

Type 3186 85 °C Aluminum Electrolytic, Screw Terminal

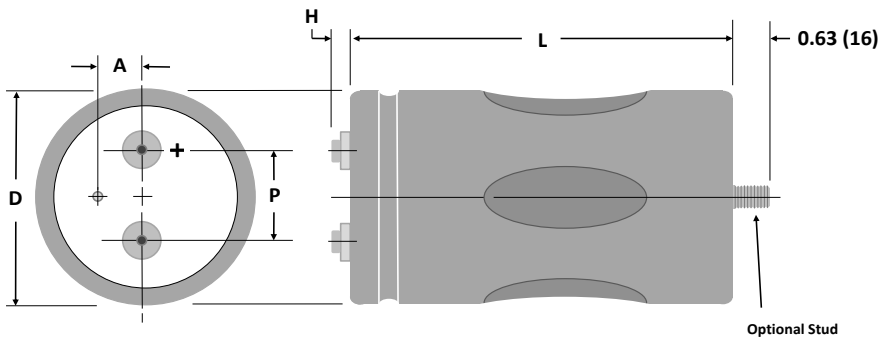
Best Value 85 °C High Capacitance Screw Terminal Type

Part Numbering System

3186	GH	562	T	400	M	P	A1
Type	Case Code	Capacitance	Tolerance	Voltage	Terminal	Insulation	Construction*
		562=5600 µF 223=22000 µF 821=820 µF	M= ±20% S= -10 +30% T= -10 +50% U= -10 +75%	016=16 Vdc 450=450 Vdc	A=high post B=low post D=high current low post K=high current high post M=M5 high post J=M6 low post	P=0.008" PVC N=none with mounting clamp/bracket R=0.008" PVC X=none	A1=compression R1=rilled S1=stud & compression T1=stud & rilled

Outline Drawing

* Construction code is also a sequence number, e.g., A1, A2,---,A9, B1,B2,---, for customer specifications. Sequence number 1 in A1, R1, S1 and T1 denotes the standard catalog capacitor with no special requirements.



Stud Dimensions

Case	Stud	P ± 0.039"
Diam.	Thread	(±1.0 mm)
1.375	M8	0.470" (12.0)
1.750	M8	0.470" (12.0)
2.000	M12	0.630" (16.0)
2.500	M12	0.630" (16.0)
3.000	M12	0.630" (16.0)

Can Dimensions Insulation Adders

	Diameter (D)		Length (L)		Standing Height (H)	
	(in)	(mm)	(in)	(mm)	(in)	(mm)
0.008" PVC	0.02	0.51	0.032	0.81	0.024	0.61

Terminal Dimensions

Terminal Style	For Case Diameters	Code	Post Diameter		H max		Thread	min Full Thread		Torque	
			in	mm	in	mm		in	mm	in-lb	N-m
Low Post	1 3/8 to 3	B	0.314	8.0	0.094	2.4	10-32	0.218	5.5	25	2.82
High Post	1 3/8 to 3	A	0.314	8.0	0.281	7.1	10-32	0.375	9.5	25	2.82
High Current, Low	2 1/2 & 3	D	0.684	17.4	0.125	3.2	¼-28	0.344	8.7	50	5.65
High Current, High	2 1/2 & 3	K	0.684	17.4	0.281	7.1	¼-28	0.469	11.9	60	6.78
M5 High Post	1 3/8 to 2	M	0.314	8.0	0.281	7.1	M5	0.375	9.5	25	2.82
M5 Post	2 1/2 & 3	F	0.512	13.0	0.230	5.8	M5	0.344	8.7	25	2.82
M6 Low Post	2 1/2 & 3	J	0.684	17.4	0.125	3.2	M6	0.344	8.7	50	5.65

