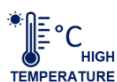


### AN SERIES ▀ LONG LIFE AT 135°C

#### KEY FEATURES



- HYBRID CONDUCTIVE POLYMER • SMD type
- Endurance: 135°C ▀ 4 000 hours
- Low ESR and high ripple current
- Vibration Proof (VP) version (up to 30g) available
- AEC-Q200 version available



#### SPECIFICATIONS

Items		Performance Characteristics
Operating Temperature Range		-55 ~ +135°C
Rated Voltage Range	$V_R$	16 ~ 100V DC
Surge Voltage	$V_S$	( $V_R \leq 100V$ ): $V_S = 1.25 \cdot V_R$
Capacitance Range	$C_R$	10 ~ 820µF
Cap. Tolerance	$\Delta C$	±20% (120Hz ▀ 20°C)
Leakage Current (20°C ▀ $V_R$ applied)	$I_{LEAK}$	Not to exceed the values shown in standard ratings After 2 minutes
Dissipation Factor % (20°C ▀ 120Hz)	$\tan \delta$	Not to exceed the values shown in standard ratings
Equivalent Series Resistance (20°C ▀ 100kHz)	ESR	Not to exceed the values shown in standard ratings
Lifetime Test		
Endurance 135°C ( $V_R$ & $I_R$ applied)	Test	4 000 hours
	$\Delta C/C_R$	Within ±30% of the initial value
	$\tan \delta$	Less than 200% of the specified value
	ESR	Less than 200% of the specified value
	$I_{Leak}$	Less than the specified value

#### MULTIPLIER $K_f$ for RIPPLE CURRENT vs. FREQUENCY

Frequency (Hz)	100 ≤ Freq. < 120	120 ≤ Freq. < 200	200 ≤ Freq. < 300	300 ≤ Freq. < 500
Coefficient $K_f$	0.15	0.15	0.20	0.25
Frequency (Hz)	500 ≤ Freq. < 1k	1k ≤ Freq. < 2k	2k ≤ Freq. < 3k	3k ≤ Freq. < 5k
Coefficient $K_f$	0.30	0.40	0.45	0.55
Frequency (Hz)	5k ≤ Freq. < 10k	10k ≤ Freq. < 15k	15k ≤ Freq. < 20k	20k ≤ Freq. < 40k
Coefficient $K_f$	0.60	0.70	0.75	0.80
Frequency (Hz)	40k ≤ Freq. < 50k	50k ≤ Freq. < 100k	100k ≤ Freq. < 500k	500k ≤ Freq. < 1M
Coefficient $K_f$	0.85	0.90	1.00	1.00

