

PHE 431 Not for new design.

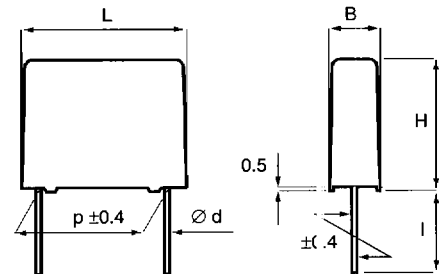
- Self-extinguishing encapsulation

Typical applications

Designed for critical applications where reliable operation at high current stresses is required. Typical applications are as fly-back capacitor in TV-sets with thyristor deflection systems and in protection circuits in SMPS.

Construction

PHE 431 has polypropylene (PP) as dielectric. The capacitor consists of a serial winding with electrodes metallized direct on both sides of a polypropylene film. The filling and the box are both made of self-extinguishing material. (UL 94V-0).



d = 0.8 mm
 l = standard: 6 mm

General data

Rated voltage U_R VDC	1000	1600	2000
Rated voltage U_R VAC	500	630	1000
Capacitance range, μF	0.0033–0.18	0.001–0.056	0.001–0.022
Standard tolerance	± 5%		
Climatic category	55/085/56		
Based on	IEC 384-17 grade 1.1		

Electrical characteristics

Rated temperature

+ 85°C

Pulse rise time, dU/dt

The capacitor withstands an unlimited number of pulses with a pulse steepness according to the table below.

Inductance

Measured 1.5 mm from the capacitor body. 20 nH is a typical value. Increases by 1.5 nH/mm wire length.

Insulation resistance

The insulation resistance is measured at 500 VDC at +23°C and after 60 s.

Between terminals: $\geq 100000 \text{ M}\Omega$

Capacitance tolerance, $\Delta C/C_R$

± 5%. Other tolerances on request.

Rated capacitance, C_R

According to article table. Other capacitance values within the range on request.

Dissipation factor

According to the table below.

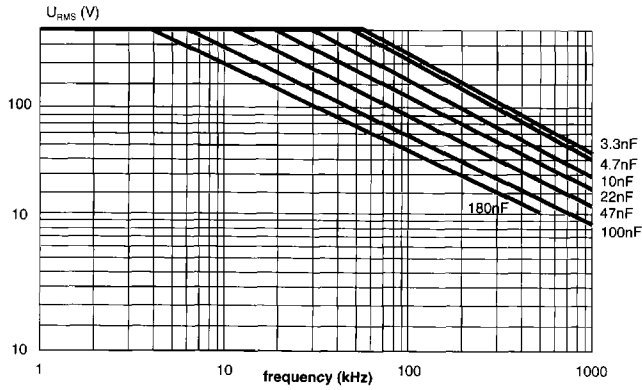
Article Code	Rated voltage VDC	Dissipation factor ($\tan\delta$) at f =			Pulse rise time dU/dt V/ μs
		1 kHz	10 kHz	100 kHz	
PHE 431 PB	1000	$\leq 5 \times 10^{-4}$	$\leq 6 \times 10^{-4}$	$\leq 12 \times 10^{-4}$	2500
PHE 431 PD	1000	$\leq 5 \times 10^{-4}$	$\leq 6 \times 10^{-4}$	$\leq 15 \times 10^{-4}$	1800
PHE 431 PF	1000	$\leq 5 \times 10^{-4}$	$\leq 6 \times 10^{-4}$	$\leq 20 \times 10^{-4}$	1300
PHE 431 RB	1600	$\leq 5 \times 10^{-4}$	$\leq 6 \times 10^{-4}$	$\leq 12 \times 10^{-4}$	2500
PHE 431 RD	1600	$\leq 5 \times 10^{-4}$	$\leq 6 \times 10^{-4}$	$\leq 14 \times 10^{-4}$	1800
PHE 431 RF	1600	$\leq 5 \times 10^{-4}$	$\leq 6 \times 10^{-4}$	$\leq 15 \times 10^{-4}$	1300
PHE 431 SD	2000	$\leq 5 \times 10^{-4}$	$\leq 6 \times 10^{-4}$	$\leq 12 \times 10^{-4}$	1300
PHE 431 SF	2000	$\leq 5 \times 10^{-4}$	$\leq 6 \times 10^{-4}$	$\leq 12 \times 10^{-4}$	1300

