

LO-HENRY™ 88 SERIES

snubber capacitors

MP88
metallized
polypropylene

PT88
polypropylene
& foil

**SUPERIOR
"PRICE/PERFORMANCE"
ALTERNATIVES FOR
ACROSS-THE-BUSS
POWER APPLICATIONS**



The **LO-HENRY™ 88 SERIES** fills a critical need in the marketplace for a "cost-effective" snubber capacitor. There are some conventional capacitors that match the performance of the MP88 and PT88, but at a higher unit price. There are also other brands that are economical but don't offer the performance.

Now for the first time, the MP88 and PT88 make available to the circuit designer the best of both worlds: superior physical/performance characteristics and economy of price! In addition, because of an exclusive dual element design with no internal wire connections, there is also a higher degree of in-the-field reliability. Uses encompass a wide range of motor applications, electric vehicles, controllers, high power converters and power conditioning systems.

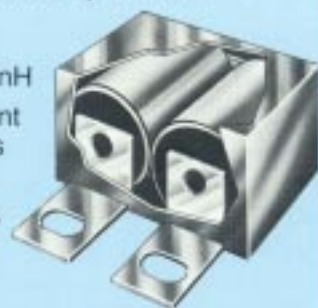
■ No internal wire connections ■ Direct-to-element tab attachment ■ Terminals accommodate 23-28mm spacing ■ Voltage ratings of 800 to 3000 VDC ■ ESR as low as 0.0019 ohms ■ Operating temperature: -55° to +105°C

SIMPLIFIES SYSTEM DESIGN, REDUCES ASSEMBLY TIME, MAXIMIZES PERFORMANCE, IMPROVES RELIABILITY, CUTS COSTS

MANUFACTURED IN THE U.S.A. TO RECOGNIZED HIGHER STANDARDS

EXCLUSIVE DUAL ELEMENT DESIGN
lowers inductance up to 70%
— with:

- Less than 15nH
- Ripple current to 46.2 amps
- DVDT to 10,000+ v/μs



electronic concepts, inc.



CONSTRUCTION

Extended foil.

LIFE TEST

Capacitors can withstand a test potential of rated voltage at 85°C between terminals for a period of 2,000 hours, with not more than one failure per group of 18 tested. Failure is defined as a permanent short or open circuit.

HUMIDITY RESISTANCE

Exceeds requirements of MIL-STD-202, Method 103.

HIGH FREQUENCY VIBRATION

Capacitors meet the 2000 cycle vibration test in accordance with Method 204 of MIL-STD 202A, condition B. Vibration is continuous for a four hour period in each of two directions, parallel and perpendicular to the major axis.

Test results showed no mechanical damage, and no evidence of intermittent contacts or open or short circuiting.

QUALITY CONTROL

Capacitors are 100% tested for:

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

Complete process and inspection data is maintained on file and is available on special request.

MARKING

All capacitors are marked with one or more of the following: company initials "EC", corporate logo or EC trademark — in addition to type MP88 or PT88, capacitance, tolerance, rated DC 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., 0052 is the 52nd week of 2000, 0102 is the 2nd week of 2001.

