

DATA SHEET

NAFTA 3186,
086/087 PS-ST
Aluminum electrolytic capacitors
Power Standard, Screw Terminals

Product specification
Supersedes data of 18th August 2000
File under BCcomponents, BC01

2001 Nov 27

Aluminum electrolytic capacitors Power Standard, Screw Terminals

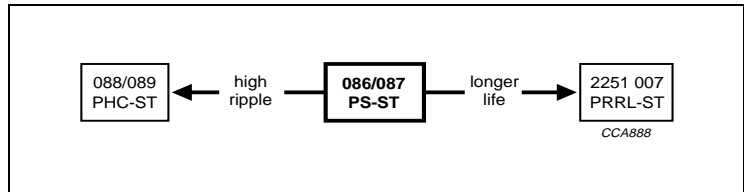
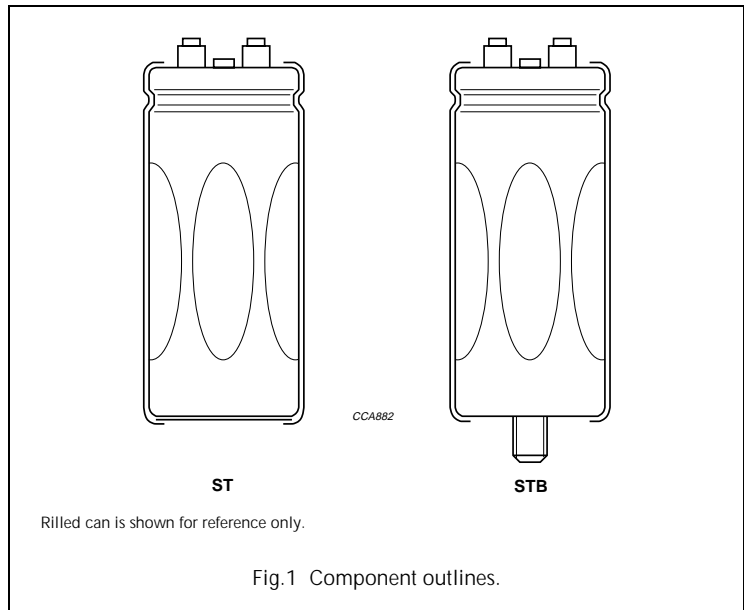
NAFTA 3186,
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FEATURES

- Polarized aluminium electrolytic capacitors, non-solid electrolyte
- Large types, minimized dimensions, cylindrical aluminum case, insulated with a blue sleeve
- Bolt version available for case $\varnothing D = 50, 65$ and 75 mm ($\varnothing D = 2", 2.5"$ and $3"$)
- Pressure relief in the sealing
- Charge and discharge proof
- High ripple current capability
- High resistance to shock and vibration.

APPLICATIONS

- General purpose, computer and industrial systems
- Smoothing and filtering
- Standard and switched mode power supplies
- Welding
- Energy storage in pulse systems
- Motor control devices
- Uninterruptable power supplies (UPS).



QUICK REFERENCE DATA

DESCRIPTION	VALUE	
	086	087
Case size (in millimetres and inches)	BA 35 × 54 mm (1.375" × 2.125") to GN 76 × 220 mm (3.000" × 8.625")	
Rated capacitance range, C_R	220 to 1000000 μF	
Tolerance on C_R	-10 to +30% ⁽¹⁾ ; -10 to +50%; $\pm 20\%$	
Rated voltage range, U_R	16 to 100 V	200 to 500 V
Category temperature range	-40 to +85 °C	
Endurance test at 85 °C	2000 hours	
Useful life at 85 °C	5000 hours (≥ 100 V: 3000 hours)	
Useful life at 40 °C, $1.3 \times I_R$ applied	120000 hours (≥ 100 V: 72000 hours)	
Shelf life at 0 V, 85 °C	500 hours	
Based on sectional specification	IEC 60384-4	
Climatic category IEC 60068	40/085/56	

Note

1. Standard tolerance on C_R .

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Selection chart for C_R , U_R and relevant nominal case sizes ($\varnothing D \times L$ in mm); NAFTA 3186, 086 PS-ST

Preferred types in **bold**. Other values available on request.

C_R (μF)	U_R (V)						
	16	25	40	50	63	75	100
2700	–	–	–	–	–	–	35 × 54
3300	–	–	–	–	–	–	35 × 80
3900	–	–	–	–	–	35 × 54	–
4700	–	–	–	–	35 × 54	–	–
5600	–	–	–	–	–	–	35 × 105
6800	–	–	–	–	–	35 × 80	–
8200	–	–	–	35 × 54	35 × 80	–	–
10000	–	–	35 × 54	–	–	35 × 105	50 × 80
12000	–	–	–	35 × 80	35 × 105	–	–
15000	–	–	35 × 80	–	–	50 × 80	50 × 105
18000	–	35 × 54	–	35 × 105	50 × 80	–	50 × 130
22000	35 × 54	–	35 × 105	–	–	50 × 105	50 × 143
	–	–	–	–	–	–	65 × 105
27000	–	35 × 80	–	50 × 80	50 × 105	50 × 118	65 × 130
33000	–	–	–	–	50 × 118	50 × 143	65 × 143
	–	–	–	–	–	65 × 105	76 × 105
39000	35 × 80	35 × 105	50 × 80	–	50 × 143	65 × 118	76 × 118
47000	–	–	–	50 × 105	65 × 105	76 × 105	–
56000	35 × 105	–	50 × 105	50 × 118	65 × 118	65 × 143	76 × 143
	–	–	–	–	–	76 × 118	–
68000	–	50 × 80	50 × 118	50 × 143	65 × 143	–	–
	–	–	–	65 × 105	76 × 105	–	–
82000	50 × 80	–	50 × 143	65 × 118	76 × 118	76 × 143	76 × 220
100000	–	50 × 105	65 × 105	65 × 143	76 × 143	–	–
	–	–	–	76 × 105	–	–	–
120000	50 × 105	50 × 118	65 × 118	76 × 118	–	76 × 220	–
150000	50 × 118	50 × 143	65 × 143	76 × 143	76 × 220	–	–
	–	65 × 105	76 × 105	–	–	–	–
180000	50 × 143	65 × 118	76 × 118	–	–	–	–
220000	65 × 105	65 × 143	76 × 143	76 × 220	–	–	–
	–	76 × 105	–	–	–	–	–
270000	65 × 118	76 × 118	–	–	–	–	–
330000	65 × 143	76 × 143	76 × 220	–	–	–	–
	76 × 105	–	–	–	–	–	–
390000	76 × 118	–	–	–	–	–	–
470000	76 × 143	–	–	–	–	–	–
560000	–	76 × 220	–	–	–	–	–
820000	76 × 220	–	–	–	–	–	–
1000000	76 × 220	–	–	–	–	–	–

