

Plastic Case Plug-In Design Aluminum Capacitors

Features —

- Low Profile Plastic Case SMPS Output Capacitor
- Lowest ESR Available
- True 4 Terminal Design for Minimum ESL
- Polarity Proof
- Dual Pack Design Available for SMPS Input Filters



General Specifications —

Operating Temperature:
-40°C - +85°C.

Voltage Range: 3 - 450 VDC.

Capacitance Range: 56μF - 47,000μF.

Capacitance Tolerance: ± 20%.

Case Size Range: 1.625" x 1.625" x 0.690"
- 1.625" x 1.625" x 1.576".

Termination: 4 radial leads.

Life Validation Test: 2000 hrs @ +85°C:
Δ CAP ≤ 20% from initial measurement.
Δ ESR ≤ 1.5x initial specified limit.
Δ DCL ≤ initial specified limit.

Shelf Test: 500 hrs @ +85°C:
Δ CAP ≤ 15% from initial measurement.
Δ ESR ≤ 1.3x initial specified limit.
Δ DCL ≤ 2x initial specified limit.

DC Leakage Current:

$$I = K\sqrt{CV}$$

$$K = 4.0 @ +25^{\circ}\text{C}$$

I in μA, C in μF, V in Volts

Ripple Current Multipliers:

TEMPERATURE

Ambient Temp.	+55°C	+65°C	+75°C	+85°C
Multipliers	2.0	1.7	1.4	1.0

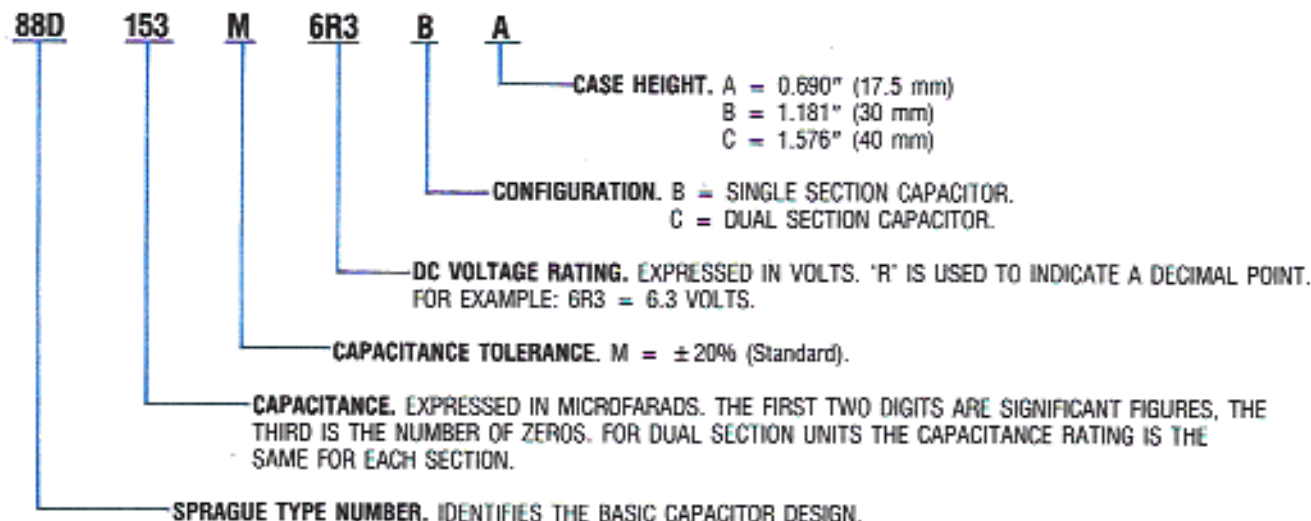
ESL (Typical values @ 1MHz-10MHz):

Case Code	Typical ESL (nH)
BA	5
BB	9

Expected Life: SEE PAGE 270.

