

## Overview

The C27 capacitor is a polypropylene metallized film capacitor, with a cylindrical, plastic can-type design filled with resin. It uses faston and plastic deck, or cable terminals.

## Applications

Typical applications include motor start S0 safety class.

## Benefits

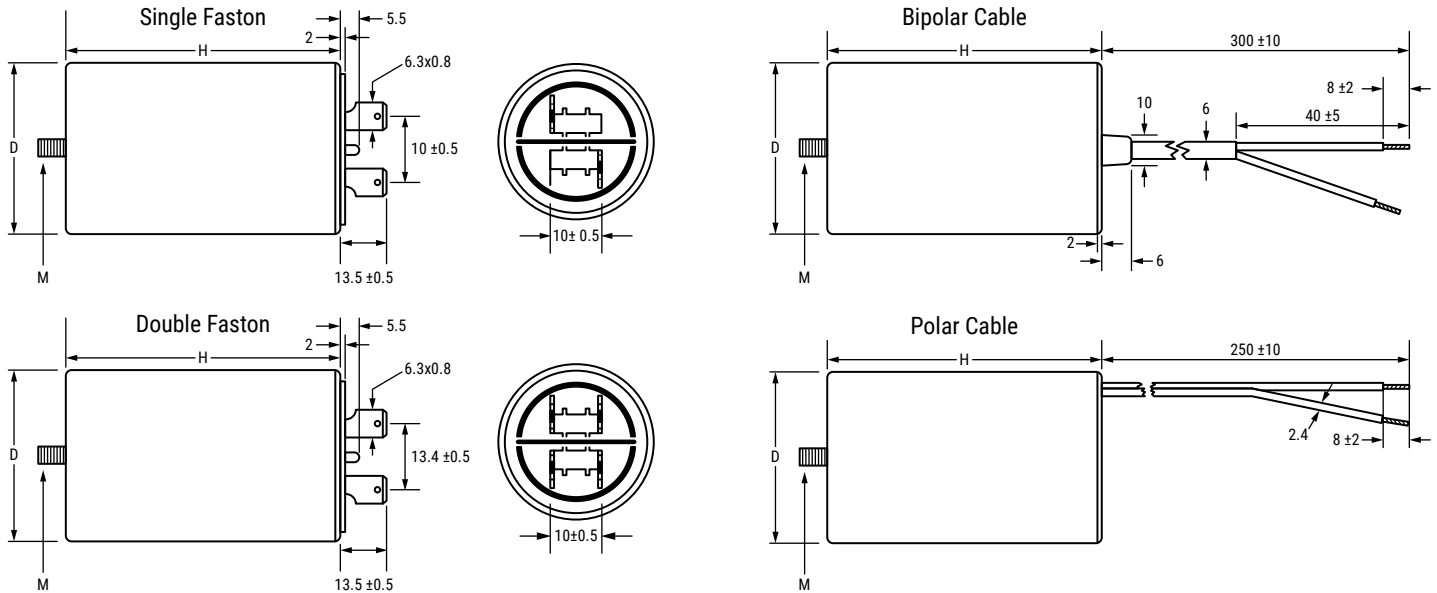
- Self-healing
- IMQ and UL810 approved (construction only)
- Rated frequency of 50 Hz and 60 Hz
- High capacitance density



## Part Number System

C27	4	A	C	2	4100	AA	5	J
Series	Marking	Case and Fixing Bolt Code	Terminal Style	Capacitance Code (pF)	Packaging	Internal Use	Tolerance	
C27 = Motor Run Capacitors	4 = 30,000 hours/420 VAC (Class A) or 10,000 hours/470 VAC (Class B)  6 = 10,000 hours/420 VAC (Class B) or 3,000 hours/470 VAC (Class C)  7 = 10,000 hours/275 VAC (Class C) or 1,000 hours/425 VAC (Class D)	C274: C = Standard N = UL Z = Special  C276: A = Standard N = UL Z = Special  C277: L = Standard N = UL Z = Special	A = Without fixing bolt/flat bottom C = Cylindrical plastic case with M8 bolt	2 = Single faston 6.3 x 0.8 3 = Double faston 6.3 x 0.8 A = Unipolar flexible cable (tinned end) B = Unipolar flexible cable (untinned end) F = Bipolar cable (tinned end)	Digits 2 - 4 indicate the first three digits of the capacitance value. First digit indicates the number of zeros to be added.	<b>AA</b> = Faston terminals standard <b>AF</b> = Unipolar cable, L = 250 mm, stripped 8 mm <b>AL</b> = Unipolar cable, L = 300 mm, stripped 8 mm, <b>LF</b> = Bipolar cable L = 250 mm, unsheathed 40 mm, stripped 8 mm <b>LG</b> = Bipolar cable L = 300mm, unsheathed 40 mm, stripped 8 mm <b>LH</b> = Bipolar cable L = 350 mm, unsheathed 40 mm, stripped 8 mm	0, 1, 2, 5 = Standard	J = 5%

