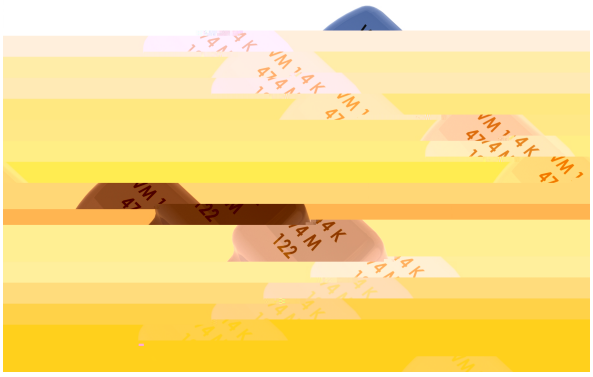
Overview

24 V and 42 V and a function of a radio-frequency filtering capacitor in a high capacitance range from 0.47 to 1.5 µF,

Applications

Benefits

- Operating ambient temperature of −40°C to +125°C
- Capacitance range at 1 kHz of 0.47 to 1.5 µF
- AEC-Q200 qualified Grade 1



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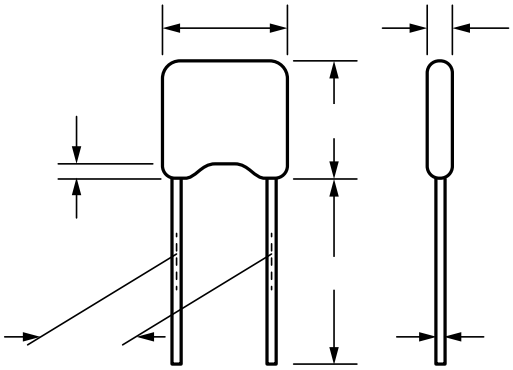
Ordering Information

VM	474	M	K	801	R	014	P050
	Code (µF)					(Vrms AC)	
Function Leaded 125°C (X7R Dielectric)						**12 V Power Supply** **24 V Power Supply** **42 V Power Supply**	

Dimensions – Millimeters



As per part number table.

Environmental Compliance

Performance Characteristics

Continuous	Units	Value
)		
)		
Load Dump Energy, (WLD)		
)		
)		
	µF	
	°C	−40 to +125
	°C	−40 to +150
Threshold Voltage Temperature Coef f cient	%/°C	< + 0.05
	GΩ	

Qualifications

Reliability Parameter	Test	Tested According to	Condition to be Satisfied after Testing
		Class X1 Capacitors Vt = 2*Vrms + 1,500 V~, 1 minute Class Y1 Capacitors Vt = 4000 V~, 1 minute Class Y2 Capacitors Vt = 2*Vrms + 1,500 V~, 1 minute	no permanent breakdown of f ash-
			no self-healing breakdowns or f ash-

Qualifications cont'd

Reliability Parameter	Test	Tested According to	Condition to be Satisfied after Testing
		the voltage shall be increased to 1000 V~ for 0,1 s the voltage shall be increased to 1,000 V~ for 0,1 s	|ΔC/C| < 20 % tan δ < 0.008 fash-over during voltage proof
		SQRT (2)*Vrms discharge rate adjusted to 100 V/µs	|ΔC/C| < 10 % tan δ < 0,008
Radio – Frequency			with specifcation
		chamber at 20 °C and at UCT and LTC	with specifcation
		a) Dry heat, 16 h, UCT, Test Ba, IEC 68–2–2 b) Damp heat, cyclic, the frst cycle: 55°C, 93 % RH, 24 H, c) Cold, LCT, 2 h, Test Aa, IEC 68–2–1 d) Damp heat cyclic, remaining 5 cycles: 55°C, 93 % RH,	|ΔC/C| < 20 % tan δ < 0.008 fash-over during voltage proof
			|ΔC/C| < 20 % tan δ < 0.008 limits no permanent breakdown or fash-
			|ΔC/C| < 20 % tan δ < 0.008 limits no permanent breakdown or fash-
		refow method	
		refow method	
		EN 131 400, Test 4.7., Test Fc, IEC 68–2–6, Frequency range 10 to 55 Hz; Amplitude 0.75 mm or 98 m/s2 Total duration 6 h (3 x 2 h); Waveshape – half sine	
		Acceleration = 490 m/s2; 100 g 6ms and 50 g 11 ms Waveshape – half sine; Number of shocks = 3 x 6	"|ΔC/C| < 10 % tan δ within specifcation

