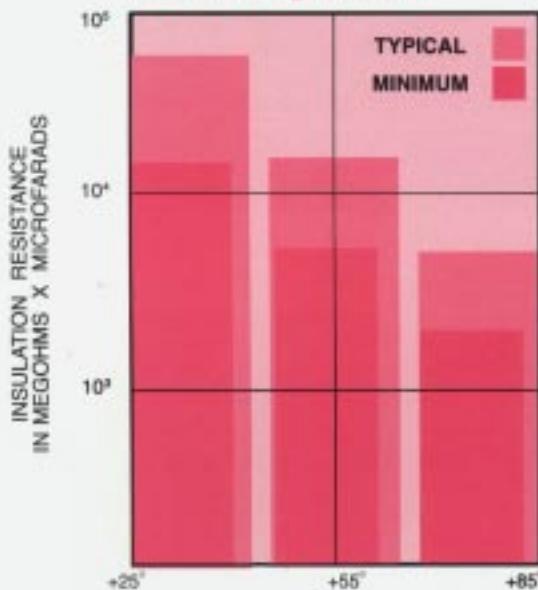
Capacitors withstand a DC potential of 150% rated voltage applied between the terminals for two (2) minutes without permanent breakdown. Test voltage is applied and discharged through one ohm per volt minimum at 25°C .

VOLTAGE RATING

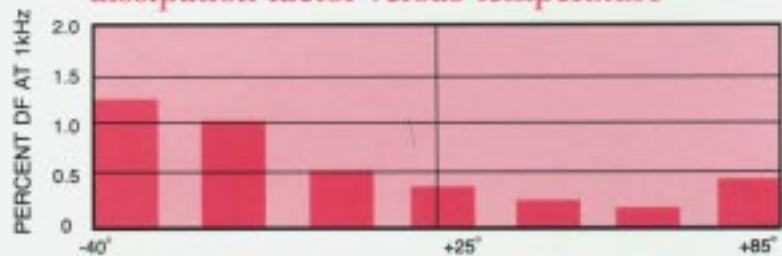
DC working voltage ratings are from 30 to 400VDC.

electrical characteristics vs. temperature (*centigrade*)

insulation resistance versus temperature

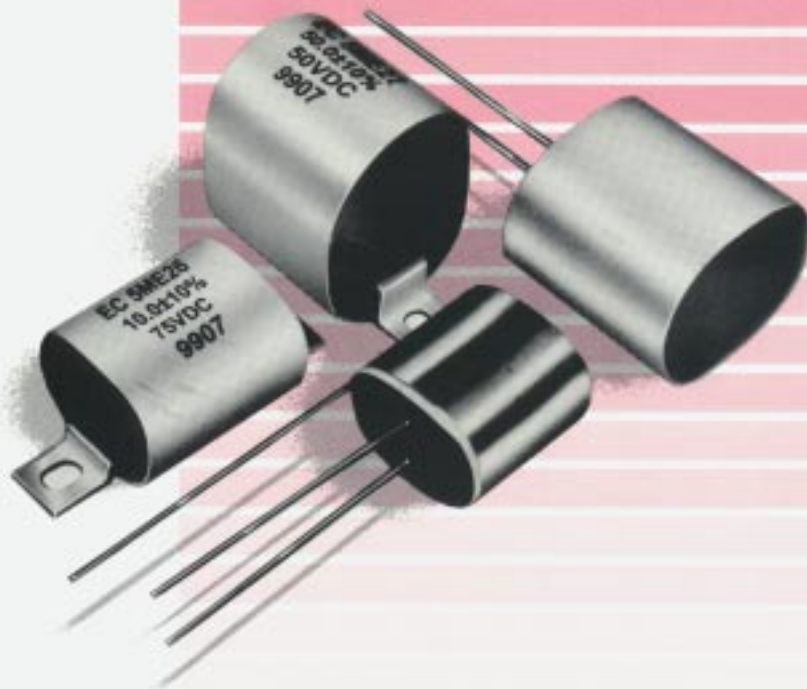


dissipation factor versus temperature



capacitance change versus temperature





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