QUALITY ASSURANCE

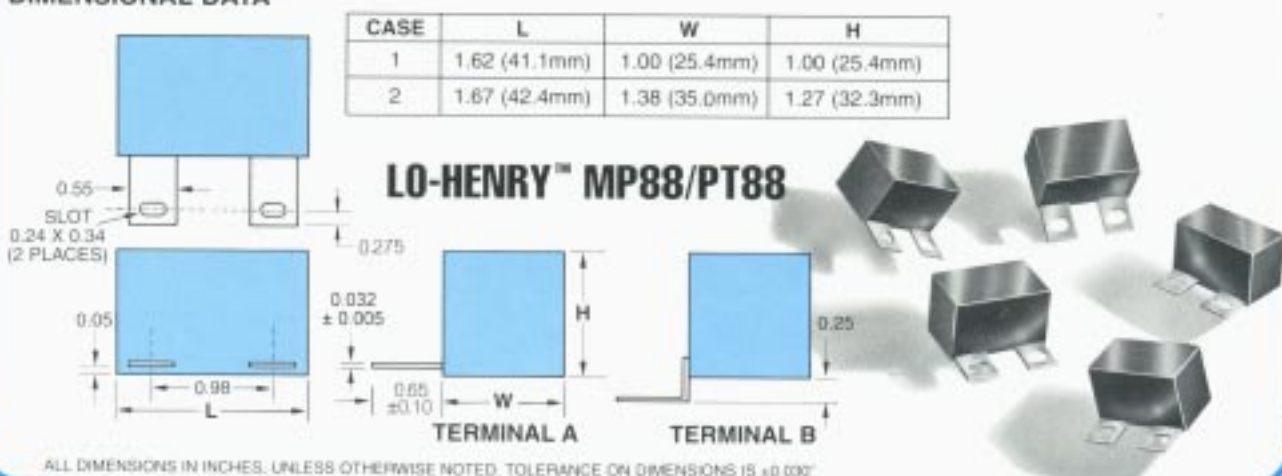
Major emphasis is placed on quality assurance. Raw material inspection and the use of SPC manufacturing procedures assure highest quality standards. Procedures are fully described in the EC Quality Control Manual. Electronic Concepts, Inc. will continue to advance the state-of-the-art by utilizing leading edge technology, ultra-miniature capacitor designs and established reliability procedures.

In constructing the components described, the full intent of the specification will be met. Electronic Concepts, Inc., does however reserve the right to depart from detail specifications in order to improve the design of its products. 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 infringements of patents or other rights of third parties which may result.

SEE PAGE 4 FOR ELECTRICAL CHARACTERISTICS

DIMENSIONAL DATA



PT88 polypropylene & foil

Part Number	Cap (µF)	Case	VDC	VAC	ESR (100kHz)	25 C (Arms)	50 C (Arms)	85 C (Arms)	I Peak (Amps)	dVdt (V/µs)	ESL (nH)	Fres (kHz)
PT88G104	0.10	1	800	460	0.0036	26.4	21.9	13.5	1317	13174	<15	4062
PT88G124	0.12	1			0.0032	27.9	23.2	14.2	1475	12295	<15	3708
PT88G154	0.15	1			0.0029	29.4	24.5	15.0	1581	10539	<15	3317
PT88G184	0.18	1			0.0026	30.8	25.6	15.7	1739	9661	<15	3028
PT88G224	0.22	1			0.0024	32.2	26.8	16.5	1932	8782	<15	2739
PT88G274	0.27	1			0.0022	33.7	28.0	17.2	2134	7904	<15	2472
PT88G334	0.33	1			0.0020	34.9	29.0	17.8	2319	7026	<15	2236
PT88G394	0.39	2			0.0023	41.6	34.6	21.3	2157	5531	<25	1613
PT88G474	0.47	2			0.0022	43.0	35.8	22.0	2363	5029	<25	1469
PT88G564	0.56	2			0.0020	44.2	36.7	22.6	2534	4526	<25	1346
PT88G684	0.68	2			0.0019	45.9	38.1	23.4	2907	4274	<25	1222
PT88G754	0.75	2			0.0019	46.2	38.4	23.6	2923	3697	<25	1183
PT88L104	0.10	1	1000	460	0.0036	26.4	21.9	13.5	1317	13174	<15	4062
PT88L124	0.12	1			0.0032	27.9	23.2	14.2	1475	12295	<15	3708
PT88L154	0.15	1			0.0029	29.4	24.5	15.0	1581	10539	<15	3317
PT88L184	0.18	1			0.0026	30.8	25.6	15.7	1739	9661	<15	3028
PT88L224	0.22	1			0.0024	32.2	26.8	16.5	1932	8782	<15	2739
PT88L274	0.27	1			0.0022	33.7	28.0	17.2	2134	7904	<15	2472
PT88L334	0.33	2			0.0025	40.3	33.6	20.6	1991	6034	<25	1753
PT88L394	0.39	2			0.0023	41.6	34.6	21.3	2157	5531	<25	1613
PT88L474	0.47	2			0.0022	43.0	35.8	22.0	2363	5029	<25	1469
PT88L564	0.56	2			0.0020	44.2	36.7	22.6	2534	4526	<25	1346
PT88N104	0.10	1	1250	460	0.0036	26.4	21.9	13.5	1317	13174	<15	4062
PT88N124	0.12	1			0.0032	27.9	23.2	14.2	1475	12295	<15	3708
PT88N154	0.15	1			0.0029	29.4	24.5	15.0	1581	10539	<15	3317
PT88N184	0.18	1			0.0026	30.8	25.6	15.7	1739	9661	<15	3028
PT88N224	0.22	1			0.0024	32.2	26.8	16.5	1932	8782	<15	2739
PT88N274	0.27	2			0.0025	38.1	32.8	20.0	1901	7040	<25	1939
PT88N334	0.33	2			0.0025	40.3	33.6	20.6	1991	6034	<25	1753
PT88N394	0.39	2			0.0023	41.6	34.6	21.3	2157	5531	<25	1613
PT88N474	0.47	2			0.0022	43.0	35.8	22.0	2363	5029	<25	1469

