

0.6 0.8 1.0 *Except for box ≥ 10x16x18 having Ød = 0.8±0.05mm

All dimensions are in mm. PRODUCT CODE SYSTEM

 $\oslash d \pm 0.05$

The part number, comprising 14 digits, is formed as follows:

1 2	J	4	Э	О	1	0	9	10	1.1	1 4	13	17
R 7	511										_	
1.11.			L'					Ш		ш	ш	

Digit 1 to 3 Series code.

Digit 4 d.c. rated voltage:

> G = 160V250V M = 400V630V

Digit 5

D = 7.5 mm; F = 10 mm; I = 15 mm; N = 22.5 mm; R = 27.5 mm; W = 37.5 mm

Digit 6 to 9 Digits 7 - 8 - 9 indicate the first three digits of Capacitance value and the 6th digit indicates

the number of zeros that must be added to obtain the Rated Capacitance in pF.

Digit 10 to 11 Mechanical version and/or packaging (table 1)

Identifies the dimensions and electrical Digit 12

characteristics (A to Z).

Digit 13 Internal use.

Digit 14 Capacitance tolerance:

K=10%; M=20% J=5%;

REDUCED SIZES

METALLIZED POLYPROPYLENE FILM CAPACITOR D.C. AND PULSE APPLICATIONS

Typical applications: deflection circuits in TV-sets and monitors (S-correction), resonant capacitor in electronic ballast and compact lamp, coupling capacitor in SMPS, timing and oscillator circuits.

PRODUCT CODE: R75 (Digit 12: A to Z)

GENERAL TECHNICAL DATA

Dielectric: polypropylene film.

metal layer deposited by evaporation under Plates:

vacuum.

Winding: non-inductive type.

Leads: tinned wire.

Protection: plastic case, epoxy resin filled.

Box material is solvent resistant and flame

retardant according to UL94 VO.

manufacturer's logo, series (R75), dielectric Marking:

code (MKP), capacitance, tolerance, D.C. rated

voltage, manufacturing date code.

55/100/56 IEC 60068-1 Climatic category:

Operating temperature range: -55 to +105°C

Related documents: IEC 60384-16

Table 1 (for more detailed information, please refer to pages 15 and 16).

Standard	Lead length		Taping	Ordering code	
packaging style	(mm)	P ₂ (mm)	Fig. (No.)	Pitch (mm)	(Digit 10 to 11)
AMMO-PACK AMMO-PACK		6.35	1 2	7.5 10.0/15.0	DQ DQ
AMMO-PACK REEL ⊘ 355mm		19.05 6.35	1	7.5	DQ CK
REEL ⊘ 355mm REEL ⊘ 500mm		12.70	2	10.0/15.0	GY CK
REEL ⊘ 500mm Loose, short leads	4+2	19.05	3	22.5/27.5	CK AA
Loose, long leads (p ≤ 10mm)	17+1/-2				Z3
Loose, long leads (p ≥ 15mm)	30 ⁺⁵ 25 ^{+2/-1}				40 50

Note: Ammo-pack is the preferred packaging for taped version.

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REDUCED SIZES

METALLIZED POLYPROPYLENE FILM CAPACITOR D.C. AND PULSE APPLICATIONS

PRODUCT CODE: R75 (Digit 12: A to Z)

single sided metallized polypropylene film

1 section (160Vdc - 250Vdc)



Rated	1	60Vdc	/ 70Vac	;	Max dv/dt	Max K ₀	Part Number
Cap.	В	Н	L	р	(V/μs)	(V ² /μs)	
0.10µF	4.0	9.0	10.5	7.5	100	32 E3	R75GD3100A
0.12μF	5.0	11.0	10.5	7.5	100	32 E3	R75GD3120A
0.15µF	5.0	11.0	10.5	7.5	100	32 E3	R75GD3150A
0.18μF	6.0	12.0	10.5	7.5	100	32 E3	R75GD3180A
0.22μF	6.0	12.0	10.5	7.5	100	32 E3	R75GD3220A
0.12μF	4.0	9.0	13.0	10.0	90	28 E3	R75GF3120A
0.15μF	4.0	9.0	13.0	10.0	90	28 E3	R75GF 3150A
0.18μF	5.0	11.0	13.0	10.0	90	28 E3	R75GF3180A
0.22μF	5.0	11.0	13.0	10.0	90	28 E3	R75GF 3220A
0.27μF	6.0	12.0	13.0	10.0	90	28 E3	R75GF3270A
0.33μF	6.0	12.0	13.0	10.0	90	28 E3	R75GF 3330A