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Selection chart for C_R , U_R and relevant nominal case sizes ($\varnothing D \times L$ in mm); NAFTA 3186, 087 PS-ST

Preferred types in **bold**. Other values available on request.

C_R (μF)	U_R (V)					
	200	250	350	400	450	500 ⁽¹⁾
180	–	–	–	–	–	–
	–	–	–	–	–	–
220	–	–	–	–	35 × 54	–
270	–	–	–	–	–	–
	–	–	–	–	–	–
330	–	–	–	35 × 54	–	–
390	–	–	35 × 54	–	35 × 80	–
470	–	–	–	–	–	–
	–	–	–	–	–	–
560	–	–	–	35 × 80	35 × 105	–
680	–	35 × 54	35 × 80	–	–	–
820	–	–	–	35 × 105	50 × 80	50 × 105
1000	35 × 54	–	35 × 105	–	–	–
1200	–	35 × 80	–	50 × 80	50 × 105	50 × 130
1500	35 × 80	–	50 × 80	–	50 × 130	–
1800	–	35 × 105	–	50 × 105	50 × 143	–
2200	35 × 105	–	50 × 105	50 × 130	65 × 105	65 × 130
2700	–	50 × 80	50 × 130	50 × 143	65 × 130	–
	–	–	65 × 105	65 × 105	–	–
3300	–	–	50 × 143	65 × 130	65 × 143	–
	–	–	–	–	76 × 105	76 × 143
3900	50 × 80	50 × 105	65 × 130	65 × 143	76 × 118	–
	–	–	–	76 × 105	–	–
4700	–	–	65 × 143	76 × 118	76 × 143	–
	–	50 × 130	76 × 105	–	–	–
5600	50 × 105	50 × 143	76 × 118	76 × 143	–	–
6800	50 × 130	65 × 105	76 × 143	–	–	–
8200	50 × 143	65 × 130	–	–	76 × 220	–
10000	65 × 105	65 × 143	–	76 × 220	–	–
	–	76 × 105	–	–	–	–
12000	65 × 130	76 × 118	76 × 220	–	–	–
	76 × 105	–	–	–	–	–
15000	65 × 143	76 × 143	–	–	–	–
	76 × 118	–	–	–	–	–
18000	–	–	–	–	–	–
22000	76 × 143	76 × 220	–	–	–	–
27000	–	–	–	–	–	–
33000	76 × 220	–	–	–	–	–

Note

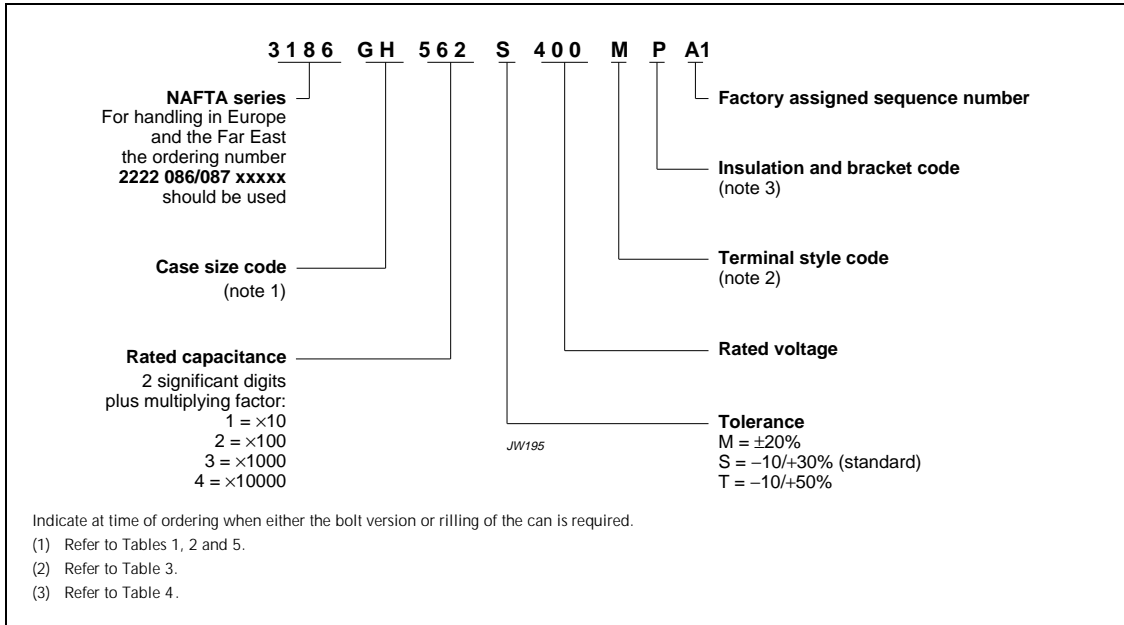
1. For additional values and sizes, please contact your local BCcomponents sales organization.