## STANDARD RATINGS

Part number shows blister tape on paper reel

V <sub>R</sub> (V)	Standard	Vibration-proof	C <sub>R</sub> (μF)	ø D (mm)	L (mm)	I <sub>LEAK</sub> (μA, 2min)	tanδ +20°C • 120Hz (%)	Max. ESR +20°C • 100kHz (mΩ)	I <sub>R</sub> • Max. Ripple Cur- rent +135°C • 100kHz (mA rms)	CapXon Part Number
16	•	•	100	6.3	5.8	16.0	16	50	900	AN101M016E058PTR □□
	•	•	120	6.3	5.8	19.2	16	50	900	AN121M016E058PTR □□
	•	•	150	6.3	5.8	24.0	16	50	900	AN151M016E058PTR □□
	•	•	220	6.3	7.7	35.2	16	30	1400	AN221M016E077PTR □□
	•	•	270	6.3	7.7	43.2	16	30	1700	AN271M016E077PTR □□
	•	•	330	10.0	10.5	52.8	16	20	2000	AN331M016G105PTR □□
	•	•	470	8.0	10.5	75.2	16	27	1600	AN471M016F105PTR □□
	•	•	470	10.0	10.5	75.2	16	20	2000	AN471M016G105PTR □□
	•	•	560	8.0	11.7	89.6	16	23	1650	AN561M016F117PTR □□
	•	•	560	10.0	10.5	89.6	16	20	2000	AN561M016G105PTR □□
25	•	•	820	10.0	12.4	131.2	16	16	2260	AN821M016G124PTR □□
	•	•	33	5.0	5.8	8.3	14	80	550	AN330M025C058PTR □□
	•	•	56	6.3	5.8	14.0	14	50	900	AN560M025E058PTR □□
	•	•	100	6.3	7.7	25.0	14	30	1400	AN101M025E077PTR □□
	•	•	220	8.0	10.5	55.0	14	27	1600	AN221M025F105PTR □□
	•	•	270	8.0	11.7	67.5	14	25	1650	AN271M025F117PTR □□
	•	•	330	10.0	10.5	82.5	14	20	2000	AN331M025G105PTR □□
35	•	•	470	10.0	12.4	117.5	14	16	2260	AN471M025G124PTR □□
	•	•	22	5.0	5.8	7.7	12	100	550	AN220M035C058PTR □□
	•	•	47	6.3	5.8	16.5	12	60	900	AN470M035E058PTR □□
	•	•	68	6.3	7.7	23.8	12	35	1400	AN680M035E077PTR □□
	•	•	100	8.0	10.5	35.0	12	27	1600	AN101M035F105PTR □□
	•	•	150	8.0	10.5	52.5	12	27	1600	AN151M035F105PTR □□
	•	•	180	8.0	11.7	63.0	12	25	1650	AN181M035F117PTR □□
	•	•	270	10.0	10.5	94.5	12	20	2000	AN271M035G105PTR □□
50	•	•	330	10.0	12.4	115.5	12	17	2260	AN331M035G124PTR □□
	•	•	10	5.0	5.8	5.0	10	120	500	AN100M050C058PTR □□
	•	•	22	6.3	5.8	11.0	10	80	750	AN220M050E058PTR □□
	•	•	33	6.3	7.7	16.5	10	40	1100	AN330M050E077PTR □□
	•	•	56	10.0	10.5	28.0	10	28	1600	AN560M050G105PTR □□
	•	•	68	8.0	10.5	34.0	10	30	1250	AN680M050F105PTR □□
	•	•	82	8.0	11.7	41.0	10	28	1300	AN820M050F117PTR □□
	•	•	100	10.0	10.5	50.0	10	28	1600	AN101M050G105PTR □□
	•	•	120	10.0	10.5	60.0	10	28	1600	AN121M050G105PTR □□
63	•	•	120	10.0	12.4	60.0	10	25	1750	AN121M050G124PTR □□
	•	•	10	6.3	5.8	6.3	8	120	700	AN100M063E058PTR □□
	•	•	22	6.3	7.7	13.9	8	80	900	AN220M063E077PTR □□
	•	•	33	8.0	10.5	20.8	8	40	1100	AN330M063F105PTR □□
	•	•	47	8.0	10.5	29.6	8	40	1100	AN470M063F105PTR □□
	•	•	47	8.0	11.7	29.6	8	38	1130	AN470M063F117PTR □□
	•	•	56	10.0	10.5	35.3	8	30	1400	AN560M063G105PTR □□
	•	•	68	10.0	10.5	42.8	8	30	1400	AN680M063G105PTR □□
	•	•	82	10.0	12.4	51.7	8	22	1650	AN820M063G124PTR □□

□ see description at end of standard ratings

### STANDARD RATINGS

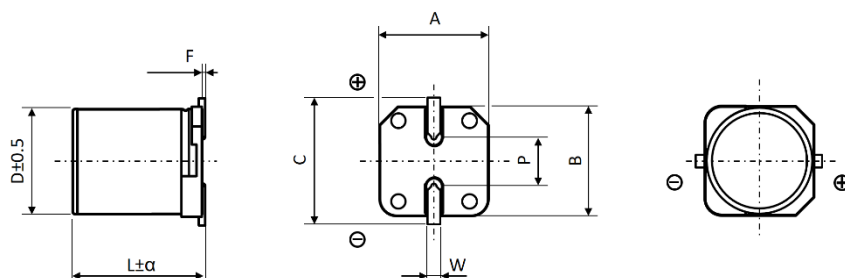
Part number shows blister tape on paper reel