Type 3186 85 °C Aluminum Electrolytic, Screw Terminal

Best Value 85 °C High Capacitance Screw Terminal Type

Case Dimensions, Uninsulated Bare Can

Case Code	Diam. (D)		Length (L)		Terminal Space(P)		Vent Plug (A)		Typical Weight		Optional Bracket Part No.
	±0.031	±0.8	±0.062	±1.6	±0.014	±0.4	(in)	(mm)	(oz)	(g)	
	(in)	(mm)	(in)	(mm)	(in)	(mm)					
BA	1.375	34.9	2.125	54.0	0.5	12.7	0.39	8.0	2.5	72	115058-06
BB	1.375	34.9	2.625	66.7	0.5	12.7	0.39	8.0	3.2	90	115058-06
BC	1.375	34.9	3.125	79.4	0.5	12.7	0.39	8.0	3.7	105	115058-06
BD	1.375	34.9	3.625	92.1	0.5	12.7	0.39	8.0	4.2	120	115058-06
BE	1.375	34.9	4.125	104.8	0.5	12.7	0.39	8.0	4.7	135	115058-06
BF	1.375	34.9	4.625	117.5	0.5	12.7	0.39	8.0	6.0	170	115058-06
BG	1.375	34.9	5.125	130.2	0.5	12.7	0.39	8.0	7.7	220	115058-06
BH	1.375	34.9	5.625	142.9	0.5	12.7	0.39	8.0	9.5	270	115058-06
DA	1.750	44.5	2.125	54.0	0.75	19.1	0.453	11.5	5.6	160	115058-15
DB	1.750	44.5	2.625	66.7	0.75	19.1	0.453	11.5	6.1	175	115058-15
DC	1.750	44.5	3.125	79.4	0.75	19.1	0.453	11.5	6.3	180	115058-15
DD	1.750	44.5	3.625	92.1	0.75	19.1	0.453	11.5	7.2	205	115058-15
DE	1.750	44.5	4.125	104.8	0.75	19.1	0.453	11.5	7.7	220	115058-15
DF	1.750	44.5	4.625	117.5	0.75	19.1	0.453	11.5	8.2	235	115058-15
DG	1.750	44.5	5.125	130.2	0.75	19.1	0.453	11.5	8.8	250	115058-15
DH	1.750	44.5	5.625	142.9	0.75	19.1	0.453	11.5	9.5	270	115058-15
EA	2.000	50.8	2.125	54.0	0.875	22.2	0.5	12.7	6.0	170	115058-09
EB	2.000	50.8	2.625	66.7	0.875	22.2	0.5	12.7	6.3	180	115058-09
EC	2.000	50.8	3.125	79.4	0.875	22.2	0.5	12.7	6.7	190	115058-09
ED	2.000	50.8	3.625	92.1	0.875	22.2	0.5	12.7	7.7	220	115058-09
EE	2.000	50.8	4.125	104.8	0.875	22.2	0.5	12.7	8.9	255	115058-09
EF	2.000	50.8	4.625	117.5	0.875	22.2	0.5	12.7	10.2	290	115058-09
EG	2.000	50.8	5.125	130.2	0.875	22.2	0.5	12.7	11.2	320	115058-09
EH	2.000	50.8	5.625	142.9	0.875	22.2	0.5	12.7	12.3	350	115058-09
FB	2.500	63.5	2.625	66.7	1.125	28.6	0.625	15.9	10.5	300	115058-14
FC	2.500	63.5	3.125	79.4	1.125	28.6	0.625	15.9	13.0	370	115058-14
FD	2.500	63.5	3.625	92.1	1.125	28.6	0.625	15.9	14.0	400	115058-14
FE	2.500	63.5	4.125	104.8	1.125	28.6	0.625	15.9	15.6	445	115058-14
FF	2.500	63.5	4.625	117.5	1.125	28.6	0.625	15.9	21.0	600	115058-14
FG	2.500	63.5	5.125	130.2	1.125	28.6	0.625	15.9	22.8	650	115058-14
FH	2.500	63.5	5.625	142.9	1.125	28.6	0.625	15.9	21.0	600	115058-14
GC	3.000	76.2	3.125	79.4	1.25	31.8	0.75	19.0	18.2	520	115058-11
GD	3.000	76.2	3.625	92.1	1.25	31.8	0.75	19.0	20.0	570	115058-11
GE	3.000	76.2	4.125	104.8	1.25	31.8	0.75	19.0	21.0	600	115058-11
GF	3.000	76.2	4.625	117.5	1.25	31.8	0.75	19.0	25.2	720	115058-11
GG	3.000	76.2	5.125	130.2	1.25	31.8	0.75	19.0	29.8	850	115058-11
GH	3.000	76.2	5.625	142.9	1.25	31.8	0.75	19.0	34.0	970	115058-11
GJ	3.000	76.2	5.875	149.2	1.25	31.8	0.75	19.0	36.8	1050	115058-11
GN	3.000	76.2	8.625	219.1	1.25	31.8	0.75	19.0	51.1	1460	115058-11