The length character of the part number represents terminal configuration (A or B). See diagram.

MP88 metallized polypropylene

Part Number	Cap (µF)	Case	VDC	VAC	ESR (100kHz)	25 C (Arms)	50 C (Arms)	85 C (Arms)	I Peak (Amps)	dVdt (V/µs)	ESL (nH)	Fres (kHz)
MP88G264	0.39	1	800	450	0.0077	18.0	14.9	9.2	295	758	<15	2057
MP88G474	0.47	1			0.0073	18.6	15.4	9.5	320	682	<15	1874
MP88G564	0.56	1			0.0069	19.0	15.8	9.7	338	606	<15	1717
MP88G684	0.68	1			0.0063	19.9	16.6	10.2	386	568	<15	1558
MP88G754	0.75	1			0.0062	20.1	16.7	10.3	398	530	<15	1483
MP88G824	0.82	1			0.0058	20.7	17.2	10.6	435	530	<15	1419
MP88G105	1.00	1			0.0056	21.1	17.5	10.8	455	455	<15	1285
MP88G125	1.20	2			0.0073	23.4	19.5	12.0	452	377	<25	920
MP88G145	1.40	2			0.0068	24.2	20.2	12.4	496	354	<25	851
MP88G155	1.50	2			0.0065	24.8	20.7	12.7	532	354	<25	822
MP88G185	1.80	2			0.0063	25.3	21.0	12.9	558	310	<25	751
MP88G205	2.00	2			0.0061	25.6	21.3	13.1	578	288	<25	712
MP88G225	2.20	2			0.0060	25.7	21.4	13.1	585	266	<25	679
MP88G255	2.50	2			0.0056	26.8	22.3	13.7	664	266	<25	637
MP88L334	0.33	1	1000	460	0.0082	17.4	14.5	8.9	275	833	<15	2236
MP88L264	0.39	1			0.0077	18.0	14.9	9.2	295	758	<15	2057
MP88L474	0.47	1			0.0073	18.6	15.4	9.5	320	682	<15	1874
MP88L564	0.56	1			0.0069	19.0	15.8	9.7	339	606	<15	1717
MP88L684	0.68	1			0.0063	19.9	16.6	10.2	386	568	<15	1558
MP88L754	0.75	1			0.0062	20.1	16.7	10.3	398	530	<15	1483
MP88L824	0.82	2			0.0069	21.2	17.6	10.8	445	421	<25	1112
MP88L105	1.00	2			0.0060	22.4	18.6	11.4	469	399	<25	1007
MP88L125	1.20	2			0.0073	23.4	19.5	12.0	452	377	<25	920
MP88L145	1.40	2			0.0069	24.2	20.2	12.4	496	354	<25	851
MP88L155	1.50	2			0.0065	24.8	20.7	12.7	532	354	<25	822
MP88L185	1.80	2			0.0063	25.3	21.0	12.9	558	310	<25	751
MP88N274	0.27	1	1200	460	0.0090	16.7	13.9	8.5	245	969	<15	2472
MP88N334	0.33	1			0.0082	17.4	14.5	8.9	275	833	<15	2236
MP88N394	0.39	1			0.0077	18.0	14.9	9.2	295	758	<15	2057
MP88N474	0.47	1			0.0073	18.6	15.4	9.5	320	682	<15	1874
MP88N564	0.56	1			0.0069	19.0	15.8	9.7	339	606	<15	1717
MP88N634	0.63	2			0.0066	20.4	17.0	10.4	316	465	<25	1222
MP88N754	0.75	2			0.0062	20.8	17.3	10.6	332	443	<25	1183