$V_R$ (V)	Standard	Vibration-proof	$C_R$ ( $\mu F$ )	$\phi D$ (mm)	L (mm)	$I_{LEAK}$ ( $\mu A$ , 2min)	$\tan \delta$ +20°C • 120Hz (%)	Max. ESR +20°C • 100kHz (m $\Omega$ )	$I_R$ • Max. Ripple Cur- rent +135°C • 100kHz (mA rms)	CapXon Part Number
80	•	•	22	8.0	10.5	17.6	8	45	1050	AN220M080F105PTR □□
	•	•	27	8.0	11.7	21.6	8	43	1080	AN270M080F117PTR □□
	•	•	33	10.0	10.5	26.4	8	36	1360	AN330M080G105PTR □□
	•	•	47	10.0	10.5	37.6	8	36	1360	AN470M080G105PTR □□
	•	•	56	10.0	12.4	44.8	8	35	1440	AN560M080G124PTR □□
	•	•	68	10.0	12.4	54.4	8	32	1540	AN680M080G124PTR □□
100	•	•	22	8.0	10.5	22.0	8	55	950	AN220M100F105PTR □□
	•	•	22	8.0	11.7	22.0	8	52	980	AN220M100F117PTR □□
	•	•	22	10.0	10.5	22.0	8	45	1200	AN220M100G105PTR □□
	•	•	27	10.0	12.4	27.0	8	40	1360	AN270M100G124PTR □□
	•	•	33	10.0	12.4	33.0	8	40	1360	AN330M100G124PTR □□

□□: Leave **blank** for Standard package  
 □□: Enter **W** for Vibration proof version

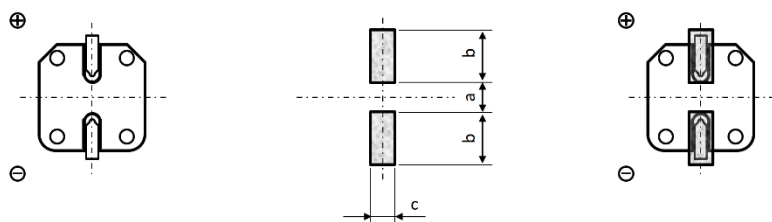
□□: Enter **X** for AEC-Q200  
 □□: Enter **XW** for AEC-Q200 and Vibration proof version

### DIMENSIONS STANDARD PACKAGE • All dimensions in mm



$\phi D$	L	$\alpha$	A $\pm 0.2$	B $\pm 0.2$	C $\pm 0.2$	F	P $\pm 0.2$	W
5.0	5.8	0.3	5.3	5.3	5.9	0.3 max.	1.4	0.5 to 0.8
6.3	5.8	0.3	6.6	6.6	7.2	0.3 max.	2.2	0.5 to 0.8
6.3	7.7	0.3	6.6	6.6	7.2	0.3 max.	2.2	0.5 to 0.8
8.0	10.5	0.3	8.3	8.3	9.0	0.3 max.	3.1	0.7 to 1.1
8.0	11.7	0.3	8.3	8.3	9.0	0.3 max.	3.1	0.7 to 1.1
10.0	10.5	0.3	10.3	10.3	11.0	0.3 max.	4.5	0.7 to 1.1
10.0	12.4	0.3	10.3	10.3	11.0	0.3 max.	4.5	1.0 to 1.4