Type 3186 85 °C Aluminum Electrolytic, Screw Terminal

Best Value 85 °C High Capacitance Screw Terminal Type

Ratings

Capacitance (µF)	Catalog Part Number	ESR max 120 Hz, 25°C (mΩ)	Ripple max 120 Hz, 85 °C (A)	Case Size DxL (in)
16 Volts (20 Volts Surge)				
22000	3186BA223T016APA1	25.0	5.4	1.375 X 2.125
39000	3186BC393T016APA1	18.0	7.6	1.375 X 3.125
56000	3186BE563T016APA1	14.0	9.7	1.375 X 4.125
82000	3186EC823T016APA1	6.0	17.0	2.00 X 3.125
120000	3186EE124T016APA1	5.0	21.0	2.00 X 4.125
150000	3186EF154T016APA1	4.0	23.0	2.00 X 4.625
150000	3186EH154T016APA1	4.0	25.0	2.00 X 5.625
220000	3186FE224T016APA1	4.0	27.0	2.50 X 4.125
270000	3186FF274T016APA1	4.0	29.0	2.50 X 4.625
330000	3186FH334T016DPA1	3.0	34.0	2.50 X 5.625
330000	3186GE334T016DPA1	4.0	32.0	3.00 X 4.125
390000	3186GF394T016DPA1	3.0	35.0	3.00 X 4.625
470000	3186GH474T016DPA1	3.0	40.0	3.00 X 5.625
820000	3186GN824T016DPA1	3.0	50.0	3.00 X 8.625
1000000	3186GN105T016DPA1	3.0	50.0	3.00 X 8.625
25 Volts (30 Volts Surge)				
18000	3186BA183T025APA1	25.0	5.4	1.375 X 2.125
27000	3186BC273T025APA1	18.0	7.5	1.375 X 3.125
39000	3186BE393T025APA1	14.0	9.0	1.375 X 4.125
68000	3186EC683T025APA1	6.0	17.0	2.00 X 3.125
100000	3186EE104T025APA1	5.0	21.0	2.00 X 4.125
120000	3186EF124T025APA1	4.0	23.0	2.00 X 4.625
150000	3186EH154T025APA1	4.0	26.0	2.00 X 5.625
150000	3186FE154T025APA1	4.0	27.0	2.50 X 4.125
180000	3186FF184T025APA1	4.0	29.0	2.50 X 4.625
220000	3186FH224T025DPA1	3.0	31.0	2.50 X 5.625
220000	3186GE224T025DPA1	4.0	32.0	3.00 X 4.125
270000	3186GF274T025DPA1	3.0	35.0	3.00 X 4.625
330000	3186GH334T025DPA1	3.0	38.0	3.00 X 5.625
560000	3186GN564T025DPA1	3.0	50.0	3.00 X 8.625
40 Volts (50 Volts Surge)				
10000	3186BA103T040APA1	33.0	4.8	1.375 X 2.125
15000	3186BC153T040APA1	19.0	7.4	1.375 X 3.125
22000	3186BE223T040APA1	14.0	9.4	1.375 X 4.125
39000	3186EC393T040APA1	7.0	15.0	2.00 X 3.125
56000	3186EE563T040APA1	6.0	19.0	2.00 X 4.125
68000	3186EF683T040APA1	5.0	21.0	2.00 X 4.625
82000	3186EH82T040APA1	5.0	23.0	2.00 X 5.625
100000	3186FE104T040APA1	5.0	24.0	2.50 X 4.125
120000	3186FF124T040APA1	4.0	27.0	2.50 X 4.625
150000	3186FH154T040DPA1	4.0	31.0	2.50 X 5.625
150000	3186GE154T040APA1	4.0	29.0	3.00 X 4.125
180000	3186GF184T040DPA1	4.0	35.0	3.00 X 4.625
220000	3186GH224T040DPA1	3.0	37.0	3.00 X 5.625
330000	3186GN334T040DPA1	3.0	50.0	3.00 X 8.625

Capacitance (µF)	Catalog Part Number	ESR max 120 Hz, 25°C (mΩ)	Ripple max 120 Hz, 85 °C (A)	Case Size DxL (in)
50 Volts (63 Volts Surge)				
8200	3186BA822T050APA1	41.0	4.2	1.375 X 2.125
12000	3186BC123T050APA1	28.0	6.0	1.375 X 3.125
18000	3186BE183T050APA1	21.0	7.8	1.375 X 4.125
27000	3186EC273T050APA1	15.0	10.0	2.00 X 3.125
47000	3186EE473T050APA1	11.0	13.0	2.00 X 4.125
56000	3186EF563T050APA1	10.0	15.0	2.00 X 4.625
68000	3186EH683T050APA1	9.0	17.0	2.00 X 5.625
68000	3186FE683T050APA1	8.0	18.0	2.50 X 4.125
82000	3186FF823T050APA1	7.0	20.0	2.50 X 4.625
100000	3186FH104T050APA1	6.0	24.0	2.50 X 5.625
100000	3186GE104T050APA1	6.0	23.0	3.00 X 4.125
120000	3186GF124T050APA1	6.0	25.0	3.00 X 4.625
150000	3186GH154T050DPA1	5.0	30.0	3.00 X 5.625
220000	3186GN224T050DPA1	4.0	40.0	3.00 X 8.625
63 Volts (75 Volts Surge)				
4700	3186BA472T063APA1	42.0	4.2	1.375 X 2.125
8200	3186BC822T063APA1	28.0	6.0	1.375 X 3.125
12000	3186BE123T063APA1	21.0	8.0	1.375 X 4.125
18000	3186EC183T063APA1	15.0	10.0	2.00 X 3.125
27000	3186EE273T063APA1	11.0	13.0	2.00 X 4.125
33000	3186EF333T063APA1	10.0	15.0	2.00 X 4.625
39000	3186EH393T063APA1	9.0	16.0	2.00 X 5.625
47000	3186FE473T063APA1	8.0	18.0	2.50 X 4.125
56000	3186FF563T063APA1	7.0	20.0	2.50 X 4.625
68000	3186FH683T063APA1	6.0	24.0	2.50 X 5.625
68000	3186GE683T063APA1	6.0	23.0	3.00 X 4.125
82000	3186GF823T063APA1	6.0	25.0	3.00 X 4.625
100000	3186GH104T063DPA1	5.0	30.0	3.00 X 5.625
150000	3186GN154T063DPA1	4.0	40.0	3.00 X 8.625
75 Volts (95 Volts Surge)				
3900	3186BA392T075APA1	43.0	4.1	1.375 X 2.125
6800	3186BC682T075APA1	29.0	5.9	1.375 X 3.125
10000	3186BE103T075APA1	21.0	7.8	1.375 X 4.125
15000	3186EC153T075APA1	15.0	10.0	2.00 X 3.125
22000	3186EE223T075APA1	11.0	13.0	2.00 X 4.125
27000	3186EF273T075APA1	10.0	15.0	2.00 X 4.625
33000	3186EH333T075APA1	9.0	17.0	2.00 X 5.625
33000	3186FE333T075APA1	8.0	18.0	2.50 X 4.125
39000	3186FF393T075APA1	7.0	20.0	2.50 X 4.625
56000	3186FH563T075APA1	6.0	23.0	2.50 X 5.625
47000	3186GE473T075APA1	7.0	23.0	3.00 X 4.125
56000	3186GF563T075APA1	6.0	25.0	3.00 X 4.625
82000	3186GH823T075APA1	5.0	29.0	3.00 X 5.625
120000	3186GN124T075DPA1	4.0	40.0	3.00 X 8.625