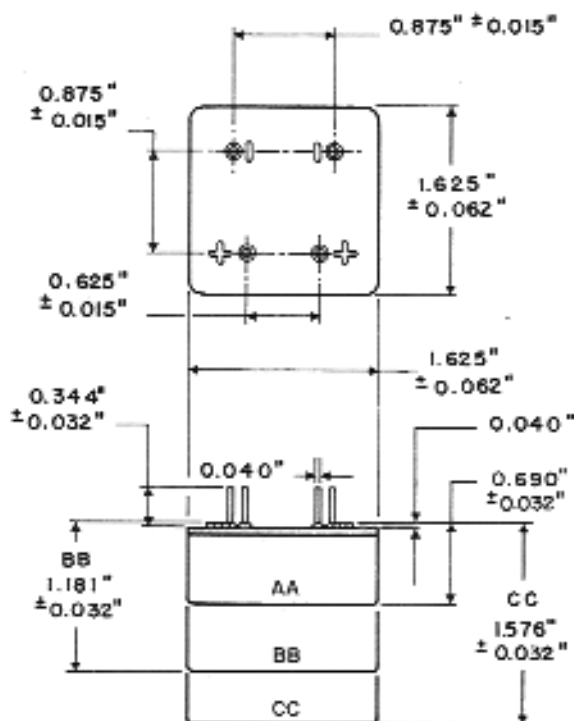
Performance Characteristics:
SEE PAGE 266.

Catalog Numbering System



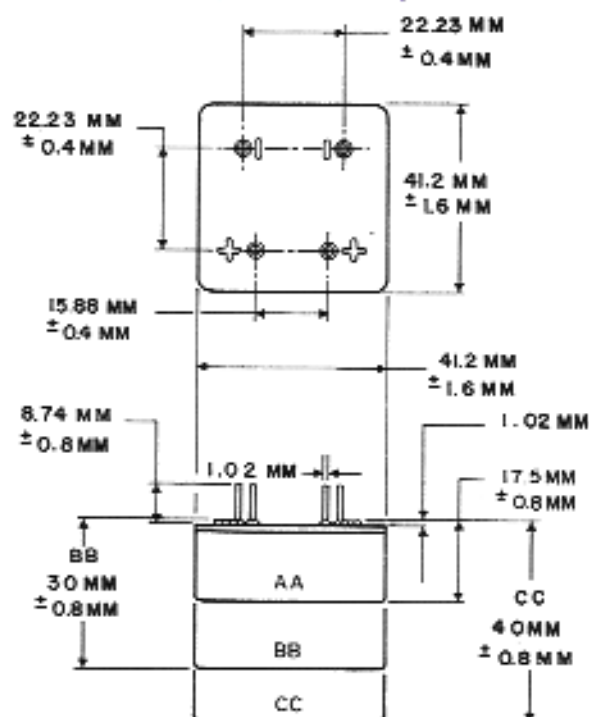
DIMENSIONS

TYPE 88D (INCHES)

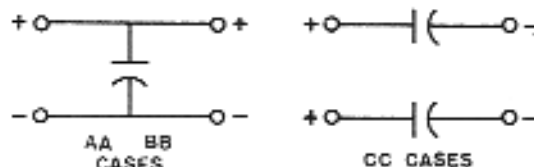


Dwg. No. A-14,847

TYPE 88D (MILLIMETERS)