### PAD LAYOUT STANDARD PACKAGE ▀ All dimensions in mm



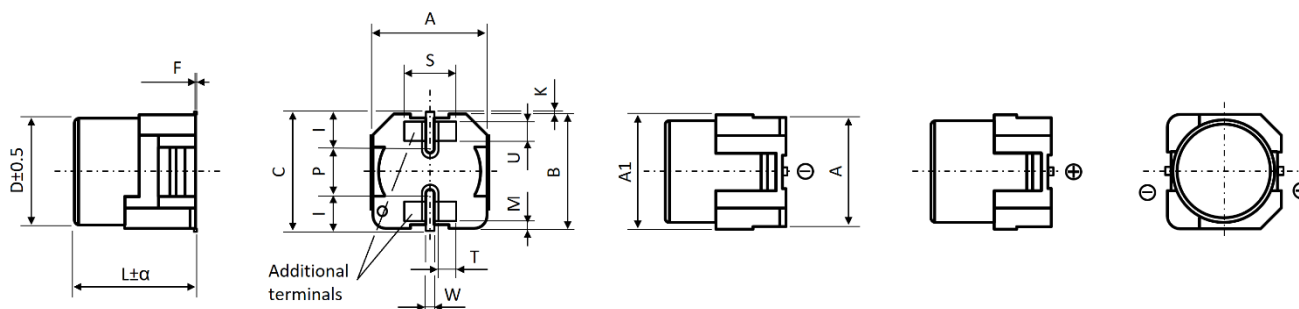
Bottom view

Recommended land patterns

Capacitor mounted on pads

∅ D	L	a	b	c
5.0	5.8	1.4	3.0	1.6
6.3	5.8	2.1	3.5	1.6
6.3	7.7	2.1	3.5	1.6
8.0	10.5	2.8	4.2	1.9
8.0	11.7	2.8	4.2	1.9
10.0	10.5	4.3	4.4	1.9
10.0	12.4	4.3	4.4	1.9

### DIMENSIONS VP PACKAGE (VIBRATION-PROOF) Ø D6.3 ▀ All dimensions in mm

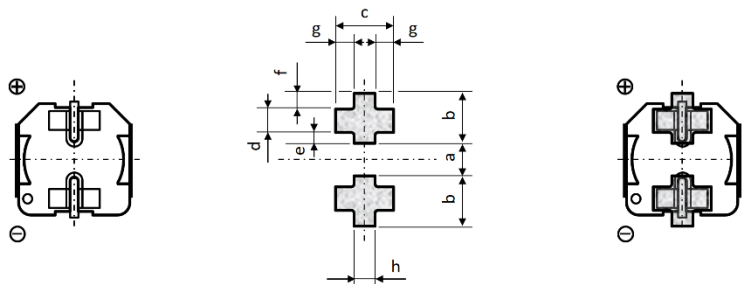


**Note:** Additional terminals electrical connected to anode or cathode terminal.

∅ D	L	α	A ± 0.2	A1 (max.)	B ± 0.2	C (max.)	F	K
6.3	5.8	-0.3/+0.7	6.6	7.1	6.6	7.8	0 to 0.15	0.35 +0.15/-0.2
6.3	7.7	-0.3/+0.7	6.6	7.1	6.6	7.8	0 to 0.15	0.35 +0.15/-0.2

∅ D	L	I ± 0.1	M ± 0.1	P ± 0.2	S ± 0.1	T ± 0.1	U ± 0.1	W ± 0.1
6.3	5.8	2.5	0.35	2.2	3.2	1.1	0.7	0.65
6.3	7.7	2.5	0.35	2.2	3.2	1.1	0.7	0.65