Type 3186 85 °C Aluminum Electrolytic, Screw Terminal

Best Value 85 °C High Capacitance Screw Terminal Type

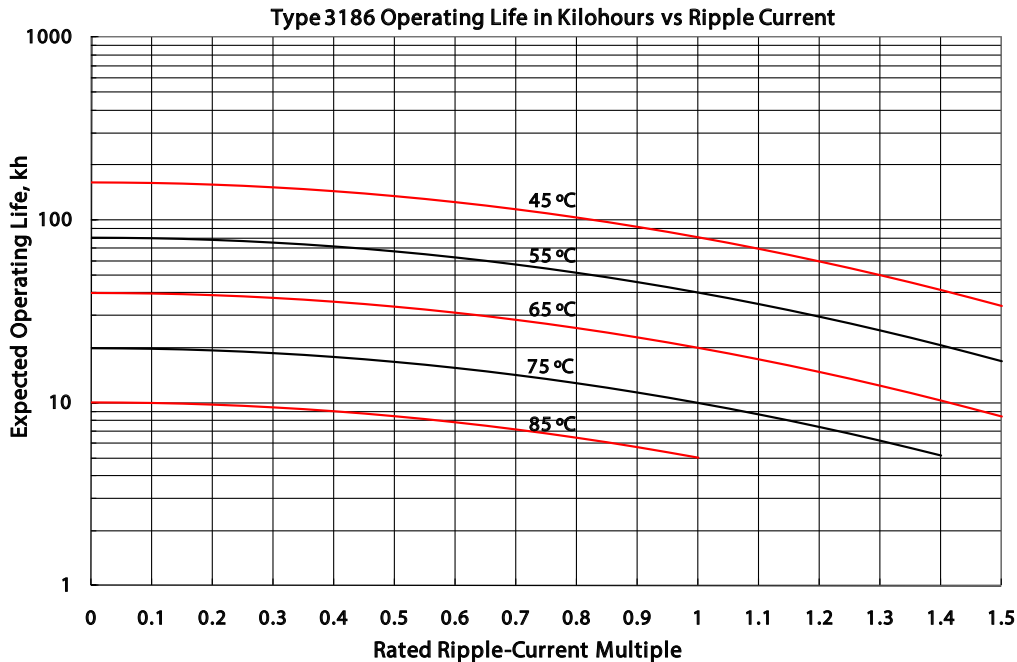
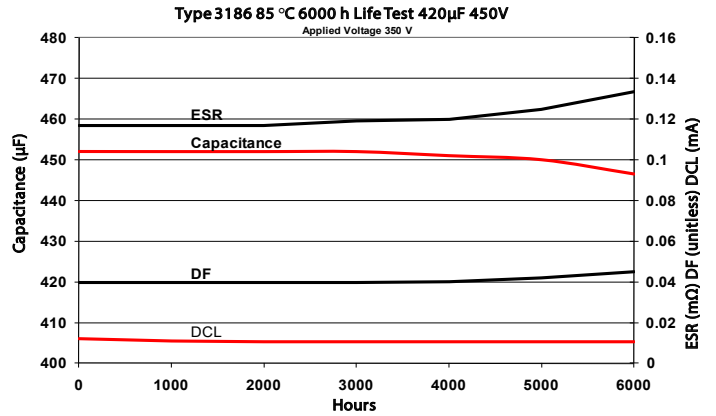
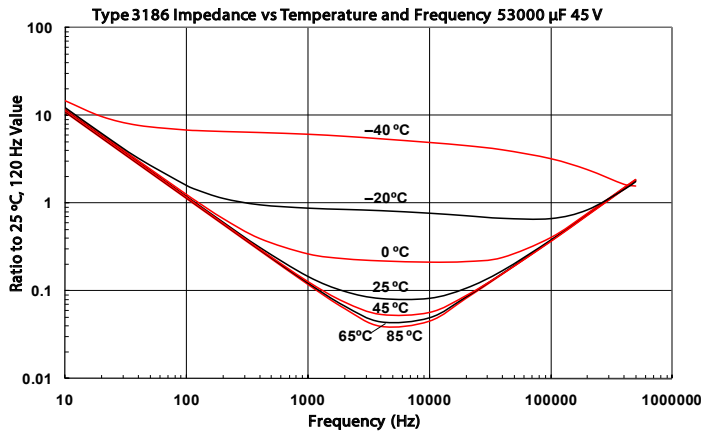
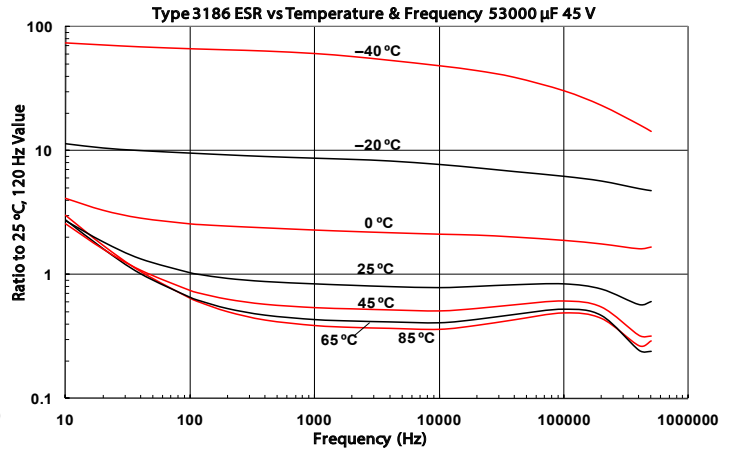
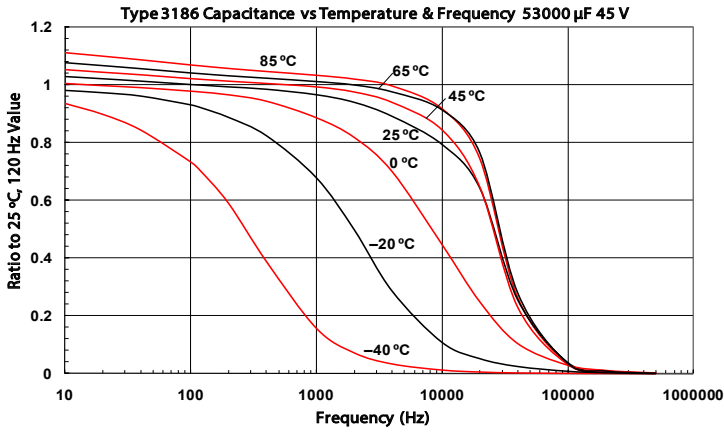
Capacitance (µF)	Catalog Part Number	ESR max 120 Hz, 25°C (mΩ)	Ripple max 120 Hz, 85 °C (A)	Case Size DxL (in)
100 Volts (125 Volts Surge)				
2700	3186BA272T100APA1	65.0	3.3	1.375 X 2.125
3900	3186BC392T100APA1	50.0	4.3	1.375 X 3.125
5600	3186BE562T100APA1	32.0	5.9	1.375 X 4.125
10000	3186EC103T100APA1	52.0	5.5	2.00 X 3.125
15000	3186EE153T100APA1	37.0	7.3	2.00 X 4.125
18000	3186EF183T100APA1	27.0	9.0	2.00 X 4.625
22000	3186EH223T100APA1	11.0	15.0	2.00 X 5.625
22000	3186FE223T100APA1	19.0	11.0	2.50 X 4.125
27000	3186FF273T100APA1	16.0	13.0	2.50 X 4.625
33000	3186FH333T100APA1	14.0	14.0	2.50 X 5.625
33000	3186GE333T100APA1	14.0	14.0	3.00 X 4.125
39000	3186GF393T100APA1	11.0	17.0	3.00 X 4.625
56000	3186GH563T100DPA1	8.0	22.0	3.00 X 5.625
82000	3186GN823T100DPA1	7.0	25.0	3.00 X 8.625
200 Volts (250 Volts Surge)				
1000	3186BA102T200APA1	109.0	2.6	1.375 X 2.125
1500	3186BC152T200APA1	77.0	3.4	1.375 X 3.125
2200	3186BE222T200APA1	52.0	4.6	1.375 X 4.125