MP88N824	0.82	2			0.0069	21.2	17.6	10.8	345	421	<25	1112
MP88N105	1.00	2			0.0060	22.4	18.6	11.4	399	399	<25	1007
MP88N125	1.20	2			0.0073	23.4	19.5	12.0	452	377	<25	920
MP88N145	1.40	2			0.0068	24.2	20.2	12.4	496	354	<25	851
MP88T154	0.10	1	1600	920	0.0086	17.0	14.2	8.7	313	3125	<15	4062
MP88T124	0.12	1			0.0080	17.7	14.7	9.0	338	2813	<15	3708
MP88T154	0.15	1			0.0073	18.5	15.4	9.5	375	2500	<15	3317
MP88T184	0.18	1			0.0069	19.0	15.8	9.7	394	2188	<15	3028
MP88T224	0.22	1			0.0062	20.0	16.8	10.2	447	2031	<15	2739
MP88T274	0.27	1			0.0057	20.9	17.4	10.7	506	1875	<15	2472
MP88T334	0.33	2			0.0072	23.5	19.5	12.0	488	1478	<25	1753
MP88T394	0.39	2			0.0070	23.9	19.9	12.2	504	1293	<25	1613
MP88T474	0.47	2			0.0062	25.5	21.2	13.0	608	1293	<25	1469
MP88T564	0.56	2			0.0060	25.7	21.4	13.2	621	1158	<25	1348
MP88CA154	0.10	1	2000	920	0.0086	17.0	14.2	8.7	313	3125	<15	4062
MP88CA124	0.12	1			0.0080	17.7	14.7	9.0	338	2813	<15	3708
MP88CA154	0.15	1			0.0073	18.5	15.4	9.5	375	2500	<15	3317
MP88CA184	0.18	1			0.0069	19.0	15.8	9.7	394	2188	<15	3028
MP88CA224	0.22	2			0.0064	21.8	18.1	11.1	406	1848	<25	2148
MP88CA274	0.27	2			0.0078	22.7	18.9	11.6	449	1663	<25	1939
MP88CA334	0.33	2			0.0072	23.5	19.5	12.0	488	1478	<25	1753
MP88CA394	0.39	2			0.0070	23.9	19.9	12.2	504	1293	<25	1613
MP88CB154	0.10	1	2400	920	0.0086	17.0	14.2	8.7	313	3125	<15	4062
MP88CB124	0.12	1			0.0080	17.7	14.7	9.0	338	2813	<15	3708
MP88CB154	0.15	1			0.0073	18.5	15.4	9.5	375	2500	<15	3317
MP88CB184	0.18	2			0.0062	20.6	17.3	10.6	366	2032	<25	2374
MP88CB224	0.22	2			0.0064	21.8	18.1	11.1	406	1848	<25	2148
MP88CB274	0.27	2			0.0078	22.7	18.9	11.6	449	1663	<25	1939
MP88CB334	0.33	2			0.0072	23.5	19.5	12.0	488	1478	<25	1753
MP88CD154	0.10	1	3000	920	0.0086	17.0	14.2	8.7	313	3125	<15	4062
MP88CD124	0.12	1			0.0080	17.7	14.7	9.0	338	2813	<15	3708
MP88CD154	0.15	2			0.0100	19.9	16.8	10.2	333	2217	<25	2601
MP88CD184	0.18	2			0.0092	20.8	17.3	10.6	366	2032	<25	2374
MP88CD224	0.22	2			0.0084	21.8	18.1	11.1	406	1848	<25	2148
MP88CD274	0.27	2			0.0078	22.7	18.9	11.6	449	1663	<25	1939

The tenth character of the part number represents terminal configuration (A or B). See diagram.