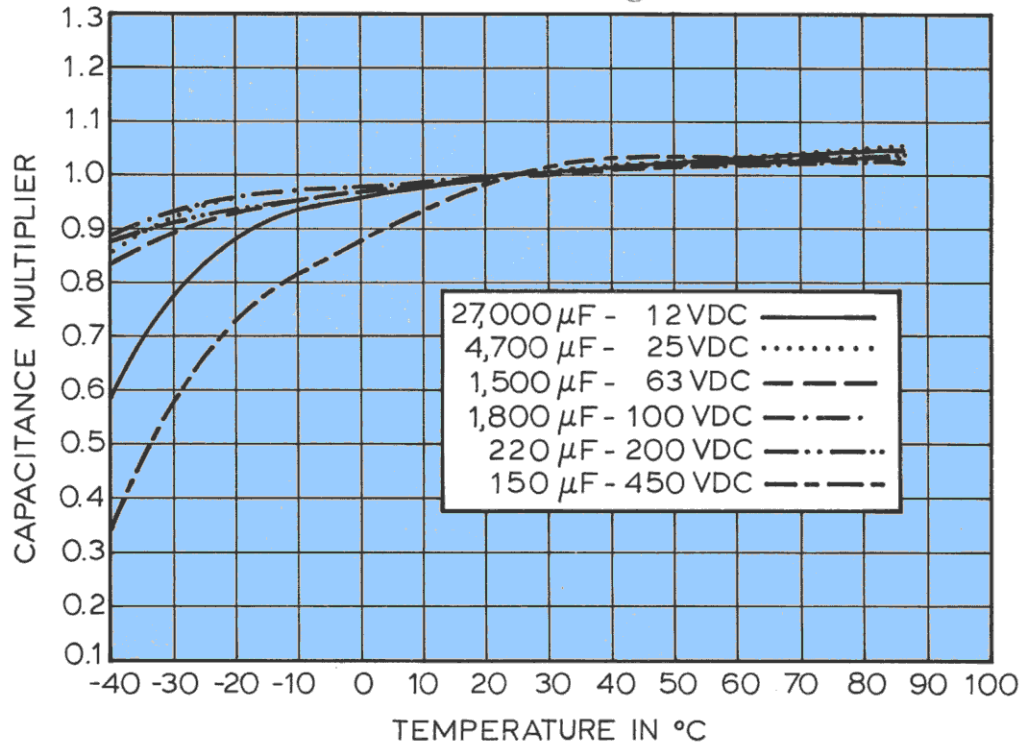
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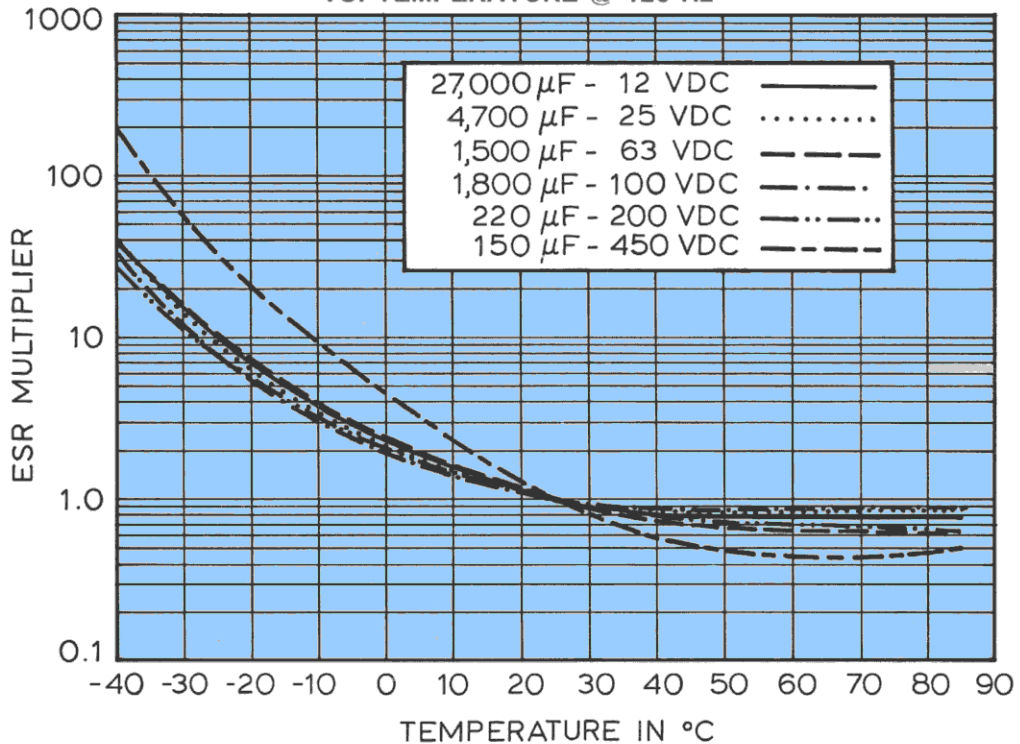
Dwg. No. A-14,849