Mechanical version and packaging (Table 1) Internal use

Tolerance: J (\pm 5%); K (\pm 10%); M (\pm 20%)

Rated	2	50Vdc	140Va	C	Max dv/dt	Max K ₀	Part Number		
Сар.	В	H	L	l p	(V/μs)	(V ² /μs)			
0.068μF	4.0	9.0	10.5	7.5	180	90 E3	R75ID2680A		
0.082μF	4.0	9.0	10.5	7.5	180	90 E3	R75ID2820A		
$0.10 \mu F$	5.0	11.0	10.5	7.5	180	90 E3	R75ID3100A		
0.12μF	5.0	11.0	10.5	7.5	180	90 E3	R75ID3120A		
0.15μF	6.0	12.0	10.5	7.5	180	90 E3	R75ID3150A		
0.18μF	6.0	12.0	10.5	7.5	180	90 E3	R75ID3180A		
0.082μF	4.0	9.0	13.0	10.0	150	75 E3	R75IF 2820A		
0.10μF	4.0	9.0	13.0	10.0	150	75 E3	R75IF 3100A		
0.12μF	5.0	11.0	13.0	10.0	150	75 E3	R75IF 3120A		
0.15μF	5.0	11.0	13.0	10.0	150	75 E3	R75IF 3150A		
0.18μF	6.0	12.0	13.0	10.0	150	75 E3	R75IF 3180A		
0.22μF	6.0	12.0	13.0	10.0	150	75 E3	R75IF 3220A		

Mechanical version and packaging (Table 1)

Tolerance: J (\pm 5%); K (\pm 10%); M (\pm 20%)

All dimensions are in mm.

Note: If the working voltage (V) is lower than the rated voltage (V_R), the capacitor may work at higher dv/dt. In this case the maximum value allowed is obtained multiplying the above value (see table dv/dt) with the ratio V_R/V. The pulse characteristic K₀ depends on the voltage wave-form and in any case it cannot overcome the value given in the above table. The dv/dt test is carried out at 2 times the above values.

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REDUCED SIZES

METALLIZED POLYPROPYLENE FILM CAPACITOR D.C. AND PULSE APPLICATIONS

PRODUCT CODE: R75 (Digit 12: A to Z)

single sided metallized polypropylene film

tion //dc)

1 section (400Vdc)