3900	3186EC392T200APA1	73.0	4.8	2.00 X 3.125
5600	3186EE562T200APA1	24.0	8.6	2.00 X 4.125
6800	3186EF682T200APA1	21.0	9.9	2.00 X 4.625
8200	3186EH822T200APA1	17.0	12.0	2.00 X 5.625
10000	3186FE103T200APA1	22.0	11.0	2.50 X 4.125
12000	3186FF123T200APA1	17.0	12.0	2.50 X 4.625
15000	3186FH153T200APA1	16.0	14.0	2.50 X 5.625
12000	3186GE123T200APA1	26.0	11.0	3.00 X 4.125
15000	3186GF153T200APA1	23.0	12.0	3.00 X 4.625
22000	3186GH223T200APA1	17.0	15.0	3.00 X 5.625
33000	3186GN333T200APA1	15.0	17.0	3.00 X 8.625
250 Volts (300 Volts Surge)				
680	3186BA681T250APA1	120.0	2.6	1.375 X 2.125
1200	3186BC122T250APA1	76.0	2.6	1.375 X 3.125
1800	3186BE182T250APA1	53.0	4.9	1.375 X 4.125
2700	3186EC272T250APA1	67.0	4.4	2.00 X 3.125
3900	3186EE392T250APA1	27.0	7.9	2.00 X 4.125
4700	3186EF472T250APA1	23.0	9.0	2.00 X 4.625
5600	3186EH562T250APA1	20.0	10.0	2.00 X 5.625
6800	3186FE682T250APA1	24.0	10.0	2.50 X 4.125
8200	3186FF822T250APA1	19.0	11.0	2.50 X 4.625
10000	3186FH103T250APA1	17.0	14.0	2.50 X 5.625
10000	3186GE103T250APA1	25.0	11.0	3.00 X 4.125
12000	3186GF123T250APA1	22.0	12.0	3.00 X 4.625
15000	3186GH153T250APA1	19.0	14.0	3.00 X 5.625
22000	3186GN223T250APA1	16.0	17.0	3.00 X 8.625
350 Volts (400 Volts Surge)				
390	3186BA391T350APA1	270.0	1.3	1.375 X 2.125
680	3186BC681T350APA1	163.0	2.5	1.375 X 3.125