### PAD LAYOUT VP PACKAGE (VIBRATION-PROOF) Ø D6.3 ▀ All dimensions in mm



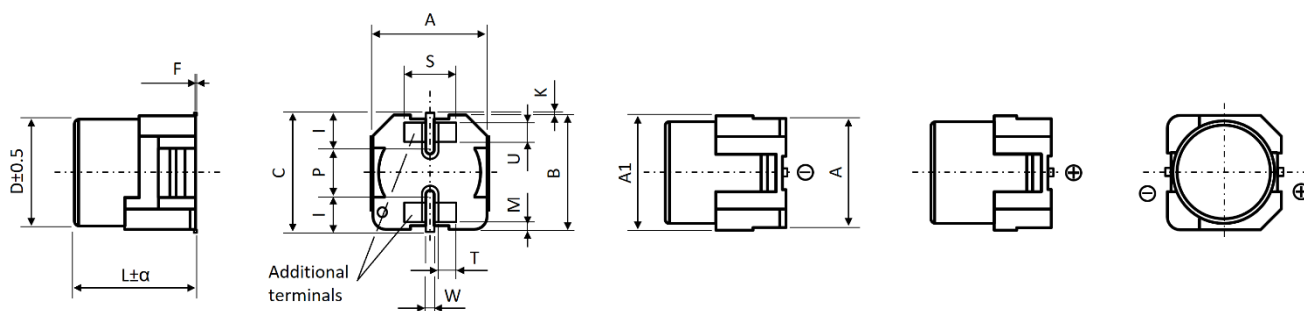
Bottom view

Recommended land patterns

Capacitor mounted on pads

Ø D	L	a	b	c	d	e	f	g	h
6.3	5.8	1.2	3.6	3.2	2.0	0.95	0.65	1.0	1.2
6.3	7.7	1.2	3.6	3.2	2.0	0.95	0.65	1.0	1.2

### DIMENSIONS VP PACKAGE (VIBRATION-PROOF) Ø D8 and D10 ▀ All dimensions in mm

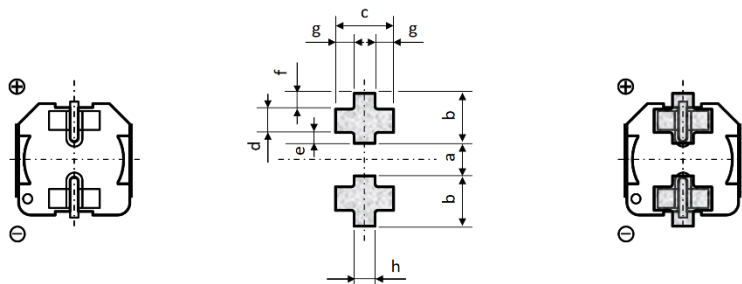


**Note:** Additional terminals electrical connected to anode or cathode terminal.

Ø D	L	α	A ± 0.2	A1 (max.)	B ± 0.2	C (max.)	F	K ± 0.2
8.0	10.5	-0.3/+0.7	8.3	8.8	8.3	10.0	0 to 0.15	0.7
8.0	11.7	-0.3/+0.7	8.3	8.8	8.3	10.0	0 to 0.15	0.7
10.0	10.5	-0.3/+0.7	10.3	10.8	10.3	12.0	0 to 0.15	0.7
10.0	12.4	-0.3/+0.7	10.3	10.8	10.3	12.0	0 to 0.15	0.7

Ø D	L	I ± 0.1	M ± 0.1	P ± 0.2	S ± 0.1	T ± 0.1	U ± 0.1	W ± 0.1
8.0	10.5	3.3	0.75	3.1	3.3	0.9	0.8	1.2
8.0	11.7	3.3	0.75	3.1	3.3	0.9	0.8	1.2
10.0	10.5	3.5	0.9	4.6	3.3	0.9	0.8	1.2
10.0	12.4	3.5	0.9	4.6	3.3	0.9	0.8	1.2