Application Circuit

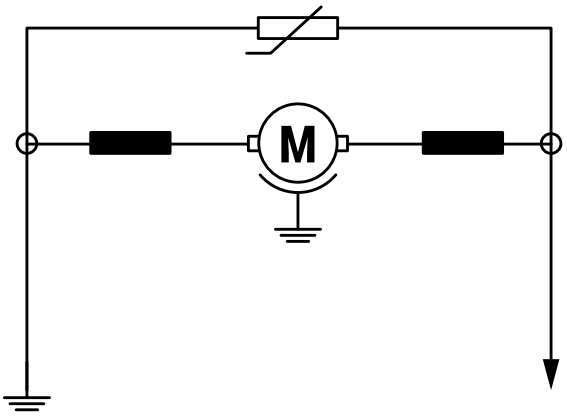


Table 1 – Ratings & Part Number Reference

KEMET Part Number	D_{max} (mm)	A_{max} (mm)	R (mm)	t_{max} (mm)	V_{rms}	VDC	V_n 1 mA	V_{jump} 5 min.	V_c	I_c (A)	W_{max} 10/1000 µs (J)	WLD 10 x (J)	P_{max} (W)	I_{max} 8/20 µs (A)	C_{typ} at 1 kHz (µF)
VM474MK801(1)014P050															
VM105MK801(1)014P050															
VM155MK801(1)014P050															
VM474MK122(1)014P050															
VM105MK122(1)014P050															
VM155MK122(1)014P050															
VM474MK801(1)017P050															
VM105MK801(1)017P050															
VM155MK801(1)017P050															
VM474MK122(1)017P050															
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VM474MK801(1)020P050															
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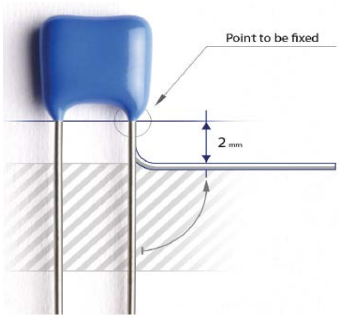
VM105MK801(1)040P050															
VM155MK801(1)040P050															
VM474MK122(1)040P050															
VM105MK122(1)040P120															
VM155MK122(1)040P120															

(1) Insert packaging/lead Style code. See Ordering Options Table for available options.

Soldering

• fx the most sensitive point (epoxy parts) of a component body



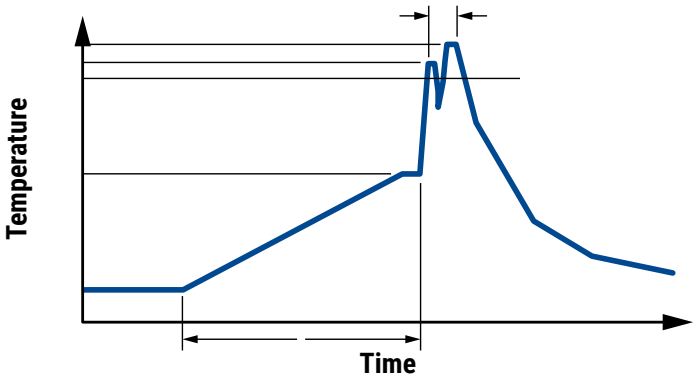
Resistance to Soldering Heat – In the case of automatic wave soldering, it is important to provide suffcient resistance

through-hole components is 300°C, 10s.