STANDARD RATINGS

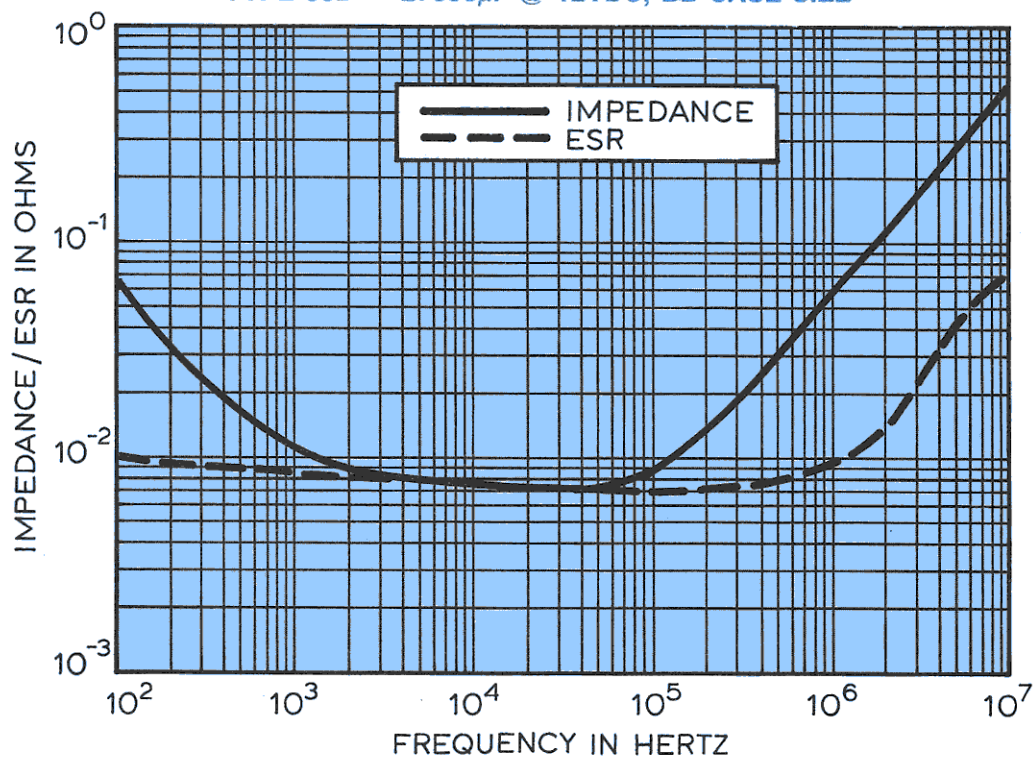
WVDC	VDC Surge	μF	Catalog Number	ESR Ohms @ + 25°C		Max. Ripple Current Amperes @ + 85°C		Max. Impedance Ohms @ 100kHz, + 25°C
				120Hz Max.	20k-500kHz ± 30%	120Hz	20k-500kHz	
SINGLE SECTION — BA CASE								
3	4	18000	88D183M003BA	0.0202	0.0133	5.25	5.68	0.0188
6.3	8	15000	88D153M6R3BA	0.0213	0.0133	5.11	5.68	0.0188
7.5	9	12000	88D123M7R5BA	0.0224	0.0133	4.99	5.68	0.0188
12	16	10000	88D103M012BA	0.0237	0.0133	4.86	5.68	0.0188
16	18	8200	88D822M016BA	0.0251	0.0133	4.72	5.68	0.0188
20	25	6800	88D682M020BA	0.0257	0.0137	4.66	5.60	0.0176
25	35	4700	88D472M025BA	0.0265	0.0140	4.59	5.53	0.0179
30	40	3900	88D392M030BA	0.0288	0.0140	4.40	5.53	0.0179
35	45	3300	88D332M035BA	0.0314	0.0140	4.22	5.53	0.0179
40	50	2700	88D272M040BA	0.0349	0.0140	4.00	5.53	0.0179
50	65	2200	88D222M050BA	0.0414	0.0156	3.67	5.25	0.0200
63	75	1500	88D152M063BA	0.0526	0.0156	3.26	5.25	0.0200
75	95	1200	88D122M075BA	0.0725	0.0256	2.78	4.10	0.0343
100	125	680	88D681M100BA	0.1046	0.0263	2.31	4.04	0.0347
160	200	270	88D271M160BA	0.3599	0.0803	1.30	2.74	0.1084
200	250	220	88D221M200BA	0.4559	0.0807	1.15	2.73	0.1089
250	300	150	88D151M250BA	0.5788	0.0813	1.02	2.72	0.1098
360	400	82	88D820M360BA	1.5370	0.4906	0.62	1.11	0.6623
400	475	68	88D680M400BA	2.1450	0.7151	0.56	1.09	0.9654
450	525	56	88D560M450BA	2.4057	0.7515	0.53	1.06	1.0146
SINGLE SECTION — BB CASE								
3	4	47000	88D473M003BB	0.0119	0.0092	7.92	8.20	0.0119