## Dimensions – Millimeters



D	H	Mounting Stud (M)
+1/-0	±2	
25	56.5	M8 x 10
25	58	M8 x 11
25	55	M8 x 12
25	58.5	M8 x 13
25	57	M8 x 14
30	56.5	M8 x 15
30	55	M8 x 16
30	69.5	M8 x 17
30	58.5	M8 x 18
30	57	M8 x 19
35	56.5	M8 x 20
35	73.5	M8 x 21
35	55	M8 x 22
35	57	M8 x 23
35	71.5	M8 x 24
35	74	M8 x 25
35	94.5	M8 x 26
35	69.5	M8 x 27
35	58.5	M8 x 28
35	95.5	M8 x 29

D	H	Mounting Stud (M)
+1/-0	±2	
40	73.5	M8 x 30
40	71.5	M8 x 31
40	74	M8 x 32
40	94	M8 x 33
40	69.5	M8 x 34
40	95.5	M8 x 35
45	93	M8 x 36
45	74	M8 x 37
45	95.5	M8 x 38
45	94	M8 x 39
45	120	M8 x 40
45	71.5	M8 x 41
50	95	M8 x 42
50	120	M8 x 43
55	120	M8 x 44
55	121	M8 x 45
55	93.5	M8 x 46

## Qualification

Reference Standards	IEC 252, EN 60252-1:2011/A1/2013, IMQ, UL810 (construction only), approved up to 500 VAC
Vibration Test	IEC 68-2-6

## Performance Characteristics

Type of Service	Continuous
Operating Class	
C27/4	Class A 30,000 hours at 420 VAC or Class B 10,000 hours at 470 VAC
C27/6	Class B 10,000 hours at 420 VAC or Class C 3,000 hours at 470 VAC
C27/7	Class B 10,000 hours at 275 VAC or Class D 1,000 hours at 425 VAC (intermittent operation)
Temperature Range	-25°C to +85°C
Storage Temperature	-40°C to +90°C
Rated Voltage	470 VAC
Rated Frequency	50 – 60 Hz
Voltage Rise/Fall Time (Maximum):	
C27/4	20 V/μs
C27/6	15 V/μs
c27/7	15 V/μs
Maximum Permissible Voltage	1.10 x rated voltage
Maximum Permissible Current	1.30 x rated current
Dissipation Factor (DF)	20 x 10 <sup>-4</sup> at +20°C, 50Hz
Safety Class	S0
Maximum Altitude	2,000 m
Capacitance Tolerance	±5%
Mounting	Any position
Can	Polypropylene with self-extinguishing features V2 (UL 94) Noryl with self-extinguishing features VI (UL 94) for diameters > 50 mm
Disk	Faston execution: Nylon PA66 with self-extinguishing features V0 Cable execution: PC-A with self-extinguishing features V0 For diameters > 40 mm cable execution: Noryl PPO with self-extinguishing features VI
Filling Resin	Polyurethane
Dielectric	Polypropylene
Plates	Self-healing metal layer
Test Voltage Terminal to Terminal (V <sub>TT</sub> )	2 V <sub>n</sub> for 2 seconds
Test Voltage Terminal to Can (V <sub>TC</sub> )	2,000 V for 2 seconds
Air Distance Between Live Parts	≥ 5 mm
Air Distance Between Live Parts and Case	≥ 6 mm