Pb-free Wave Soldering Profile Recommendations – Recommended soldering profles for all above components are in accordance with JEDEC standard curves (J-STD-020D) and therefore compatible with the new Pb-free process.

Soldering (cont'd)

Lead-free Wave Soldering Profile

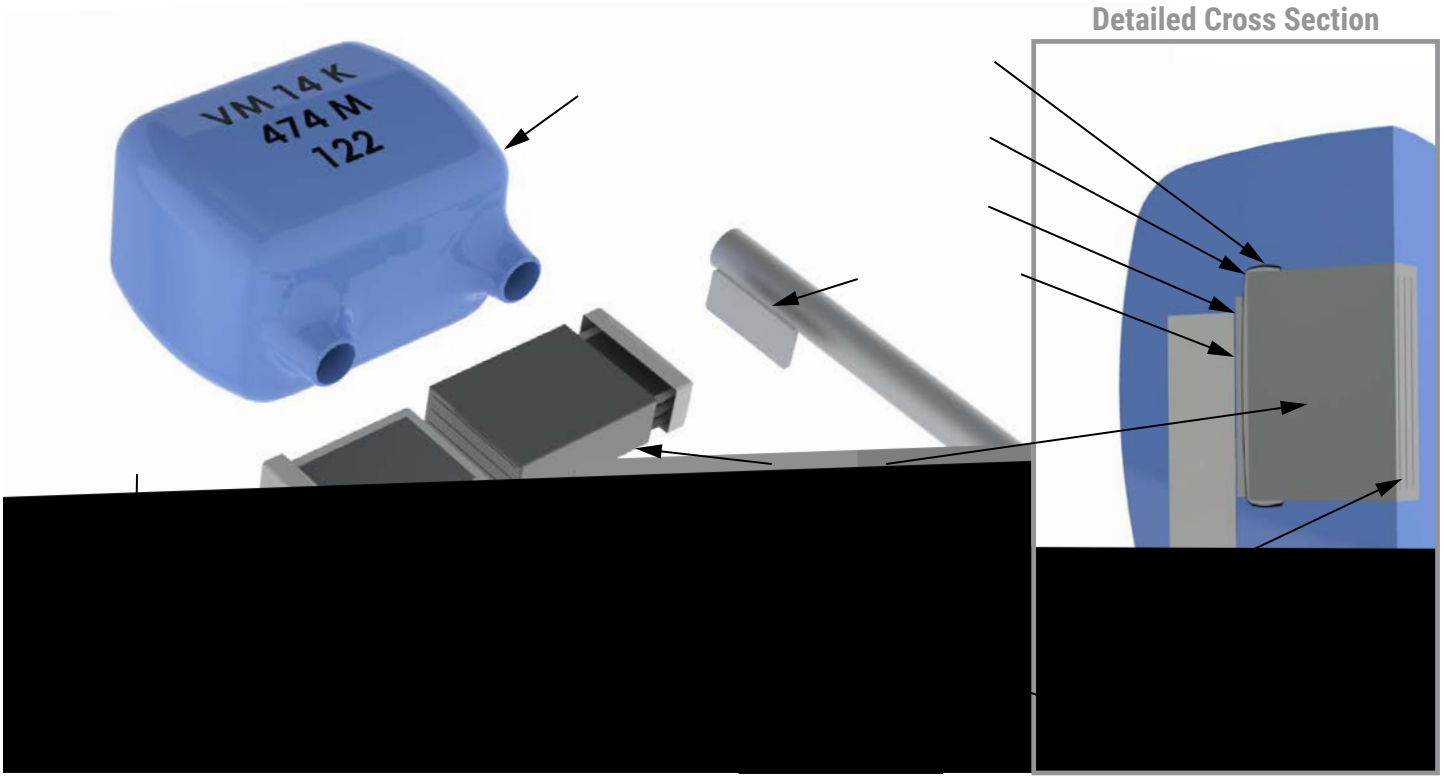


Parameters	Symbol	Specification
		4°C/s maximum
		130°C
		180°C
		217°C
Time in wave soldering phase (w1+w2)	w1+w2	
Maximum wave temperature (w1+w2)		265°C +0/−5°C
		6°C/seconds maximum
(w1)	(w1) – T (w1) – T	120°C maximum
Time from 25°C to T (wave temperature)		