Article table PHE 431

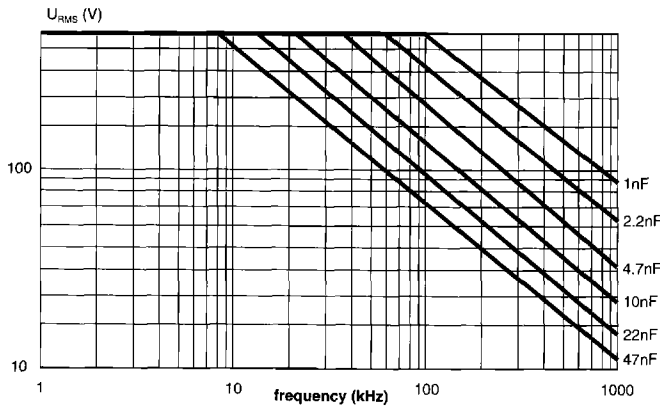
Rated voltage U _R VDC/VAC	Capacitance C _R nF	Max dimensions in mm				Weight g	Quantity/ package pcs	Article code 1st block
		B	H	L	p			
1000 VDC 500 VAC	3.3	6.5	14	18	15.0	2	500	PHE 431PB4330J
	3.9	6.5	14	18	15.0	2	500	PHE 431PB4390J
	4.7	6.5	14	18	15.0	2	500	PHE 431PB4470J
	5.6	6.5	14	18	15.0	2	500	PHE 431PB4560J
	6.8	6.5	14	18	15.0	2	500	PHE 431PB4680J
	8.2	6.5	14	18	15.0	2	500	PHE 431PB4680J
	10	8.5	16	18	15.0	3	500	PHE 431PB5100J
	12	8.5	16	18	15.0	3	500	PHE 431PB5120J
	15	8.5	16	18	15.0	3	500	PHE 431PB5150J
	18	8.5	16	18	15.0	3	500	PHE 431PB5180J
	22	7.5	17	26	22.5	4	200	PHE 431PD5220J
	27	7.5	17	26	22.5	4	200	PHE 431PD5270J
	33	10.0	19	26	22.5	6	200	PHE 431PD5330J
	39	10.0	19	26	22.5	6	200	PHE 431PD5390J
	47	10.0	19	26	22.5	6	200	PHE 431PD5470J
	56	10.0	19	26	22.5	6	200	PHE 431PD5560J
	68	12.0	21	31	27.5	9	75	PHE 431PF5680J
	82	12.0	21	31	27.5	9	75	PHE 431PF5820J
	100	15.0	24	31	27.5	13	75	PHE 431PF6100J
	120	15.0	24	31	27.5	13	75	PHE 431PF6120J
150	15.0	24	31	27.5	13	75	PHE 431PF6150J	
180	15.0	24	31	27.5	13	75	PHE 431PF6180J	
1600 VDC 630 VAC	1	6.5	14	18	15.0	2	500	PHE 431RB4100J
	1.2	6.5	14	18	15.0	2	500	PHE 431RB4120J
	1.5	6.5	14	18	15.0	2	500	PHE 431RB4150J
	1.8	6.5	14	18	15.0	2	500	PHE 431RB4180J
	2.2	6.5	14	18	15.0	2	500	PHE 431RB4220J
	2.7	6.5	14	18	15.0	2	500	PHE 431RB4270J
	3.3	6.5	14	18	15.0	2	500	PHE 431RB4330J
	3.9	6.5	16	18	15.0	3	500	PHE 431RB4390J
	4.7	8.5	16	18	15.0	3	500	PHE 431RB4470J
	5.6	8.5	16	18	15.0	3	500	PHE 431RB4560J
	6.8	8.5	16	18	15.0	3	500	PHE 431RB4680J
	8.2	7.5	17	26	22.5	4	200	PHE 431RD4820J
	10	7.5	17	26	22.5	4	200	PHE 431RD5100J
	12	10.0	19	26	22.5	6	200	PHE 431RD5120J
	15	10.0	19	26	22.5	6	200	PHE 431RD5150J
	18	10.0	19	26	22.5	6	200	PHE 431RD5180J
	22	12.0	21	31	27.5	9	75	PHE 431RF5220J
	27	12.0	21	31	27.5	9	75	PHE 431RF5270J
	33	15.0	24	31	27.5	13	75	PHE 431RF5330J
	39	15.0	24	31	27.5	13	75	PHE 431RF5390J
47	15.0	24	31	27.5	13	75	PHE 431RF5470J	
56	15.0	24	31	27.5	13	75	PHE 431RF5560J	
2000VDC 1000 VAC	1	7.5	17	26	22.5	4	200	PHE 431SD4100J
	1.2	7.5	17	26	22.5	4	200	PHE 431SD4120J
	1.5	7.5	17	26	22.5	4	200	PHE 431SD4150J
	1.8	7.5	17	26	22.5	4	200	PHE 431SD4180J
	2.2	7.5	17	26	22.5	4	200	PHE 431SD4220J
	2.7	7.5	17	26	22.5	4	200	PHE 431SD4270J
	3.3	7.5	17	26	22.5	4	200	PHE 431SD4330J
	3.9	7.5	17	26	22.5	4	200	PHE 431SD4390J
	4.7	10.0	19	26	22.5	6	200	PHE 431SD4470J
	5.6	10.0	19	26	22.5	6	200	PHE 431SD4560J
	6.8	10.0	19	26	22.5	6	200	PHE 431SD4680J
	8.2	12.0	21	31	27.5	9	75	PHE 431SF4820J
	10	12.0	21	31	27.5	9	75	PHE 431SF5100J
	12	12.0	21	31	27.5	9	75	PHE 431SF5120J
	15	15.0	24	31	27.5	13	75	PHE 431SF5150J
18	15.0	24	31	27.5	13	75	PHE 431SF5180J	
22	15.0	24	31	27.5	13	75	PHE 431SF5220J	