**Table 1 – Ratings & Part Number Reference**

Capacitance Value (µF)	VAC	Maximum Dimensions (mm)		dV/dt (V/µs)	Termination	Packaging Quantity	Part Number
		D	H				
1	470	25	56.5	20	Single faston	162	C274AC24100AA0J
1.25	470	25	58	20	Single faston	162	C274AC24125AA0J
1.5	470	25	58	20	Single faston	162	C274AC24150AA0J
2	470	25	58	20	Single faston	162	C274AC24200AA0J
2.5	470	25	58	20	Single faston	162	C274AC24250AA0J
3	470	25	58	20	Single faston	162	C274AC24300AA0J
4	470	30	56.5	20	Single faston	110	C274AC24400AA0J
5	470	30	56.5	20	Single faston	110	C274AC24500AA0J
6	470	35	56.5	20	Single faston	86	C274AC24600AA0J
6.3	470	35	56.5	20	Single faston	86	C274AC24630AA0J
7	470	35	56.5	20	Single faston	86	C274AC24700AA0J
7.5	470	35	56.5	20	Single faston	86	C274AC24750AA0J
8	470	35	56.5	20	Single faston	86	C274AC24800AA0J
10	470	35	73.5	20	Single faston	86	C274AC25100AA0J
12	470	35	73.5	20	Single faston	86	C274AC25120AA0J
12.5	470	35	73.5	20	Single faston	86	C274AC25125AA0J
16	470	40	73.5	20	Single faston	60	C274AC25160AA0J
25	470	45	93	20	Single faston	50	C274AC25250AA0J
30	470	45	93	20	Single faston	50	C274AC25300AA0J
31.5	470	45	93	20	Single faston	50	C274AC25315AA0J
1	470	25	56.5	20	Double faston	162	C274AC34100AA0J
1.5	470	25	58	20	Double faston	162	C274AC34150AA0J
2	470	25	58	20	Double faston	162	C274AC34200AA0J
2.5	470	25	56.5	20	Double faston	162	C274AC34250AA0J
3	470	25	58	20	Double faston	162	C274AC34300AA0J
4	470	30	56.5	20	Double faston	110	C274AC34400AA0J
5	470	30	56.5	20	Double faston	110	C274AC34500AA0J
6	470	35	56.5	20	Double faston	86	C274AC34600AA0J
6.3	470	35	56.5	20	Double faston	86	C274AC34630AA0J
7	470	35	56.5	20	Double faston	86	C274AC34700AA0J
7.5	470	35	56.5	20	Double faston	86	C274AC34750AA0J
8	470	35	56.5	20	Double faston	86	C274AC34800AA0J
9	470	35	73.5	20	Double faston	86	C274AC34900AA0J
10	470	35	73.5	20	Double faston	86	C274AC35100AA0J
11	470	35	73.5	20	Double faston	86	C274AC35110AA0J
12	470	35	73.5	20	Double faston	86	C274AC35120AA0J
12.5	470	35	73.5	20	Double faston	86	C274AC35125AA0J
14	470	40	73.5	20	Double faston	60	C274AC35140AA0J
15	470	40	73.5	20	Double faston	60	C274AC35150AA0J
16	470	40	73.5	20	Double faston	60	C274AC35160AA0J
18	470	45	74	20	Double faston	50	C274AC35180AA0J
20	470	45	74	20	Double faston	50	C274AC35200AA0J
25	470	45	93	20	Double faston	50	C274AC35250AA0J
30	470	45	93	20	Double faston	50	C274AC35300AA0J
35	470	50	95	20	Double faston	40	C274AC35350AA0J
40	470	50	120	20	Double faston	40	C274AC35400AA0J
50	470	50	120	20	Double faston	40	C274AC35500AA0J
55	470	55	120	20	Double faston	32	C274AC35550AA0J
60	470	55	121	20	Double faston	32	C274AC35600AA0J
1	470	25	55	20	Unipolar flexible cable (tinned end)	162	C274ACA4100AL0J
1.5	470	25	55	20	Unipolar flexible cable (tinned end)	162	C274ACA4150AL0J
2	470	25	55	20	Unipolar flexible cable (tinned end)	162	C274ACA4200AL0J
2.5	470	25	55	20	Unipolar flexible cable (tinned end)	162	C274ACA4250AL0J
3	470	25	55	20	Unipolar flexible cable (tinned end)	162	C274ACA4300AL0J
4	470	30	55	20	Unipolar flexible cable (tinned end)	110	C274ACA4400AL0J
5	470	30	55	20	Unipolar flexible cable (tinned end)	110	C274ACA4500AL0J
6	470	35	55	20	Unipolar flexible cable (tinned end)	86	C274ACA4600AL0J
1	470	25	58.5	20	Unsheathed bipolar cable (tinned end)	162	C274ACF4100LF0J
1.5	470	25	58.5	20	Unsheathed bipolar cable (tinned end)	162	C274ACF4150LF0J
2	470	25	58.5	20	Unsheathed bipolar cable (tinned end)	162	C274ACF4200LF0J
2.5	470	25	58.5	20	Unsheathed bipolar cable (tinned end)	162	C274ACF4250LF0J
3	470	25	58.5	20	Unsheathed bipolar cable (tinned end)	162	C274ACF4300LF0J
Capacitance Value (µF)	VAC	B (mm)	H (mm)	dV/dt (V/µs)	Termination	Packaging Quantity	Part Number