Capacitance (µF)	Catalog Part Number	ESR max 120 Hz, 25°C (mΩ)	Ripple max 120 Hz, 85 °C (A)	Case Size DxL (in)
1000	3186BE102T350APA1	112.0	3.3	1.375 X 4.125
1500	3186EC152T350APA1	105.0	3.9	2.00 X 3.125
2200	3186EE222T350APA1	55.0	5.6	2.00 X 4.125
2700	3186EF272T350APA1	44.0	7.0	2.00 X 4.625
3300	3186EH332T350APA1	37.0	8.0	2.00 X 5.625
2700	3186FE272T350APA1	54.0	6.6	2.50 X 4.125
3900	3186FF392T350APA1	37.0	8.7	2.50 X 4.625
4700	3186FH472T350APA1	33.0	9.6	2.50 X 5.625
4700	3186GE472T350APA1	33.0	9.6	3.00 X 4.125
5600	3186GF562T350APA1	33.0	10.0	3.00 X 4.625
6800	3186GH682T350APA1	28.0	11.0	3.00 X 5.625
12000	3186GN123T350APA1	18.0	18.0	3.00 X 8.625
400 Volts (450 Volts Surge)				
330	3186BA331T400APA1	290.0	1.3	1.375 X 2.125
560	3186BC561T400APA1	190.0	2.1	1.375 X 3.125
820	3186BE821T400APA1	129.0	3.0	1.375 X 4.125
1200	3186EC122T400APA1	95.0	3.7	2.00 X 3.125
1800	3186EE182T400APA1	59.0	5.5	2.00 X 4.125
2200	3186EF222T400APA1	50.0	6.4	2.00 X 4.625
2700	3186EH272T400APA1	39.0	7.9	2.00 X 5.625
2700	3186FE272T400APA1	48.0	7.3	2.50 X 4.125
3300	3186FF332T400APA1	39.0	8.5	2.50 X 4.625
3900	3186FH392T400APA1	37.0	9.4	2.50 X 5.625
3900	3186GE392T400APA1	37.0	9.4	3.00 X 4.125
4700	3186GF472T400APA1	34.0	10.0	3.00 X 4.625
5600	3186GH562T400APA1	28.0	11.0	3.00 X 5.625
10000	3186GN103T400APA1	18.0	18.0	3.00 X 8.625
450 Volts (525 Volts Surge)				
220	3186BA221T450APA1	430.0	1.0	1.375 X 2.125
390	3186BC391T450APA1	310.0	1.8	1.375 X 3.125
560	3186BE561T450APA1	180.0	2.6	1.375 X 4.125
820	3186EC821T450APA1	145.0	3.0	2.00 X 3.125
1200	3186EE122T450APA1	85.0	4.6	2.00 X 4.125
1500	3186EF152T450APA1	71.0	5.3	2.00 X 4.625
1800	3186EH182T450APA1	60.0	5.9	2.00 X 5.625
2200	3186FE222T450APA1	53.0	6.7	2.50 X 4.125
2700	3186FF272T450APA1	45.0	7.7	2.50 X 4.625
3300	3186FH332T450APA1	35.0	9.5	2.50 X 5.625
3300	3186GE332T450APA1	35.0	9.5	3.00 X 4.125
3900	3186GF392T450APA1	36.0	9.8	3.00 X 4.625
4700	3186GH472T450APA1	31.0	11.0	3.00 X 5.625
8200	3186GN822T450APA1	23.0	14.0	3.00 X 8.625
500 Volts (550 Volts Surge)				
820	3186EE821T500APA1	132.0	3.4	2.00 X 4.125
1200	3186EG122T500APA1	90.0	4.6	2.00 X 5.125
2200	3186FG222T500APA1	59.0	6.6	2.50 X 5.125
3300	3186GH332T500APA1	43.0	8.6	3.00 X 5.625

