

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

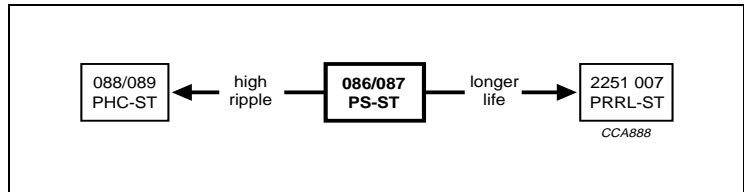
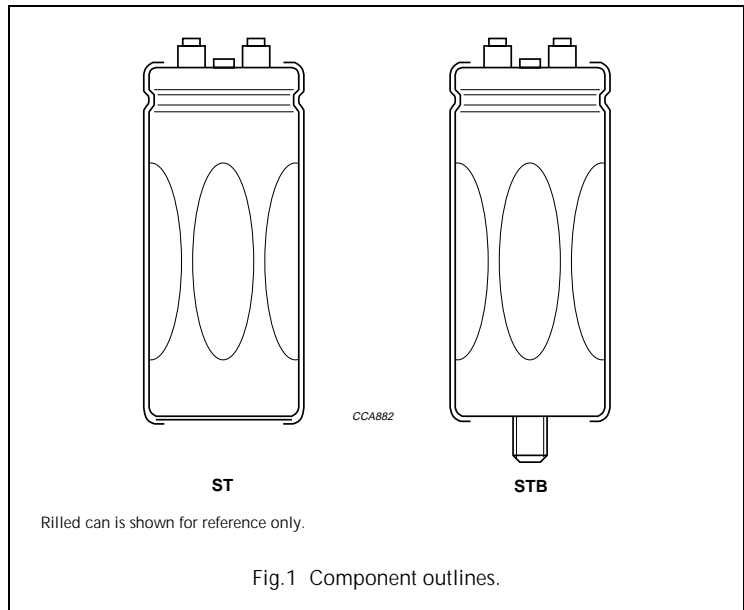
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FEATURES

- 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 μ F	
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 (\geq 100 V: 3000 hours)	
Useful life at 40 °C, $1.3 \times I_R$ applied	120000 hours (\geq 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

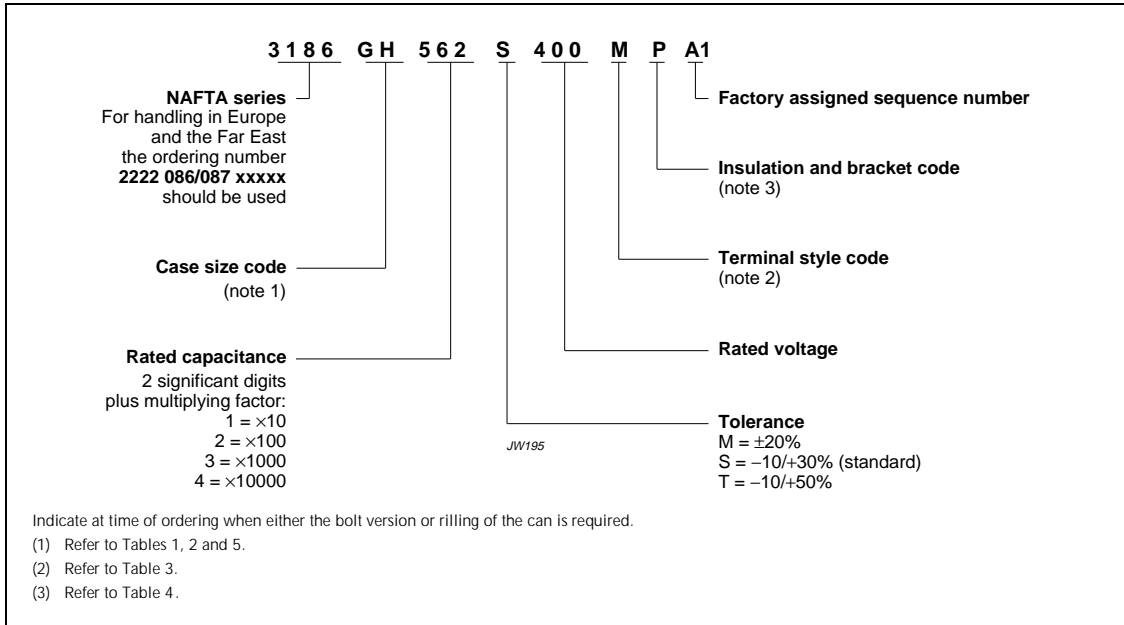
1. For additional values and sizes, please contact your local BCcomponents sales organization.