	Γ	d 400Vdc / 200Vac			Max	T			Τ .				Max	T	T
Rated	40	00Vdc/	200Va	C	dv/dt	Max K ₀	Part Number	Rated	4	00Vdc	200Va	C	dv/dt	Max K ₀	Part Number
Cap.	В	н	L	р	(V/μs)	(V ² /μs)		Сар.	В	H	L	p	(V/μs)	(V ² /μs)	
0.027μF	4.0	9.0	10.5	7.5	390	312 E3	R75MD2270A	0.27μF	6.0	15.0	26.5	22.5	200	160 E3	R75MN 3270M
0.033μF	5.0	11.0	10.5	7.5	390	312 E3	R75MD2330A	0.33μF	6.0	15.0	26.5	22.5	200	160 E3	R75MN 3330M
0.039μF	5.0	11.0	10.5	7.5	390	312 E3	R75MD2390A	0.39μF	6.0	15.0	26.5	22.5	200	160 E3	R75MN 3390M
0.047μF	5.0	11.0	10.5	7.5	390	312 E3	R75MD2470A	0.47μF	6.0	15.0	26.5	22.5	200	160 E3	R75MN 3470M
0.056μF	6.0	12.0	10.5	7.5	390	312 E3	R75MD2560A	0.56μF	7.0	16.0	26.5	22.5	200	160 E3	R75MN 3560M
0.068μF	6.0	12.0	10.5	7.5	390	312 E3	R75MD2680A	0.68μF	7.0	16.0	26.5	22.5	200	160 E3	R75MN 3680M
0.022μF	4.0	9.0	13.0	10.0	350	280 E3	R75MF 2220M	0.82μF	8.5	17.0	26.5	22.5	200	160 E3	R75MN 3820M
0.027μF	4.0	9.0	13.0	10.0	350	280 E3	R75MF 2270M	1.0μF	10.0	18.5	26.5	22.5	200	160 E3	R75MN 4100M
0.033μF	4.0	9.0	13.0	10.0	350	280 E3	R75MF 2330M	1.2µF	10.0	18.5	26.5	22.5	200	160 E3	R75MN 4120M
0.039µF	4.0	9.0	13.0	10.0	350	280 E3	R75MF 2390M	1.5µF	11.0	20.0	26.5	22.5	200	160 E3	R75MN 4150M
0.047μF	5.0	11.0	13.0	10.0	350	280 E3	R75MF 2470M	1.8μF	13.0	22.0	26.5	22.5	200	160 E3	R75MN 4180M
0.056μF	5.0	11.0	13.0	10.0	350	280 E3	R75MF 2560M	0.68μF	9.0	17.0	32.0	27.5	125	100 E3	R75MR 3680M
0.068μF	5.0	11.0	13.0	10.0	350	280 E3	R75MF 2680M	0.82µF	9.0	17.0	32.0	27.5	125	100 E3	R75MR 3820M
0.082μF	6.0	12.0	13.0	10.0	350	280 E3	R75MF 2820M	1.0μF	9.0	17.0	32.0	27.5	125	100 E3	R75MR 4100M
0.10μF	6.0	12.0	13.0	10.0	350	280 E3	R75MF 3100M	1.2µF	9.0	17.0	32.0	27.5	100	80 E3	R75MR 4120M
0.10μF	5.0	11.0	18.0	15.0	300	240 E3	R75MI 3100M	1.5µF	11.0	20.0	32.0	27.5	100	80 E3	R75MR 4150M
0.12μF	5.0	11.0	18.0	15.0	300	240 E3	R75MI 3120M	1.8µF	11.0	20.0	32.0	27.5	100	80 E3	R75MR 4180M
0.15μF	5.0	11.0	18.0	15.0	300	240 E3	R75MI 3150M	2.2µF	13.0	22.0	32.0	27.5	100	80 E3	R75MR 4220M
0.18µF	6.0	12.0	18.0	15.0	300	240 E3	R75MI 3180M	2.7µF	13.0	22.0	32.0	27.5	100	80 E3	R75MR 4270M
0.22μF	6.0	12.0	18.0	15.0	300	240 E3	R75MI 3220M	3.3µF	14.0	28.0	32.0	27.5	100	80 E3	R75MR 4330M
0.27μF	7.5	13.5	18.0	15.0	300	240 E3	R75MI 3270M	3.9µF	14.0	28.0	32.0	27.5	100	80 E3	R75MR 4390M
0.33μF	7.5	13.5	18.0	15.0	300	240 E3	R75MI 3330M	4.7μF	18.0	33.0	32.0	27.5	100	80 E3	R75MR 4470M
0.33μF	9.0	12.5	18.0	15.0	300	240 E3	R75MI 3330N	2.2µF	11.0	22.0	41.5	37.5	100	80 E3	R75MW4220M
0.39µF	8.5	14.5	18.0	15.0	300	240 E3	R75MI 3390M	2.7µF	11.0	22.0	41.5	37.5	100	80 E3	R75MW4270M
0.47µF	8.5	14.5	18.0	15.0	300	240 E3	R75MI 3470M	3.3µF	11.0	22.0	41.5	37.5	100	80 E3	R75MW4330M
0.47µF	13.0	12.0	18.0	15.0	300	240 E3	R75MI 3470N	3.9µF	13.0	24.0	41.5	37.5	100	80 E3	R75MW4390M
0.56μF	10.0	16.0	18.0	15.0	300	240 E3	R75MI 3560M	4.7µF	16.0	28.5	41.5	37.5	100	80 E3	R75MW4470M
0.68μF	10.0	16.0	18.0	15.0	300	240 E3	R75MI 3680M	5.6μF	16.0	28.5	41.5	37.5	40	32 E3	R75MW4560M

Mechanical version and packaging (Table 1)

Internal use

Tolerance: $J(\pm 5\%)$; $K(\pm 10\%)$; $M(\pm 20\%)$

Mechanical version and packaging (Table 1)

Tolerance: J (\pm 5%); K (\pm 10%); M (\pm 20%)

All dimensions are in mm.