**Table 1 – Ratings & Part Number Reference cont'd**

Capacitance Value (µF)	VAC	Maximum Dimensions (mm)		dV/dt (V/µs)	Termination	Packaging Quantity	Part Number
		D	H				
4	470	30	58.5	20	Unsheathed bipolar cable (tinned end)	110	C274ACF4400LF0J
5	470	30	58.5	20	Unsheathed bipolar cable (tinned end)	110	C274ACF4500LF0J
6	470	35	58.5	20	Unsheathed bipolar cable (tinned end)	86	C274ACF4600LF0J
8	470	35	58.5	20	Unsheathed bipolar cable (tinned end)	86	C274ACF4800LF0J
10	470	35	71.5	20	Unsheathed bipolar cable (tinned end)	86	C274ACF5100LF0J
12	470	35	71.5	20	Unsheathed bipolar cable (tinned end)	86	C274ACF5120LF0J
15	470	40	71.5	20	Unsheathed bipolar cable (tinned end)	60	C274ACF5150LF0J
20	470	45	71.5	20	Unsheathed bipolar cable (tinned end)	50	C274ACF5200LF0J
30	470	45	93	20	Unsheathed bipolar cable (tinned end)	50	C274ACF5300LF0J
35	470	50	93	20	Unsheathed bipolar cable (tinned end)	40	C274ACF5350LF0J
40	470	50	120	20	Unsheathed bipolar cable (tinned end)	40	C274ACF5400LF0J
1.5	470	25	58	15	Single faston	162	C276CC24150AA0J
2	470	25	58	15	Single faston	162	C276CC24200AA0J
2.5	470	25	58	15	Single faston	162	C276CC24250AA0J
3	470	25	58	15	Single faston	162	C276CC24300AA0J
3.15	470	25	58	15	Single faston	162	C276CC24315AA0J
4	470	25	58	15	Single faston	162	C276CC24400AA0J
5	470	25	58	15	Single faston	162	C276CC24500AA1J
6	470	30	56.5	15	Single faston	110	C276CC24600AA0J
6.3	470	30	56.5	15	Single faston	110	C276CC24630AA0J
7	470	30	56.5	15	Single faston	110	C276CC24700AA0J
8	470	35	56.5	15	Single faston	86	C276CC24800AA0J
9	470	35	56.5	15	Single faston	86	C276CC24900AA0J
10	470	35	56.5	15	Single faston	86	C276CC25100AA0J
11	470	35	56.5	15	Single faston	86	C276CC25110AA0J
12	470	35	73.5	15	Single faston	86	C276CC25120AA0J
12.5	470	35	73.5	15	Single faston	86	C276CC25125AA0J
14	470	35	73.5	15	Single faston	86	C276CC25140AA0J
15	470	35	73.5	15	Single faston	86	C276CC25150AA0J
16	470	35	73.5	15	Single faston	86	C276CC25160AA0J
18	470	40	73.5	15	Single faston	60	C276CC25180AA0J
20	470	40	73.5	15	Single faston	60	C276CC25200AA0J
25	470	45	74	15	Single faston	50	C276CC25250AA0J
30	470	45	74	15	Single faston	50	C276CC25300AA0J
35	470	45	93	15	Single faston	50	C276CC25350AA0J
40	470	45	94	15	Single faston	50	C276CC25400AA0J
60	470	50	120	15	Single faston	40	C276CC25600AA0J
1.5	470	25	56.5	15	Double faston	162	C276CC34150AA0J
2.5	470	25	58	15	Double faston	162	C276CC34250AA0J
3	470	25	58	15	Double faston	162	C276CC34300AA0J
3.15	470	25	58	15	Double faston	162	C276CC34315AA0J
4	470	25	58	15	Double faston	162	C276CC34400AA0J
5	470	30	56.5	15	Double faston	110	C276CC34500AA0J
6	470	30	56.5	15	Double faston	110	C276CC34600AA0J
6.3	470	30	56.5	15	Double faston	110	C276CC34630AA0J
7	470	30	56.5	15	Double faston	110	C276CC34700AA0J
8	470	35	56.5	15	Double faston	86	C276CC34800AA0J
10	470	35	56.5	15	Double faston	86	C276CC35100AA0J
11	470	35	56.5	15	Double faston	86	C276CC35110AA0J
12	470	35	74	15	Double faston	86	C276CC35120AA0J
12.5	470	35	73.5	15	Double faston	86	C276CC35125AA0J
14	470	35	73.5	15	Double faston	86	C276CC35140AA0J
15	470	35	73.5	15	Double faston	86	C276CC35150AA0J
16	470	35	74	15	Double faston	86	C276CC35160AA0J
17.5	470	40	73.5	15	Double faston	60	C276CC35175AA0J
18	470	40	73.5	15	Double faston	60	C276CC35180AA0J
20	470	40	74	15	Double faston	60	C276CC35200AA0J
22	470	40	73.5	15	Double faston	60	C276CC35220AA0J
25	470	40	94	15	Double faston	60	C276CC35250AA1J
30	470	45	74	15	Double faston	50	C276CC35300AA0J
31.5	470	45	93	15	Double faston	50	C276CC35315AA0J
35	470	45	93	15	Double faston	50	C276CC35350AA0J
Capacitance Value (µF)	VAC	B (mm)	H (mm)	dV/dt (V/µs)	Termination	Packaging Quantity	Part Number