### PAD LAYOUT VP PACKAGE (VIBRATION-PROOF) Ø D8 and D10 ▪ All dimensions in mm



Bottom view

Recommended land patterns

Capacitor mounted on pads

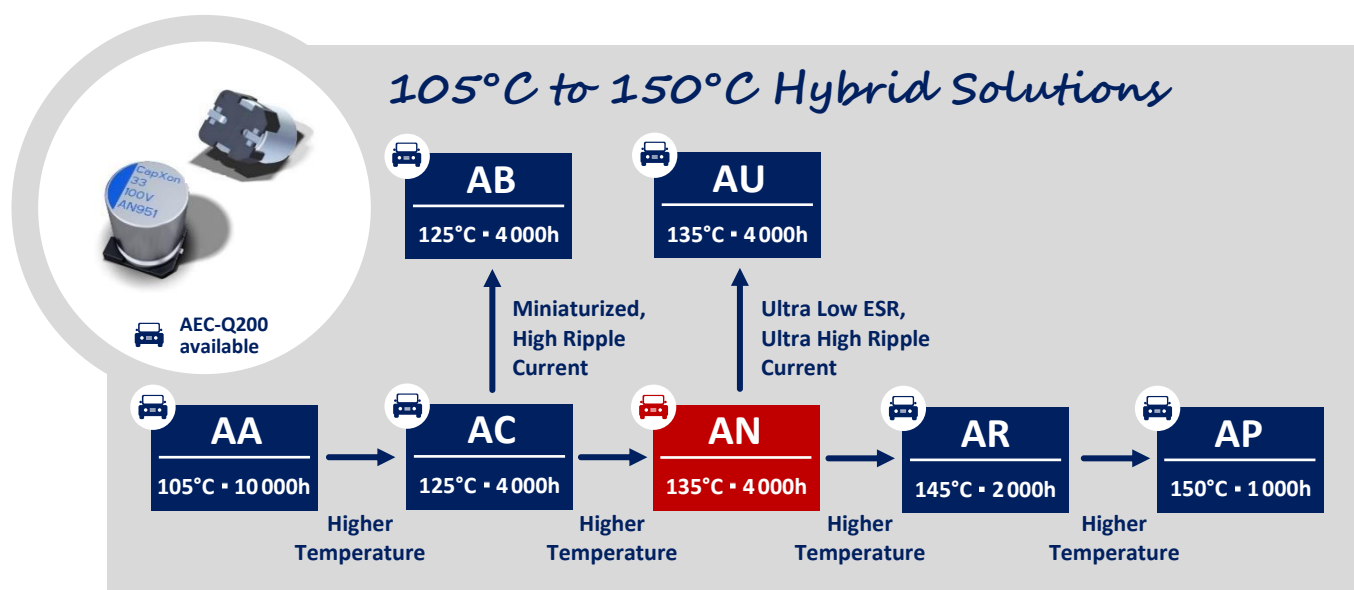
Ø D	L	a	b	c	d	e	f	g	h
8.0	10.5	2.7	4.0	4.7	1.3	1.0	1.7	1.1	2.5
8.0	11.7	2.7	4.0	4.7	1.3	1.0	1.7	1.1	2.5
10.0	10.5	3.9	4.4	4.7	1.3	1.2	1.9	1.1	2.5
10.0	12.4	3.9	4.4	4.7	1.3	1.2	1.9	1.1	2.5

### PRECAUTIONS, GUIDELINES AND PACKAGING INFORMATION

Unless otherwise agreed in individual specifications, all products are subject to our “General Precautions and Guidelines” as well as our “Packaging Information”. Please refer to the following links in the table.

<a href="#">General Precautions &amp; Guidelines</a>	<a href="#">Packaging Information</a>	<a href="#">Vibration Test Profiles</a>	<a href="#">3D Models</a>	<a href="#">Reliability Tests</a>

### GROUP CHART



### DISCLAIMER

All product related data (e.g. specification, statements and general information) are subject to change without any notice. It is necessary that the customer observes all product related technical / application information and handling instructions.

CapXon products are designed and manufactured according to severe quality and safety standards. Under no circumstance, CapXon warrants that any CapXon product is suitable for the purposes intended for your application, even CapXon knows the application. It is customer's duty and obligation to check and make sure that CapXon products are suitable for the purposes intended and select the correct and proper CapXon product. Customers are requested to perform a sufficient validation and reliability evaluation to assure needed safety level and reliability performance by suitable designs and to apply proper safeguards (e.g. redundancies, protective circuits).

Particular operating conditions (ambient temperature, ripple current, voltage, thermal resistance, etc.) as well as storage, production or assembly may affect the performance and the lifetime of the capacitor. Please consult CapXon for lifetime estimation, failure mode considerations or worst-case scenarios according to the product technology, product tolerances / deviations or change of the characteristics of the capacitor due to shipment, storage, handling, production and usage.

For aerospace or military application, life-saving, life-sustaining, safety critical applications or any application where failure may cause severe personal injury or death, please consult us before design-in the capacitor in your application.

Except for the written expressed warranties, CapXon does not impliedly, by assumption or whatever else, warrant, undertake, promise any other warranty or guaranty for any CapXon product.

For further information, please visit our website [www.capxongroup.com](http://www.capxongroup.com) or contact CapXon directly.