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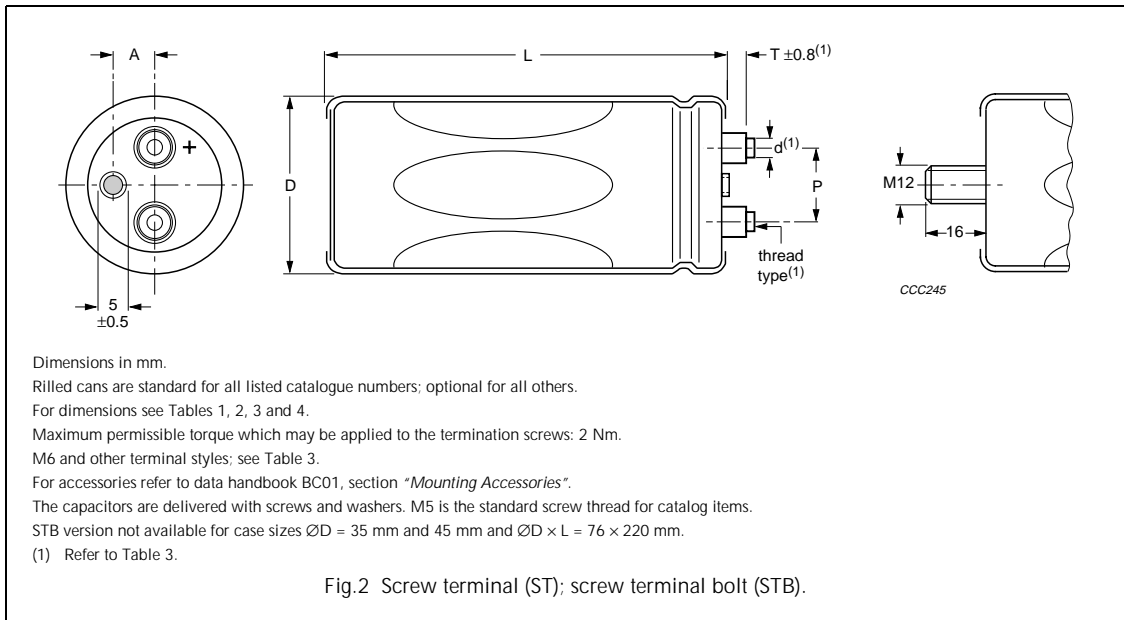
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ORDERING INFORMATION

NAFTA part numbering system



MECHANICAL DATA



Aluminum electrolytic capacitors Power Standard, Screw Terminals

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Table 1 Physical dimensions in millimetres (uninsulated case), mass and packaging information; see Fig.2

CASE CODE	∅D ±0.8 (mm)	L ±1.57 (mm)	P ±0.4 (mm)	A (mm)	MASS (g)	PACKAGING QUANTITIES (units per box)	CARDBOARD BOX DIMENSIONS l × w × h (mm)
Dimensions in millimetres							
BA	34.9	54.0	12.7	8.0	≈72	150	402 × 200 × 258
BB	34.9	66.7	12.7	8.0	≈90	150	402 × 200 × 258
BC	34.9	79.4	12.7	8.0	≈105	150	402 × 200 × 283
BD	34.9	92.1	12.7	8.0	≈120	100	402 × 200 × 258
BE	34.9	104.8	12.7	8.0	≈135	100	402 × 200 × 258
BF	34.9	117.5	12.7	8.0	≈170	100	402 × 200 × 258
BG	34.9	130.2	12.7	8.0	≈220	100	402 × 200 × 283
BH	34.9	142.9	12.7	8.0	≈270	100	402 × 200 × 315
DA	44.5	54.0	19.1	11.5	≈160	96	324 × 216 × 289
DB	44.5	66.7	19.1	11.5	≈175	72	332 × 221 × 278
DC	44.5	79.4	19.1	11.5	≈180	72	332 × 221 × 278
DD	44.5	92.1	19.1	11.5	≈205	48	324 × 216 × 289
DE	44.5	104.8	19.1	11.5	≈220	48	324 × 216 × 289
DF	44.5	117.5	19.1	11.5	≈235	48	324 × 216 × 289
DG	44.5	130.2	19.1	11.5	≈250	48	324 × 216 × 289
DH	44.5	142.9	19.1	11.5	≈270	24	324 × 216 × 315
EA	50.8	54.0	22.2	12.7	≈170	96	324 × 216 × 289
EB	50.8	66.7	22.2	12.7	≈180	72	332 × 221 × 278
EC	50.8	79.4	22.2	12.7	≈190	72	332 × 221 × 278
ED	50.8	92.1	22.2	12.7	≈220	48	324 × 216 × 289
EE	50.8	104.8	22.2	12.7	≈255	48	324 × 216 × 289
EF	50.8	117.5	22.2	12.7	≈290	48	324 × 216 × 289
EG	50.8	130.2	22.2	12.7	≈320	48	324 × 216 × 289
EH	50.8	142.9	22.2	12.7	≈350	48	324 × 216 × 315
FB	63.5	66.7	28.6	15.9	≈300	40	343 × 275 × 240
FC	63.5	79.4	28.6	15.9	≈370	40	343 × 275 × 240
FD	63.5	92.1	28.6	15.9	≈400	40	343 × 275 × 240
FE	63.5	104.8	28.6	15.9	≈445	40	343 × 275 × 240
FF	63.5	117.5	28.6	15.9	≈600	40	343 × 275 × 315
FG	63.5	130.2	28.6	15.9	≈650	40	343 × 275 × 315
FH	63.5	142.9	28.6	15.9	≈600	20	343 × 275 × 240
GC	76.2	79.4	31.8	19.0	≈520	60	397 × 320 × 292
GD	76.2	92.1	31.8	19.0	≈570	20	397 × 320 × 121
GE	76.2	104.8	31.8	19.0	≈600	20	397 × 320 × 121
GF	76.2	117.5	31.8	19.0	≈720	20	397 × 320 × 147
GG	76.2	130.2	31.8	19.0	≈850	20	397 × 320 × 147
GH	76.2	142.9	31.8	19.0	≈970	20	397 × 320 × 178
GJ	76.2	149.2	31.8	19.0	≈1050	20	397 × 320 × 178
GN	76.2	219.1	31.8	19.0	≈1460	16	426 × 410 × 237