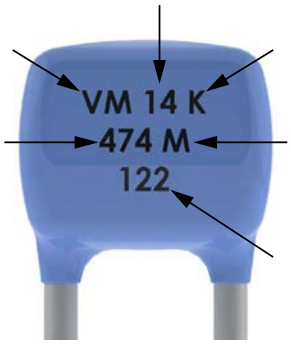
Packaging

B	R

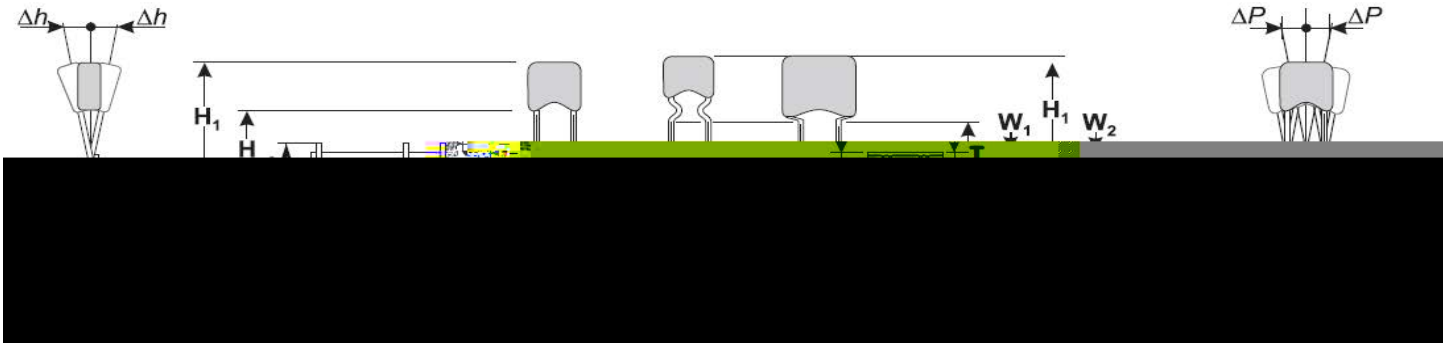
Construction

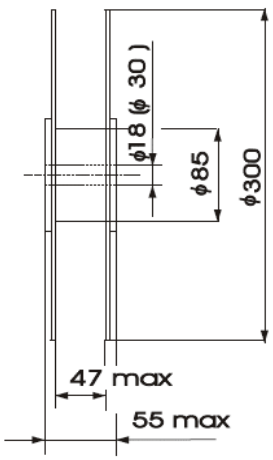


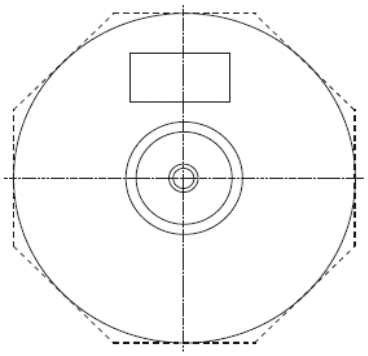
Capacitor Marking



Taping & Reel Specifications







Symbol	Parameter	Dimension (mm)
		18+1.0/−0.5
		9+0.75/−0.5
	Feed hole pitch	
	Feed hole center to pitch	
		5+0.5/−0.2
Δ		
Δ		
	Feed hole diameter	
		18+2.0/−0.0

Note: Table for R = 5 mm only. Dimensions for R = 12 mm available on request

Terms and Definitions

Term	Symbol	

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Disclaimer

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(such as installation of protective circuitry or redundancies) in order to ensure that the failure of an electrical component does not result in a risk of personal injury or