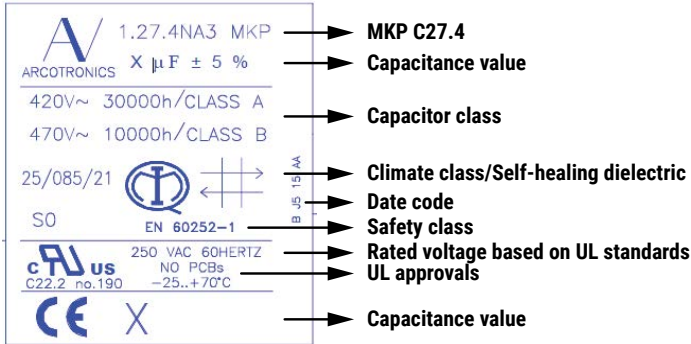
Table 1 – Ratings &amp; Part Number Reference cont'd

Capacitance Value (µF)	VAC	Maximum Dimensions (mm)		dV/dt (V/µs)	Termination	Packaging Quantity	Part Number
		D	H				
40	470	45	93	15	Double faston	50	C276CC35400AA0J
45	470	50	95	15	Double faston	40	C276CC35450AA0J
50	470	50	120	15	Double faston	40	C276CC35500AA0J
60	470	50	120	15	Double faston	40	C276CC35600AA0J
2	470	25	58.5	15	Unsheathed bipolar cable (tinned end)	162	C276CCF4200LG0J
3	470	25	57	15	Unsheathed bipolar cable (tinned end)	162	C276CCF4300LG0J
4	470	25	58.5	15	Unsheathed bipolar cable (tinned end)	162	C276CCF4400LG0J
5	470	30	57	15	Unsheathed bipolar cable (tinned end)	110	C276CCF4500LG0J
5.5	470	30	58.5	15	Unsheathed bipolar cable (tinned end)	110	C276CCF4550LG0J
6	470	30	58.5	15	Unsheathed bipolar cable (tinned end)	110	C276CCF4600LG0J
8	470	35	58.5	15	Unsheathed bipolar cable (tinned end)	86	C276CCF4800LG0J
10	470	35	58.5	15	Unsheathed bipolar cable (tinned end)	86	C276CCF5100LG0J
12	470	35	71.5	15	Unsheathed bipolar cable (tinned end)	86	C276CCF5120LG0J
12.5	470	35	71.5	15	Unsheathed bipolar cable (tinned end)	86	C276CCF5125LG0J
14	470	35	71.5	15	Unsheathed bipolar cable (tinned end)	86	C276CCF5140LG0J
16	470	35	71.5	15	Unsheathed bipolar cable (tinned end)	86	C276CCF5160LG0J
16	470	35	71.5	15	Unsheathed bipolar cable (tinned end)	86	C276CCF5160LF0J
20	470	40	71.5	15	Unsheathed bipolar cable (tinned end)	60	C276CCF5200LG0J
25	470	45	71.5	15	Unsheathed bipolar cable (tinned end)	50	C276CCF5250LG0J
30	470	45	71.5	15	Unsheathed bipolar cable (tinned end)	50	C276CCF5300LG0J
35	470	45	95.5	15	Unsheathed bipolar cable (tinned end)	50	C276CCF5350LG0J
40	470	45	95.5	15	Unsheathed bipolar cable (tinned end)	50	C276CCF5400LG0J
50	470	50	95	15	Unsheathed bipolar cable (tinned end)	40	C276CCF5500LH2J
3	470	25	55	15	Polar cable (untinned end)	162	C276CCB4300AF0J
4	470	25	55	15	Polar cable (untinned end)	162	C276CCB4400AF0J
5	470	30	55	15	Polar cable (untinned end)	110	C276CCB4500AF0J
7	470	30	55	15	Polar cable (untinned end)	110	C276CCB4700AF0J
8	470	35	55	15	Polar cable (untinned end)	86	C276CCB4800AF0J
8.5	470	35	55	15	Polar cable (untinned end)	86	C276CCB4850AF0J
9	470	35	55	15	Polar cable (untinned end)	86	C276CCB4900AF0J
12	470	35	69.5	15	Polar cable (untinned end)	86	C276CCB5120AF0J
12.5	470	35	69.5	15	Polar cable (untinned end)	86	C276CCB5125AF0J
14	470	35	69.5	15	Polar cable (untinned end)	86	C276CCB5140AF0J
5	425	25	56.5	15	Single faston	162	C277LC24500AA0J
16	425	35	74	15	Single faston	86	C277LC25160AA0J
50	425	45	93	15	Double faston	50	C277LC35500AA0J
70	425	50	95	15	Double faston	40	C277LC35700AA0J
4	425	25	55	15	Polar cable (untinned end)	162	C277LCB4400AF0J
5	425	25	55	15	Polar cable (untinned end)	162	C277LCB4500AF0J
7	425	30	55	15	Polar cable (untinned end)	110	C277LCB4700AF0J
8	425	30	55	15	Polar cable (untinned end)	110	C277LCB4800AF0J
9	425	30	55	15	Polar cable (untinned end)	110	C277LCB4900AF0J
30	425	40	95.5	15	Unsheathed bipolar cable (tinned end)	60	C277LCF5300LG2J
Capacitance Value (µF)	VAC	B (mm)	H (mm)	dV/dt (V/µs)	Termination	Packaging Quantity	Part Number