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Table 2 Physical dimensions in inches (uninsulated case), mass and packaging information; see Fig.2

CASE CODE	∅D ±0.031 (inches)	L ±0.062 (inches)	P ±0.014 (inches)	A (inches)	MASS (g)	PACKAGING QUANTITIES (units per box)	CARDBOARD BOX DIMENSIONS l × w × h (inches)
Dimensions in inches							
BA	1.375	2.125	0.5	0.39	≈72	150	15.825 × 7.875 × 10.125
BB	1.375	2.625	0.5	0.39	≈90	150	15.825 × 7.875 × 10.125
BC	1.375	3.125	0.5	0.39	≈105	150	15.825 × 7.875 × 11.125
BD	1.375	3.625	0.5	0.39	≈120	100	15.825 × 7.875 × 10.125
BE	1.375	4.125	0.5	0.39	≈135	100	15.825 × 7.875 × 10.125
BF	1.375	4.625	0.5	0.39	≈170	100	15.825 × 7.875 × 10.125
BG	1.375	5.125	0.5	0.39	≈220	100	15.825 × 7.875 × 11.125
BH	1.375	5.625	0.5	0.39	≈270	100	15.825 × 7.875 × 12.400
DA	1.75	2.125	0.75	0.453	≈160	96	12.750 × 8.500 × 11.375
DB	1.75	2.625	0.75	0.453	≈175	72	13.700 × 8.700 × 11.000
DC	1.75	3.125	0.75	0.453	≈180	72	13.700 × 8.700 × 11.000
DD	1.75	3.625	0.75	0.453	≈205	48	12.750 × 8.500 × 11.375
DE	1.75	4.125	0.75	0.453	≈220	48	12.750 × 8.500 × 11.375
DF	1.75	4.625	0.75	0.453	≈235	48	12.750 × 8.500 × 11.375
DG	1.75	5.125	0.75	0.453	≈250	48	12.750 × 8.500 × 11.375
DH	1.75	5.625	0.75	0.453	≈270	24	12.750 × 8.500 × 12.400
EA	2	2.125	0.875	0.5	≈170	96	12.750 × 8.500 × 11.375
EB	2	2.625	0.875	0.5	≈180	72	13.750 × 8.700 × 11.000
EC	2	3.125	0.875	0.5	≈190	72	13.750 × 8.700 × 11.000
ED	2	3.625	0.875	0.5	≈220	48	12.750 × 8.500 × 11.375
EE	2	4.125	0.875	0.5	≈255	48	12.750 × 8.500 × 11.375
EF	2	4.625	0.875	0.5	≈290	48	12.750 × 8.500 × 11.375
EG	2	5.125	0.875	0.5	≈320	48	12.750 × 8.500 × 11.375
EH	2	5.625	0.875	0.5	≈350	48	12.750 × 8.500 × 12.400
FB	2.5	2.625	1.125	0.625	≈300	40	13.500 × 10.825 × 9.500
FC	2.5	3.125	1.125	0.625	≈370	40	13.500 × 10.825 × 9.500
FD	2.5	3.625	1.125	0.625	≈400	40	13.500 × 10.825 × 9.500
FE	2.5	4.125	1.125	0.625	≈445	40	13.500 × 10.825 × 9.500
FF	2.5	4.625	1.125	0.625	≈600	40	13.500 × 10.825 × 12.400
FG	2.5	5.125	1.125	0.625	≈650	40	13.500 × 10.825 × 12.400
FH	2.5	5.625	1.125	0.625	≈600	20	13.500 × 10.825 × 9.500
GC	3	3.125	1.25	0.75	≈520	60	15.630 × 12.600 × 11.500
GD	3	3.625	1.25	0.75	≈570	20	15.630 × 12.600 × 4.750
GE	3	4.125	1.25	0.75	≈600	20	15.630 × 12.600 × 4.750
GF	3	4.625	1.25	0.75	≈720	20	15.630 × 12.600 × 5.750
GG	3	5.125	1.25	0.75	≈850	20	15.630 × 12.600 × 5.750
GH	3	5.625	1.25	0.75	≈970	20	15.630 × 12.600 × 7.000
GJ	3	5.825	1.25	0.75	≈1050	20	15.630 × 12.600 × 7.000
GN	3	8.625	1.25	0.75	≈1460	16	16.775 × 16.125 × 9.250

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Table 3 NAFTA terminal style code; standard types in **bold**.

CODE	TERMINAL STYLE	THREAD TYPE	d (mm)	T (mm)	d (inches)	T (inches)
A	high post	10-32	8	6.4	.315	0.250
B	low post	10-32	8	1.6	.315	0.063
D	high current; see note 1	1/4-28	17	3.2	.670	0.125
J	high current; see note 1	M6	17	3.2	.670	0.125
M	high post	M5	8	6.4	.315	0.250
K	high current; see note 1	1/4-28	17	6.4	.670	0.250

Note

1. Case $\varnothing D = 65$ mm (2.5") and $\varnothing D = 76$ mm (3.0") cans only; for 30 A and up.

Table 4 NAFTA insulation and clamp/bracket codes; standard types in **bold**. See note 1