Not for new design.
 Use PHE 428 series.
 See page 160.

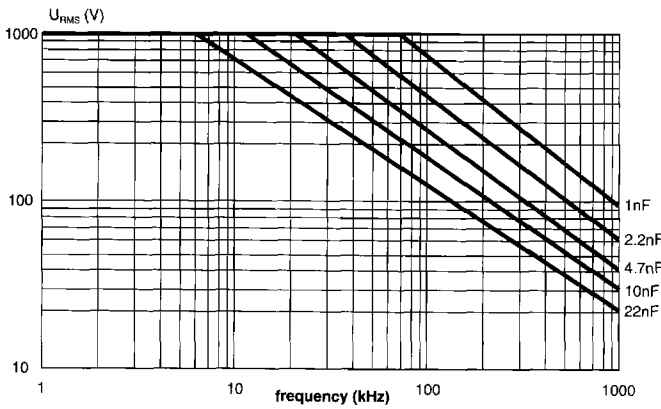
Graph U_{RMS} vs frequency
PHE 431, 1000/500 VDC/VAC



Graph U_{RMS} vs frequency
PHE 431, 1600/630 VDC/VAC

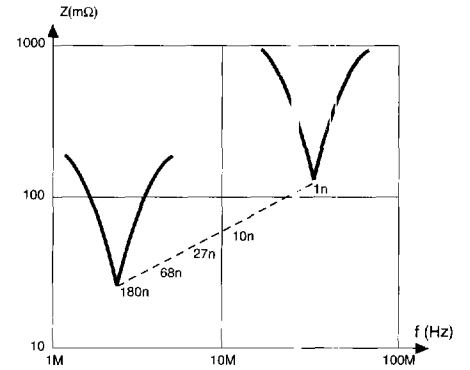


Graph U_{RMS} vs frequency
PHE 431, 2000/1000 VDC/VAC



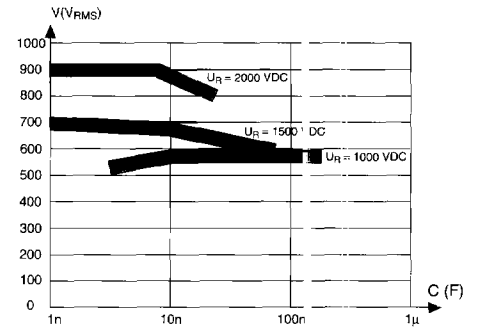
Resonance diagram (Typical data)

The resonance frequency and the impedance are measured in a 500Ω system with a wire length of 4 mm.



Ionization voltage

(typical values) Ionization voltage is measured at 50pC changing in charge.



Marking

- RIFA
- RIFA article code
- Rated capacitance
- Tolerance on rated capacitance in code acc. to IEC 62
- Rated voltage
- Manufacturing code (mcnth, year)

Ordering information

Article code Ex. PHE 431, 0.022 μ F, 1600 VDC/630 VAC

1st block

See article table
Pos. 13 Capacitance tolerance
Code J = $\pm 5\%$

2nd block

The capacitor is also available with 4 or 10 mm lead length (add R04 or R10 in pos. 14–16), Tolerance ± 0.1 mm.

P H E 4 3 1 R B 4 2 2 0 J

R 1 0

1 2 3 4 5 6 7 8 9 10 11 12 13

14 15 16 17 18 19 20

Packing

The capacitors are packed bulk in a box with the dimensions 230 \times 155 \times 72 mm.

Quantity/package as per article table.