6.3	8	39000	88D393M6R3BB	0.0123	0.0092	7.78	8.20	0.0119
7.5	9	33000	88D333M7R5BB	0.0131	0.0092	7.54	8.20	0.0119
12	16	27000	88D273M012BB	0.0132	0.0092	7.51	8.20	0.0119
16	18	18000	88D183M016BB	0.0143	0.0092	7.22	8.20	0.0119
20	25	15000	88D153M020BB	0.0140	0.0095	7.30	7.78	0.0121
25	35	12000	88D123M025BB	0.0149	0.0095	7.08	7.78	0.0121
30	40	10000	88D103M030BB	0.0157	0.0095	6.88	7.78	0.0121
35	45	8200	88D822M035BB	0.0168	0.0095	6.65	7.78	0.0121
40	50	6800	88D682M040BB	0.0183	0.0095	6.39	7.78	0.0121
50	65	5600	88D562M050BB	0.0207	0.0100	6.00	7.59	0.0128
63	75	3900	88D392M063BB	0.0248	0.0100	5.49	7.59	0.0128
75	95	3300	88D332M075BB	0.0312	0.0142	4.88	6.36	0.0181
100	125	1800	88D182M100BB	0.0419	0.0142	4.22	6.36	0.0181
160	200	680	88D681M160BB	0.1481	0.0378	2.34	3.77	0.0486
200	250	560	88D561M200BB	0.1657	0.0380	2.20	3.72	0.0487
250	300	470	88D471M250BB	0.1783	0.0381	2.13	3.72	0.0490
360	400	220	88D221M360BB	0.5088	0.1250	1.26	2.07	0.1688
400	475	180	88D181M400BB	0.8067	0.2874	1.05	1.62	0.3875
450	525	150	88D151M450BB	0.8949	0.3158	0.99	1.55	0.4253
DUAL SECTION — CC CASE								
200	250	470 + 470	88D471M200CC	0.2214	0.0562	1.48	2.40	0.0759
200	250	560 + 560	88D561M200CC	0.1966	0.0560	1.58	2.42	0.0756
200	250	680 + 680	88D681M200CC	0.1760	0.0570	1.66	2.38	0.0760
250	300	330 + 330	88D331M250CC	0.2875	0.0593	1.30	2.34	0.0801
250	300	390 + 390	88D391M250CC	0.2537	0.0584	1.39	2.37	0.0788
250	300	470 + 470	88D471M250CC	0.2254	0.0588	1.47	2.34	0.0780