CODE	CLAMP/BRACKET	INSULATION TYPE	DIMENSION ADDERS		
			D	L	H
			Dimensions in mm		
P	no	0.2 mm polymeric	+0.51	+0.81	+0.61
H	no	0.3 mm polymeric	+0.63	+1.58	+1.14
N	no	none	–	–	–
R	yes	0.2 mm polymeric	+0.51	+0.81	+0.61
J	yes	0.3 mm polymeric	+0.63	+1.58	+1.14
X	yes	none	–	–	–
			Dimensions in inches		
P	no	0.008" polymeric	+0.020	+0.032	+0.024
H	no	0.012" polymeric	+0.030	+0.062	+0.045
N	no	none	–	–	–
R	yes	0.008" polymeric	+0.020	+0.032	+0.024
J	yes	0.012" polymeric	+0.030	+0.062	+0.045
X	yes	none	–	–	–

Note

1. For clamp/bracket dimensions see section "Mounting Accessories" in data handbook BC01.

MARKING

The capacitors are marked (where possible) with the following information:

- Rated capacitance (in μF)
- Tolerance on rated capacitance
- Rated voltage (in V)
- Date code in "yyww" (year, week) format
- Name of manufacturer
- NAFTA code number 17 digits
- Code number 12 digits (12NC; NAFTA customers will not see the 12NC).

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ELECTRICAL DATA AND ORDERING INFORMATION

Unless otherwise specified, all electrical values in Tables 5 and 6 apply at $T_{amb} = 25\text{ °C}$, $P = 86$ to 106 kPa , $RH = 45$ to 75% .

SYMBOL	DESCRIPTION
C_R	rated capacitance at 100/120 Hz
I_R	rated RMS ripple current at 85 °C
I_{L5}	max. leakage current after 5 minutes at U_R
ESR	max. equivalent series resistance at 100/120 Hz
Z	impedance at 20 kHz on request
Tan δ	max. dissipation factor at 100/120 Hz

Ordering example

Electrolytic capacitor 087 series

10000 $\mu\text{F}/200\text{ V}$; $-10/+30\%$

High post code "M", insulation type "P", 0.2 mm polymeric

Nominal case size:

$\varnothing 65 \times 105\text{ mm}$, ST version

Catalogue number: 2222 087 12103.

Table 5 Electrical data and ordering information for **086** series; preferred types in **bold**

U_R (V)	C_R 100/120 Hz (μF)	NOMINAL CASE SIZE $\varnothing D \times L$ (mm)	CASE CODE	I_R 100/120 Hz 85 °C (A)	I_{L5} 5 min (mA)	ESR MAX. 100/120 Hz (m Ω)	Tan δ MAX. 100/120 Hz	CATALOGUE NUMBER (see Table 6, note 1) 2222
16	22000	35 × 54	BA	5.4	3.56	25	0.45	086 15223
	39000	35 × 80	BC	7.6	4.74	18	0.57	086 15393
	56000	35 × 105	BE	9.7	5.68	14	0.64	086 15563
	82000	50 × 80	EC	17	6.00	6	0.40	086 15823
	120000	50 × 105	EE	21	6.00	5	0.49	086 15124
	150000	50 × 118	EF	23	6.00	4	0.49	086 15154
	150000	50 × 143	EH	25	6.00	4	0.59	086 25154
	220000	65 × 105	FE	27	6.00	4	0.72	086 15224
	270000	65 × 118	FF	29	6.00	4	0.88	086 15274
	330000	65 × 143	FH	34	6.00	3	0.81	086 15334
	330000	76 × 105	GE	32	6.00	4	1.08	086 25334
	390000	76 × 118	GF	35	6.00	3	0.96	086 15394
	470000	76 × 143	GH	40	6.00	3	1.15	086 15474
	820000	76 × 220	GN	50	6.00	3	2.01	086 15824
1000000	76 × 220	GN	50	6.00	3	2.47	086 15105	

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U_R (V)	C_R 100/120 Hz (μF)	NOMINAL CASE SIZE $\varnothing D \times L$ (mm)	CASE CODE	I_R 100/120 Hz 85 °C (A)	I_{L5} 5 min (mA)	ESR MAX. 100/120 Hz (m Ω)	Tan δ MAX. 100/120 Hz	CATALOGUE NUMBER (see Table 6, note 1) 2222
25	18000	35 × 54	BA	5.4	4.02	25	0.37	086 16183
	27000	35 × 80	BC	7.5	4.93	18	0.40	086 16273
	39000	35 × 105	BE	9	5.92	14	0.45	086 16393
	68000	50 × 80	EC	17	6.00	6	0.33	086 16683
	100000	50 × 105	EE	21	6.00	5	0.41	086 16104
	120000	50 × 118	EF	23	6.00	4	0.39	086 16124
	150000	50 × 143	EH	26	6.00	4	0.49	086 16154
	150000	65 × 105	FE	27	6.00	4	0.49	086 26154
	180000	65 × 118	FF	29	6.00	4	0.59	086 16184
	220000	65 × 143	FH	31	6.00	3	0.54	086 16224
	220000	76 × 105	GE	32	6.00	4	0.72	086 26224
	270000	76 × 118	GF	35	6.00	3	0.66	086 16274
	330000	76 × 143	GH	38	6.00	3	0.81	086 16334
	560000	76 × 220	GN	50	6.00	3	1.37	086 16564
40	10000	35 × 54	BA	4.8	3.79	33	0.27	086 17103
	15000	35 × 80	BC	7.4	4.65	19	0.23	086 17153
	22000	35 × 105	BE	9.4	5.63	14	0.25	086 17223
	39000	50 × 80	EC	15	6.00	7	0.22	086 17393
	56000	50 × 105	EE	19	6.00	6	0.27	086 17563
	68000	50 × 118	EF	21	6.00	5	0.28	086 17683
	82000	50 × 143	EH	23	6.00	5	0.33	086 17823
	100000	65 × 105	FE	24	6.00	5	0.41	086 17104
	120000	65 × 118	FF	27	6.00	4	0.39	086 17124
	150000	65 × 143	FH	31	6.00	4	0.49	086 17154
	150000	76 × 105	GE	29	6.00	4	0.49	086 27154
	180000	76 × 118	GF	35	6.00	4	0.59	086 17184
	220000	76 × 143	GH	37	6.00	3	0.54	086 17224
	330000	76 × 220	GN	50	6.00	3	0.81	086 17334