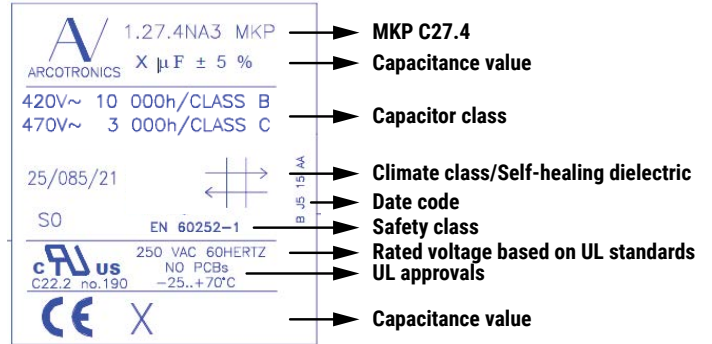
## Marking

### C27.4

From 1  $\mu$ F up to 45  $\mu$ F

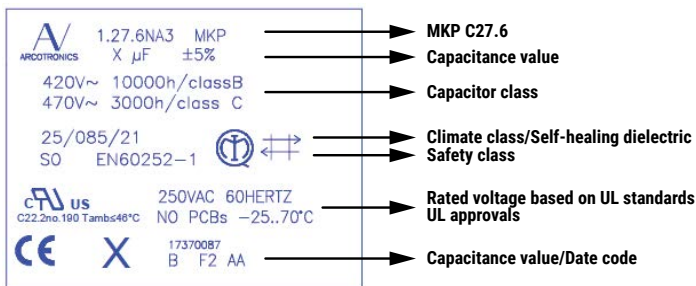


Over 45  $\mu$ F

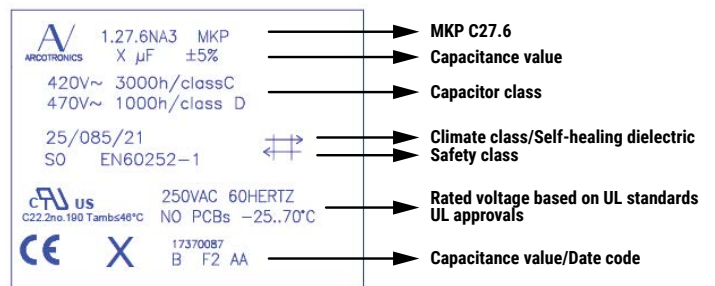


### C27.6

From 1  $\mu$ F up to 55  $\mu$ F



Over 55  $\mu$ F



**Marking (cont.d)**

<b>Manufacturing Date Code (IEC-60062)</b>			
Y = Year, Z = Month			
<b>Year</b>	<b>Code</b>	<b>Month</b>	<b>Code</b>
2010	A	January	1
2011	B	February	2
2012	C	March	3
2013	D	April	4
2014	E	May	5
2015	F	June	6
2016	H	July	7
2017	J	August	8
2018	K	September	9
2019	L	October	0
2020	M	November	N
2021	N	December	D
2022	P		
2023	R		
2024	S		
2025	T		
2026	U		
2027	V		
2028	W		
2029	X		
2030	A		



## Environmental Compliance

As a leading global supplier of electronic components and an environmentally conscious company, KEMET continually aspires to improve the environmental effects of our manufacturing processes and our finished electronic components.

In Europe (RoHS Directive) and in some other geographical areas such as China (China RoHS), legislation has been enacted to prevent or otherwise limit the use of certain hazardous materials, including lead (Pb), in electronic equipment. KEMET monitors legislation globally to ensure compliance and endeavors to adjust our manufacturing processes and/or electronic components as may be required by applicable law.

For military, medical, automotive, and some commercial applications, the use of lead (Pb) in the termination is necessary and/or required by design. KEMET is committed to communicating RoHS compliance to our customers. Information related to RoHS compliance will be provided in data sheets and using specific identifiers on the packaging labels.

All KEMET power film capacitors are RoHS compliant.

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## Materials & Environment