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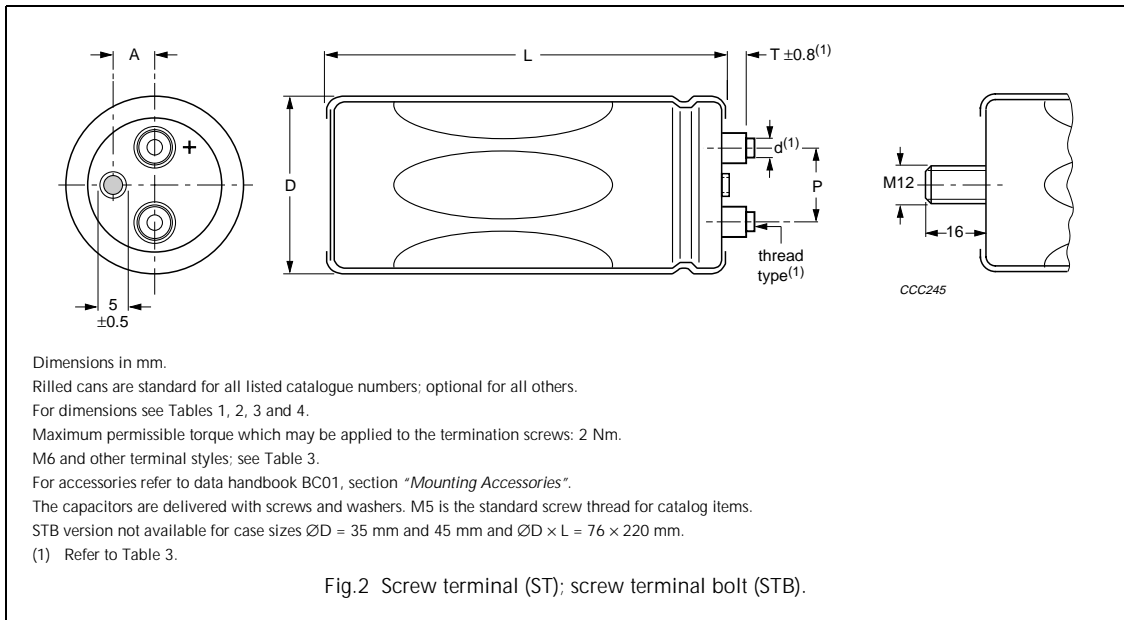
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ORDERING INFORMATION

NAFTA part numbering system



MECHANICAL DATA



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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 ØD = 65 mm (2.5") and ØD = 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

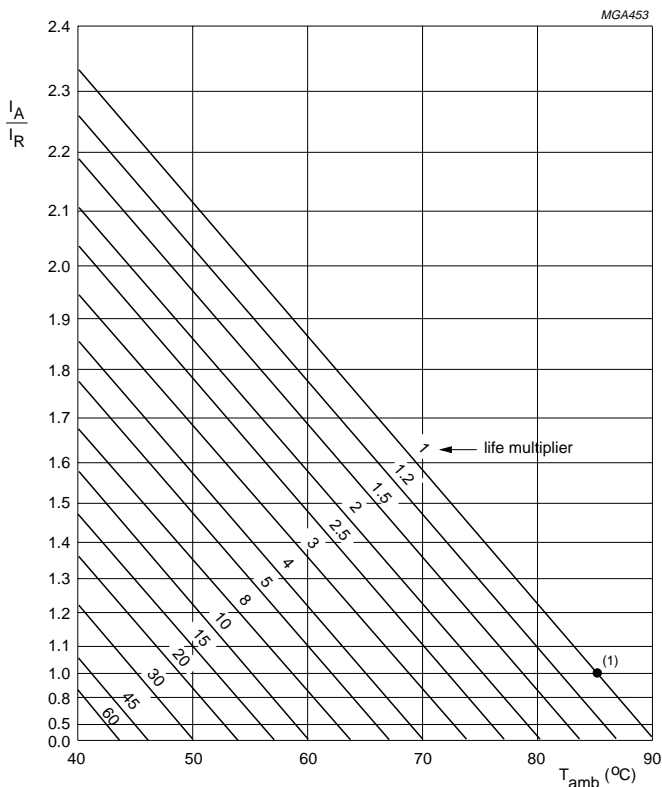
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RIPPLE CURRENT AND USEFUL LIFE

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	$T_{amb} = 85\text{ }^{\circ}\text{C}$; 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	$T_{amb} = 85\text{ }^{\circ}\text{C}$; 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	$T_{amb} = 85\text{ }^{\circ}\text{C}$; no voltage applied; 500 hours after test: U_R to be applied for 30 minutes, 24 to 48 hours before measurement	$\Delta C/C: \pm 10\%$ $I_{L5} \leq 2 \times \text{spec. limit}$ $ESR \leq 1.75 \times \text{spec. limit}$