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U_R (V)	C_R 100/120 Hz (μF)	NOMINAL CASE SIZE $\varnothing D \times L$ (mm)	CASE CODE	I_R 100/120 Hz 85 °C (A)	I_{L5} 5 min (mA)	ESR MAX. 100/120 Hz (m Ω)	Tan δ MAX. 100/120 Hz	CATALOGUE NUMBER (see Table 6, note 1) 2222
50	8200	35 × 54	BA	4.2	3.84	41	0.27	086 11822
	12000	35 × 80	BC	6	4.65	28	0.27	086 11123
	18000	35 × 105	BE	7.8	5.69	21	0.31	086 11183
	27000	50 × 80	EC	10	6.00	15	0.33	086 11273
	47000	50 × 105	EE	13	6.00	11	0.42	086 11473
	56000	50 × 118	EF	15	6.00	10	0.46	086 11563
	68000	50 × 143	EH	17	6.00	9	0.50	086 11683
	68000	65 × 105	FE	18	6.00	8	0.44	086 21683
	82000	65 × 118	FF	20	6.00	7	0.47	086 11823
	100000	65 × 143	FH	24	6.00	6	0.49	086 11104
	100000	76 × 105	GE	23	6.00	6	0.49	086 21104
	120000	76 × 118	GF	25	6.00	6	0.59	086 11124
	150000	76 × 143	GH	30	6.00	5	0.61	086 11154
	220000	76 × 220	GN	40	6.00	4	0.72	086 11224
63	4700	35 × 54	BA	4.2	3.26	42	0.16	086 18472
	8200	35 × 80	BC	6	4.31	28	0.19	086 18822
	12000	35 × 105	BE	8	5.22	21	0.21	086 18123
	18000	50 × 80	EC	10	6.00	15	0.22	086 18183
	27000	50 × 105	EE	13	6.00	11	0.24	086 18273
	33000	50 × 118	EF	15	6.00	10	0.27	086 18333
	39000	50 × 143	EH	16	6.00	9	0.29	086 18393
	47000	65 × 105	FE	18	6.00	8	0.31	086 18473
	56000	65 × 118	FF	20	6.00	7	0.32	086 18563
	68000	65 × 143	FH	24	6.00	6	0.33	086 18683
	68000	76 × 105	GE	23	6.00	6	0.33	086 28683
	82000	76 × 118	GF	25	6.00	6	0.40	086 18823
	100000	76 × 143	GH	30	6.00	5	0.41	086 18104
	150000	76 × 220	GN	40	6.00	4	0.49	086 18154

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U_R (V)	C_R 100/120 Hz (μF)	NOMINAL CASE SIZE $\varnothing D \times L$ (mm)	CASE CODE	I_R 100/120 Hz 85 °C (A)	I_{L5} 5 min (mA)	ESR MAX. 100/120 Hz (m Ω)	Tan δ MAX. 100/120 Hz	CATALOGUE NUMBER (see Table 6, note 1) 2222
75	3900	35 × 54	BA	4.1	3.24	43	0.14	086 12392
	6800	35 × 80	BC	5.9	4.28	29	0.16	086 12682
	10000	35 × 105	BE	7.8	5.20	21	0.17	086 12103
	15000	50 × 80	EC	10	6.00	15	0.18	086 12153
	22000	50 × 105	EE	13	6.00	11	0.20	086 12223
	27000	50 × 118	EF	15	6.00	10	0.22	086 12273
	33000	50 × 143	EH	17	6.00	9	0.24	086 12333
	33000	65 × 105	FE	18	6.00	8	0.22	086 22333
	39000	65 × 118	FF	20	6.00	7	0.22	086 12393
	56000	65 × 143	FH	23	6.00	6	0.27	086 12563
	47000	76 × 105	GE	23	6.00	7	0.27	086 22473
	56000	76 × 118	GF	25	6.00	6	0.27	086 12563
	82000	76 × 143	GH	29	6.00	5	0.33	086 12823
	120000	76 × 220	GN	40	6.00	4	0.39	086 12104
100	2700	35 × 54	BA	3.3	3.12	65	0.14	086 19272
	3900	35 × 80	BC	4.3	3.75	50	0.16	086 19392
	5600	35 × 105	BE	5.9	4.49	32	0.15	086 19562
	10000	50 × 80	EC	5.5	6.00	52	0.42	086 19103
	15000	50 × 105	EE	7.3	6.00	37	0.45	086 19153
	18000	50 × 130	EG	9	6.00	27	0.40	086 19183
	22000	50 × 143	EH	15	6.00	11	0.20	086 19223
	22000	65 × 105	FE	11	6.00	19	0.34	086 29223
	27000	65 × 118	FF	13	6.00	16	0.35	086 19273
	33000	65 × 143	FH	14	6.00	14	0.38	086 19333
	33000	76 × 105	GE	14	6.00	14	0.38	086 29333
	39000	76 × 118	GF	17	6.00	11	0.35	086 19393
	56000	76 × 143	GH	22	6.00	8	0.37	086 19563
	82000	76 × 220	GN	25	6.00	7	0.47	086 19823

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Table 6 Electrical data and ordering information for **087** series; preferred types in **bold**