TYPICAL CURVES
**TYPE 88D — TYPICAL CAPACITANCE MULTIPLIER
VS. TEMPERATURE @ 120 Hz**


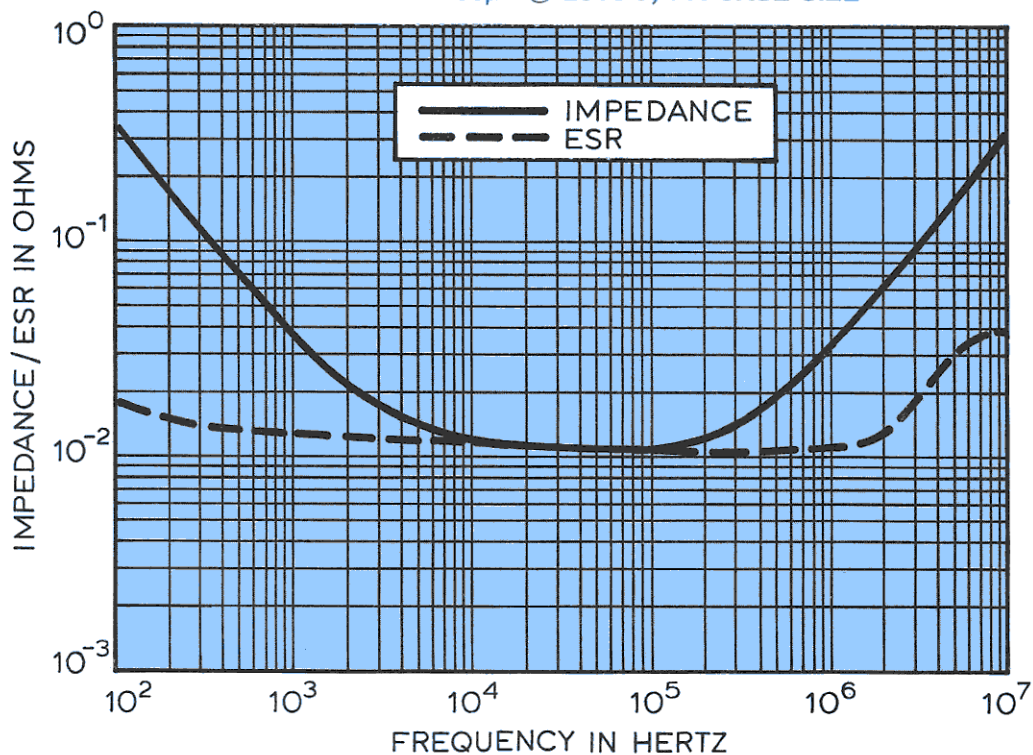
Dwg. No. A-14,727

**TYPE 88D — TYPICAL ESR MULTIPLIER
VS. TEMPERATURE @ 120 Hz**


Dwg. No. A-14,720

TYPICAL CURVES @ +25°C
TYPE 88D — 27000 μ F @ 12VDC, BB CASE SIZE