Type 3186 85 °C Aluminum Electrolytic, Screw Terminal

Best Value 85 °C High Capacitance Screw Terminal Type

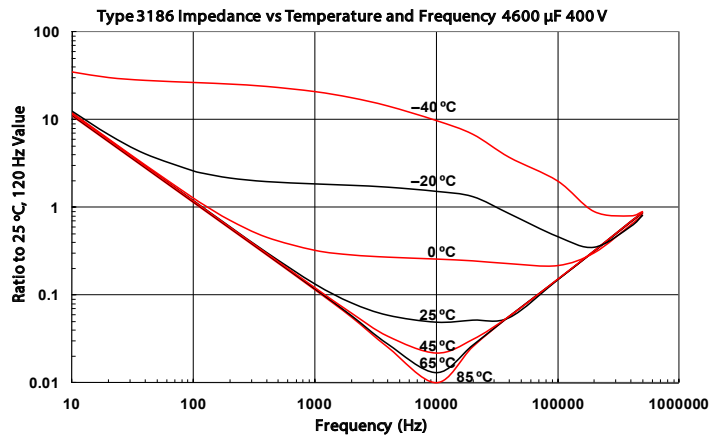
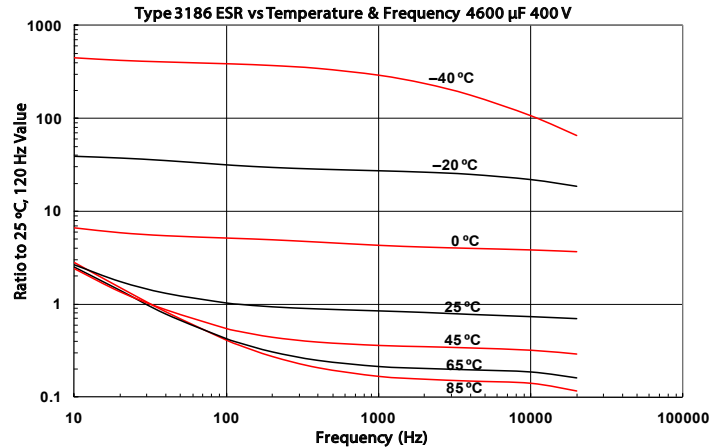
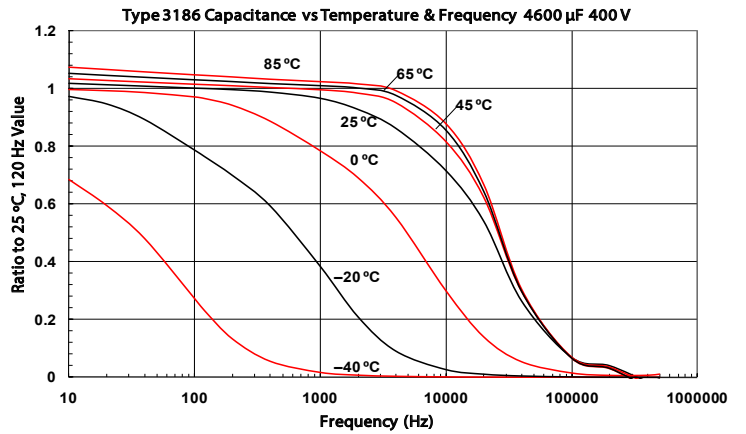
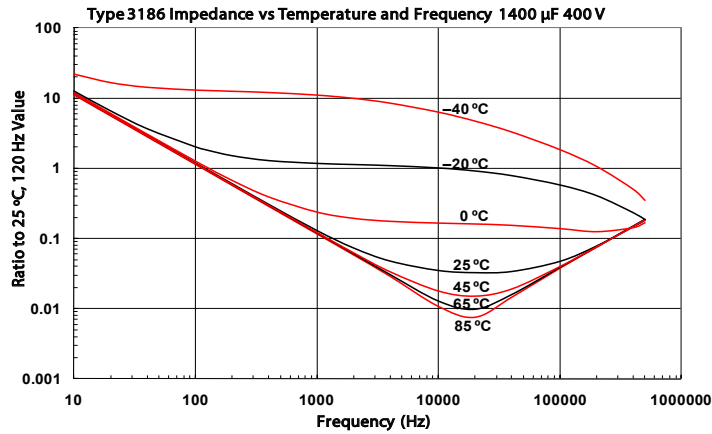
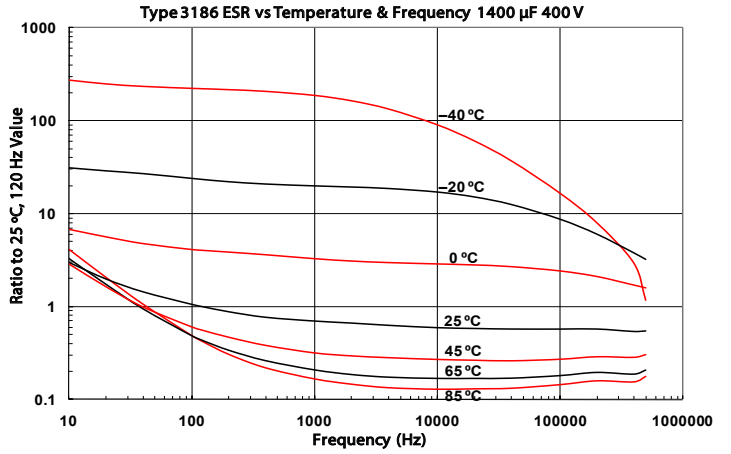
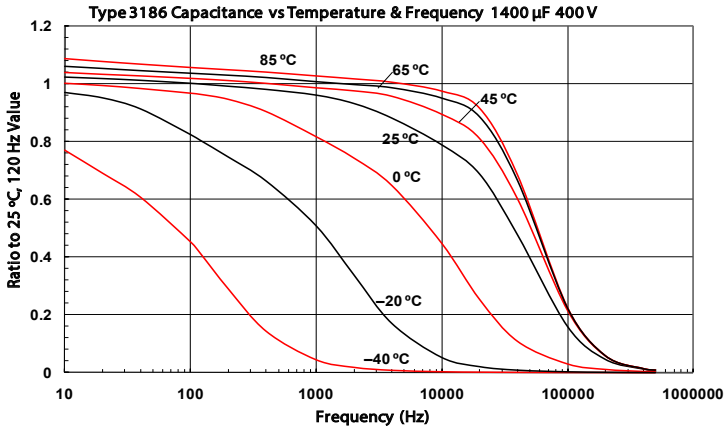
Typical Performance Curves