U _R (V)	C _R 100/120 Hz (μF)	NOMINAL CASE SIZE ∅D × L (mm)	CASE CODE	I _R 100/120 Hz 85 °C (A)	I _{L5} 5 min (mA)	ESR MAX. 100/120 Hz (mΩ)	Tan δ MAX. 100/120 Hz	CATALOGUE NUMBER (note 1) 2222
200	1000	35 × 54	BA	2.6	2.68	109	0.09	087 12102
	1500	35 × 80	BC	3.4	3.29	77	0.09	087 12152
	2200	35 × 105	BE	4.6	3.98	52	0.09	087 12222
	3900	50 × 80	EC	4.8	5.30	73	0.23	087 12392
	5600	50 × 105	EE	8.6	6.00	24	0.11	087 12562
	6800	50 × 130	EG	9.9	6.00	21	0.12	087 12682
	8200	50 × 143	EH	12	6.00	17	0.11	087 12822
	10000	65 × 105	FE	11	6.00	22	0.18	087 12103
	12000	65 × 130	FG	12	6.00	17	0.17	087 12123
	15000	65 × 143	FH	14	6.00	16	0.20	087 12153
	12000	76 × 105	GE	11	6.00	26	0.25	087 22123
	15000	76 × 118	GF	12	6.00	23	0.28	087 22153
	22000	76 × 143	GH	15	6.00	17	0.31	087 12223
	33000	76 × 220	GN	17	6.00	15	0.40	087 12333
250	680	35 × 54	BA	2.6	2.47	120	0.07	087 13681
	1200	35 × 80	BC	3.6	3.29	76	0.07	087 13122
	1800	35 × 105	BE	4.9	4.02	53	0.08	087 13182
	2700	50 × 80	EC	4.4	4.93	67	0.15	087 13272
	3900	50 × 105	EE	7.9	5.92	27	0.09	087 13392
	4700	50 × 130	EG	9	6.00	23	0.09	087 13472
	5600	50 × 143	EH	10	6.00	20	0.09	087 13562
	6800	65 × 105	FE	10	6.00	24	0.13	087 13682
	8200	65 × 130	FG	11	6.00	19	0.13	087 13822
	10000	65 × 143	FH	14	6.00	17	0.14	087 13103
	10000	76 × 105	GE	11	6.00	25	0.20	087 23103
	12000	76 × 118	GF	12	6.00	22	0.22	087 13123
	15000	76 × 143	GH	14	6.00	19	0.23	087 13153
	22000	76 × 220	GN	17	6.00	16	0.29	087 13223

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U _R (V)	C _R 100/120 Hz (μF)	NOMINAL CASE SIZE ∅D × L (mm)	CASE CODE	I _R 100/120 Hz 85 °C (A)	I _{L5} 5 min (mA)	ESR MAX. 100/120 Hz (mΩ)	Tan δ MAX. 100/120 Hz	CATALOGUE NUMBER (note 1) 2222
350	390	35 × 54	BA	1.3	2.22	270	0.09	087 15391
	680	35 × 80	BC	2.5	2.93	163	0.09	087 15681
	1000	35 × 105	BE	3.3	3.55	112	0.09	087 15102
	1500	50 × 80	EC	3.9	4.35	105	0.13	087 15152
	2200	50 × 105	EE	5.6	5.26	55	0.10	087 15222
	2700	50 × 130	EG	7	5.83	44	0.10	087 15272
	3300	50 × 143	EH	8	6.00	37	0.10	087 15332
	2700	65 × 105	FE	6.6	6.00	54	0.12	087 25272
	3900	65 × 130	FG	8.7	6.00	37	0.12	087 15392
	4700	65 × 143	FH	9.6	6.00	33	0.13	087 15472
	4700	76 × 105	GE	9.6	6.00	33	0.13	087 25472
	5600	76 × 118	GF	10	6.00	33	0.15	087 15562
	6800	76 × 143	GH	11	6.00	28	0.16	087 15682
	12000	76 × 220	GN	18	6.00	18	0.18	087 15123
400	330	35 × 54	BA	1.3	2.18	290	0.08	087 16331
	560	35 × 80	BC	2.1	2.84	190	0.09	087 16561
	820	35 × 105	BE	3	3.44	129	0.09	087 16821
	1200	50 × 80	EC	3.7	4.16	95	0.09	087 16152
	1800	50 × 105	EE	5.5	5.09	59	0.09	087 16182
	2200	50 × 130	EG	6.4	5.63	50	0.09	087 16222
	2700	50 × 143	EH	7.9	6.00	39	0.09	087 16272
	2700	65 × 105	FE	7.3	6.00	48	0.11	087 26272
	3300	65 × 130	FG	8.5	6.00	39	0.11	087 16332
	3900	65 × 143	FH	9.4	6.00	37	0.12	087 16392
	3900	76 × 105	GE	9.4	6.00	37	0.12	087 26392
	4700	76 × 118	GF	10	6.00	34	0.13	087 16472
	5600	76 × 143	GH	11	6.00	28	0.13	087 16562
	10000	76 × 220	GN	18	6.00	18	0.15	087 16103

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U_R (V)	C_R 100/120 Hz (μ F)	NOMINAL CASE SIZE $\varnothing D \times L$ (mm)	CASE CODE	I_R 100/120 Hz 85 °C (A)	I_{L5} 5 min (mA)	ESR MAX. 100/120 Hz (m Ω)	Tan δ MAX. 100/120 Hz	CATALOGUE NUMBER (note 1) 2222
450	220	35 × 54	BA	1	1.89	430	0.08	087 17221
	390	35 × 80	BC	1.8	2.51	310	0.10	087 17391
	560	35 × 105	BE	2.6	3.01	180	0.08	087 17561
	820	50 × 80	EC	3	3.64	145	0.10	087 17821
	1200	50 × 105	EE	4.6	4.41	85	0.08	087 17122
	1500	50 × 130	EG	5.3	4.93	71	0.09	087 17152
	1800	50 × 143	EH	5.9	5.40	60	0.09	087 17182
	2200	65 × 105	FE	6.7	5.97	53	0.10	087 17222
	2700	65 × 130	FG	7.7	6.00	45	0.10	087 17272
	3300	65 × 143	FH	9.5	6.00	35	0.09	087 17332
	3300	76 × 105	GE	9.5	6.00	35	0.09	087 27332
	3900	76 × 118	GF	9.8	6.00	36	0.11	087 17392
	4700	76 × 143	GH	11	6.00	31	0.12	087 17472
8200	76 × 220	GN	14	6.00	23	0.15	087 17822	
500 ⁽²⁾	820	50 × 105	EE	3.4	3.8	132	0.06	087 18821
	1200	50 × 130	EG	4.6	4.6	90	0.06	087 18122
	2200	65 × 130	FG	6.6	6.00	59	0.06	087 18222
	3300	76 × 143	GH	8.6	6.00	43	0.06	087 18332