OPERATING TEMPERATURE RANGE

From -55° to +105°C.

INSULATION RESISTANCE

When measured at test temperature and rated voltage for a minimum of two (2) minutes, the insulation resistance equals or exceeds the following values:

Temperature	25°C	85°C	105°C
Megohms x Microfarads	50,000	5,000	150
Insulation resistance in megohms need not exceed:	200,000	20,000	2,000

DISSIPATION FACTOR

When measured at the frequency specified for capacitance measurement, the dissipation factor will not exceed 0.1%.

CAPACITANCE CHANGE

Capacitance change versus temperature for these capacitors shall not exceed the following:

Temperature Degrees C.	-55	+25	+105
Percent Change	+2.0	0	-4.0
Typical	+1.6	0	-2.2

DIELECTRIC STRENGTH

Capacitors withstand a DC potential of 1.5 x rated voltage for one (1) minute without damage or breakdown. Test voltage is applied and discharged through a minimum resistance of 100 OHM per volt.

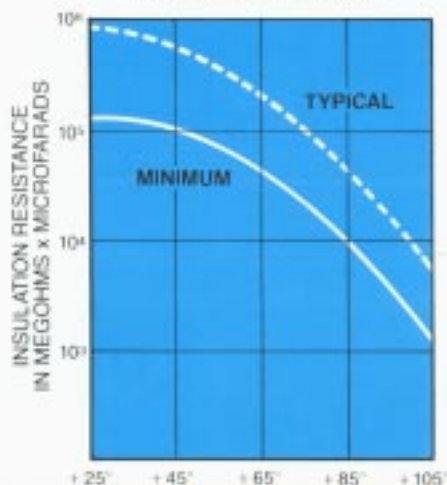
CAPACITANCE TOLERANCE

Standard tolerance is $\pm 10\%$. Tolerances of $\pm 20\%$ and $\pm 5\%$ are also available.

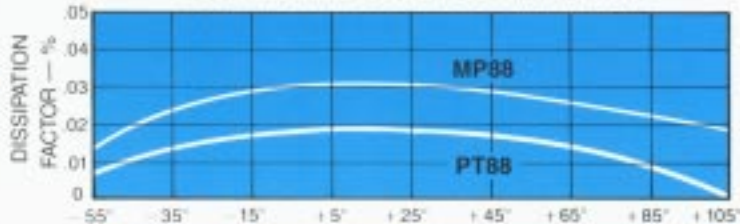
NOTE: Capacitance is measured at 25°C, and at a frequency of 1 KHZ for all values.

ELECTRICAL CHARACTERISTICS VS. TEMPERATURE (CENTIGRADE)

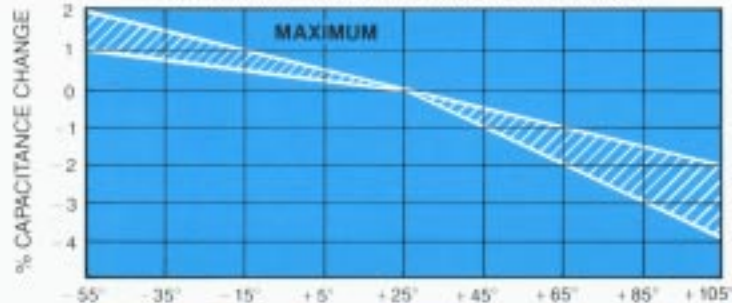
INSULATION RESISTANCE VERSUS TEMPERATURE



DISSIPATION FACTOR VERSUS TEMPERATURE



CAPACITANCE CHANGE VERSUS TEMPERATURE



United States

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New Jersey
732-542-7880
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FOR ADDITIONAL INFORMATION, PLEASE CONTACT ONE OF OUR REGIONAL OFFICES

electronic concepts, inc.