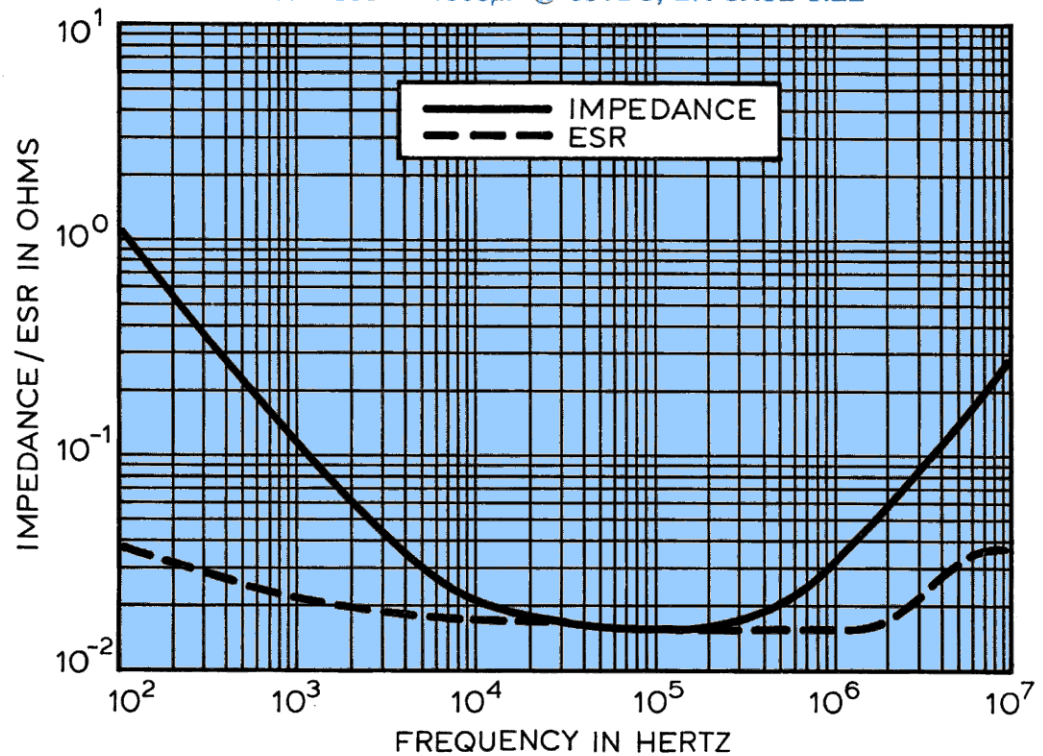
Dwg. No. A-14,675

TYPE 88D — 4700 μ F @ 25VDC, BA CASE SIZE


Dwg. No. A-14,674

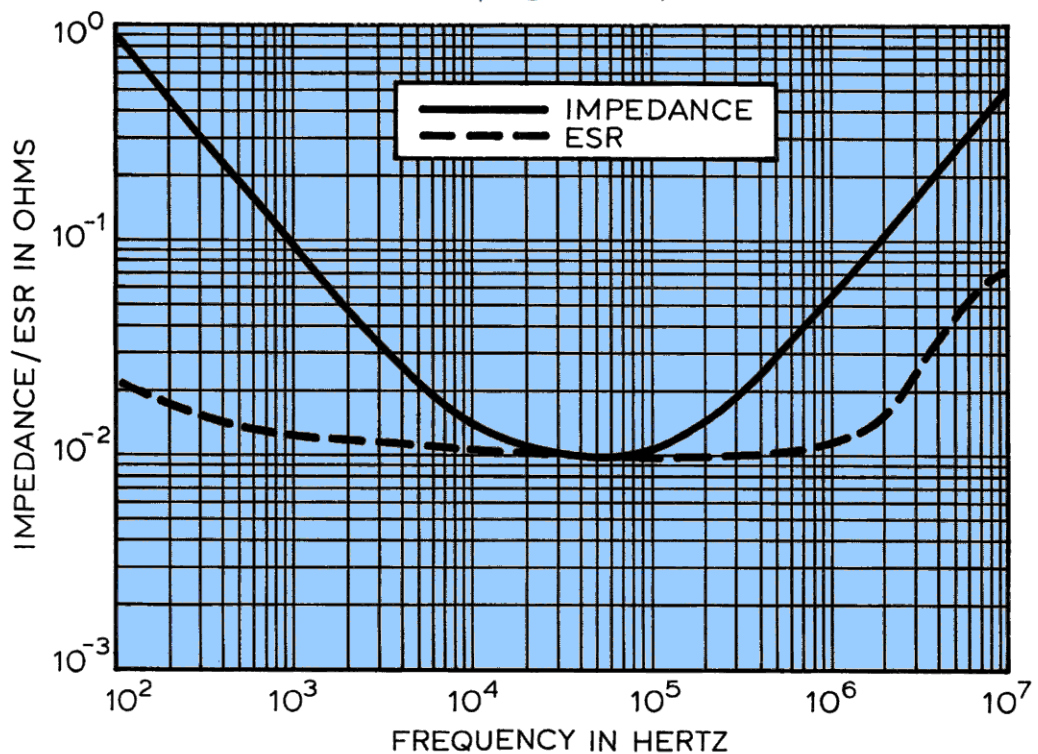
TYPICAL CURVES @ +25°C

TYPE 88D — 1500 μ F @ 63VDC, BA CASE SIZE



Dwg. No. A-14,673

TYPE 88D — 1800 μ F @ 100VDC, BB CASE SIZE



Dwg. No. A-14,672