Notes

- Catalogue type applies to the terminal style "M", high post (see Table 3); the insulation type "P", 0.2 mm polymeric (see Table 4); tolerance -10/+30% and to the ST version; for STB version (not preferred) replace 8th digit by '5' if ST version is '1' (2222 086/087 5....) or replace 8th digit by '6' if ST version is '2' (2222 086/087 6....). STB version is not available for $\varnothing D = 35$ mm and 45 mm and for case size $\varnothing 76 \times 220$ mm.
- For additional values and sizes, please contact your local BCcomponents sales organization.

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Additional electrical data

PARAMETER	CONDITIONS	VALUE
Voltage		
Surge voltage for short periods	≤250 V versions	$U_s = 1.3 \times U_R$
	≥350 V versions	$U_s = 1.15 \times U_R$
Reverse voltage		$U_{rev} \leq 1 \text{ V}$
Current		
Leakage current	after 5 minutes at U_R	$I_{L5} \leq 0.006 \times \sqrt{C \times V}$ (mA) or 6 mA, whichever is less
Inductance		
Equivalent series inductance (ESL)	case ØD = 35 mm, (1.375")	typ. 18 nH
	case ØD = 45 mm, (1.75")	typ. 23 nH
	case ØD = 50 mm, (2.0")	typ. 25 nH
	case ØD = 65 mm, (2.5")	typ. 27 nH
	case ØD = 76 mm, (3.0")	typ. 29 nH

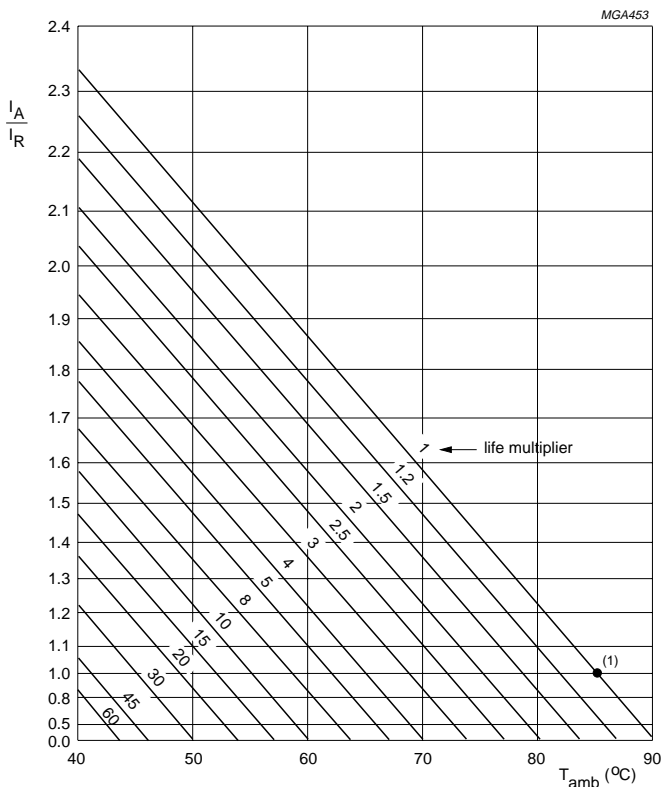
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RIPPLE CURRENT AND USEFUL LIFE

Table 7 Multiplier of ripple current (I_R) as a function of frequency

FREQUENCY (Hz)	I_R MULTIPLIER	
	086	087
60	0.9	0.9
100/120	1.00	1.00
300	1.15	1.25
1000	1.25	1.40
≥ 10000	1.30	1.50



I_A = actual ripple current at 100/120 Hz and 85 °C.

I_R = rated ripple current at 100/120 Hz and 85 °C.

With an absolute maximum of 50 A at 85 °C.

(1) Useful life at 85 °C and I_R applied: 5000 hours (3000 hours for ≥ 100 V types).

Fig.3 Multiplier of useful life as a function of ambient temperature and ripple current load.

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SPECIFIC TESTS AND REQUIREMENTS

General tests and requirements are specified in data handbook BC01, section "Tests and Requirements".

Table 8 Test procedures and requirements

TEST		PROCEDURE (quick reference)	REQUIREMENTS
NAME OF TEST	REFERENCE		
Endurance	IEC 60384-4 subclause 4.13	$T_{amb} = 85\text{ °C}$; U_R applied; 2000 hours	$\Delta C/C: \pm 10\%$ $ESR \leq 2 \times \text{spec. limit}$ $I_{L5} \leq \text{spec. limit}$
Useful life	CECC 30301 subclause 1.8.1	$T_{amb} = 85\text{ °C}$; U_R and I_R applied; 5000 hours ($\geq 100\text{ V}$ types: 3000 hours)	$\Delta C/C: \pm 15\%$ $ESR \leq 3 \times \text{spec. limit}$ $I_{L5} \leq \text{spec. limit}$ no short or open circuit, no visible damage total failure percentage: $\leq 3\%$
Shelf life (storage at high temperature)	IEC 60384-4 subclause 4.17	$T_{amb} = 85\text{ °C}$; no voltage applied; 500 hours after test: U_R to be applied for 30 minutes, 24 to 48 hours before measurement	$\Delta C/C: \pm 10\%$ $I_{L5} \leq 2 \times \text{spec. limit}$ $ESR \leq 1.75 \times \text{spec. limit}$