The selection of raw materials that KEMET uses for the production of its electronic components is the result of extensive experience. KEMET directs specific attention toward environmental protection. KEMET selects its suppliers according to ISO 9001 standards and performs statistical analyses on raw materials before acceptance for use in manufacturing our electronic components. All materials are, to the best of KEMET's knowledge, non-toxic and free from cadmium; mercury; chrome and compounds; polychlorine triphenyl (PCB); bromide and chlorinedioxins bromurate clorurate; CFC and HCFC; and asbestos.

## Dissipation Factor

Dissipation factor is a complex function involved with capacitor inefficiency. The  $\tan \delta$  may vary up and down with increased temperature. For more information, refer to Performance Characteristics.

## Sealing

### Hermetically Sealed Capacitors

As the temperature increases, the pressure inside the capacitor increases. If the internal pressure is high enough, it can cause a breach in the capacitor. Such a breach can result in leakage, impregnation, filling fluid, or moisture susceptibility.

### Barometric Pressure

The altitude at which hermetically sealed capacitors are operated controls the capacitor's voltage rating. As the barometric pressure decreases, the susceptibility to terminal arc-over increases. Non-hermetic capacitors can be affected by internal stresses due to pressure changes. These effects can be in the form of capacitance changes, dielectric arc-over, and/or low insulation resistance. Altitude can also affect heat transfer. Heat that is generated in an operation cannot be dissipated properly, and high RI2 losses and eventual failure can result.

## KEMET Electronics Corporation Sales Offices

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