Type 3186 85 °C Aluminum Electrolytic, Screw Terminal

Best Value 85 °C High Capacitance Screw Terminal Type

Typical Performance Curves



Notice and Disclaimer: All product drawings, descriptions, specifications, statements, information and data (collectively, the "Information") in this datasheet or other publication are subject to change. The customer is responsible for checking, confirming and verifying the extent to which the Information contained in this datasheet or other publication is applicable to an order at the time the order is placed. All Information given herein is believed to be accurate and reliable, but it is presented without any guarantee, warranty, representation or responsibility of any kind, expressed or implied. Statements of suitability for certain applications are based on the knowledge that the Cornell Dubilier company providing such statements ("Cornell Dubilier") has of operating conditions that such Cornell Dubilier company regards as typical for such applications, but are not intended to constitute any guarantee, warranty or representation regarding any such matter – and Cornell Dubilier specifically and expressly disclaims any guarantee, warranty or representation concerning the suitability for a specific customer application, use, storage, transportation, or operating environment. The Information is intended for use only by customers who have the requisite experience and capability to determine the correct products for their application. Any technical advice inferred from this Information or otherwise provided by Cornell Dubilier with reference to the use of any Cornell Dubilier products is given gratis (unless otherwise specified by Cornell Dubilier), and Cornell Dubilier assumes no obligation or liability for the advice given or results obtained. Although Cornell Dubilier strives to apply the most stringent quality and safety standards regarding the design and manufacturing of its products, in light of the current state of the art, isolated component failures may still occur. Accordingly, customer applications which require a high degree of reliability or safety should employ suitable designs or other safeguards (such as installation of protective circuitry or redundancies or other appropriate protective measures) in order to ensure that the failure of an electrical component does not result in a risk of personal injury or property damage. Although all product-related warnings, cautions and notes must be observed, the customer should not assume that all safety measures are indicated in such warnings, cautions and notes, or that other safety measures may not be required.