Note: If the working voltage (V) is lower than the rated voltage (V_R), the capacitor may work at higher dv/dt. In this case the maximum value allowed is obtained multiplying the above value (see table dv/dt) with the ratio V_R/V. The pulse characteristic K₀ depends on the voltage wave-form and in any case it cannot overcome the value given in the above table. The dv/dt test is carried out at 2 times the above values.

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REDUCED SIZES

METALLIZED POLYPROPYLENE FILM CAPACITOR D.C. AND PULSE APPLICATIONS

PRODUCT CODE: R75 (Digit 12: A to Z)

single sided metallized polypropylene film

> 1 section (630Vdc)



Rated	63	0Vdc/	220Vac	*	Max dv/dt	Max K ₀	Dout Number	Rated	63	30Vdc /	220Vac	;*	Max dv/dt	Max K ₀	Dart Number
Сар.	В	Н	LI	р	(V/μs)	(V ² /μs)	Part Number	Сар.	В	1 н	l L	l p	(V/μs)	(V ² /μs)	Part Number
0.010µF	4.0	9.0	10.5	7.5	600	760 E3	R75PD2100A	0.15µF	6.0	15.0	26.5	22.5	250	315 E3	R75PN3150M
0.012μF	4.0	9.0	10.5	7.5	600	760 E3	R75PD2120A	0.18µF	6.0	15.0	26.5	22.5	250	315 E3	R75PN3180M
0.015μF	5.0	11.0	10.5	7.5	600	760 E3	R75PD2150A	0.22μF	6.0	15.0	26.5	22.5	250	315 E3	R75PN3220M
0.018µF	5.0	11.0	10.5	7.5	600	760 E3	R75PD2180A	0.27μF	7.0	16.0	26.5	22.5	250	315 E3	R75PN3270M
0.022µF	6.0	12.0	10.5	7.5	600	760 E3	R75PD2220A	0.33μF	7.0	16.0	26.5	22.5	250	315 E3	R75PN3330M
0.027μF	6.0	12.0	10.5	7.5	600	760 E3	R75PD2270A	0.39μF	10.0	18.5	26.5	22.5	250	315 E3	R75PN3390M
0.010μF	4.0	9.0	13.0	10.0	550	690 E3	R75PF2100M	0.47μF	10.0	18.5	26.5	22.5	250	315 E3	R75PN3470M
0.012µF	4.0	9.0	13.0	10.0	550	690 E3	R75PF2120M	0.56µF	10.0	18.5	26.5	22.5	250	315 E3	R75PN3560M
0.015μF	4.0	9.0	13.0	10.0	550	690 E3	R75PF2150M	0.68μF	11.0	20.0	26.5	22.5	250	315 E3	R75PN3680M
0.018μF	4.0	9.0	13.0	10.0	550	690 E3	R75PF2180M	0.82μF	13.0	22.0	26.5	22.5	250	315 E3	R75PN3820M
0.022μF	5.0	11.0	13.0	10.0	550	690 E3	R75PF2220M	1.0µF	13.0	22.0	26.5	22.5	250	315 E3	R75PN4100M
0.027μF	5.0	11.0	13.0	10.0	550	690 E3	R75PF2270M	0.47µF	9.0	17.0	32.0	27.5	130	160 E3	R75PR3470M
0.033μF	5.0	11.0	13.0	10.0	550	690 E3	R75PF2330M	0.56μF	9.0	17.0	32.0	27.5	130	160 E3	R75PR3560M
0.039μF	6.0	12.0	13.0	10.0	550	690 E3	R75PF2390M	0.68μF	10.0	20.0	32.0	27.5	130	160 E3	R75PR3680M
0.047μF	6.0	12.0	13.0	10.0	550	690 E3	R75PF2470M	0.82μF	11.0	20.0	32.0	27.5	130	160 E3	R75PR3820M
0.056μF	6.0	12.0	13.0	10.0	550	690 E3	R75PF2560M	1.0μF	11.0	20.0	32.0	27.5	130	160 E3	R75PR4100M
0.068μF	6.0	12.0	13.0	10.0	550	690 E3	R75PF2680M	1.2μF	13.0	22.0	32.0	27.5	130	160 E3	R75PR4120M
0.010μF	5.0	11.0	18.0	15.0	400	504 E3	R75PI 2100M	1.5µF	15.0	24.0	32.0	27.5	130	160 E3	R75PR4150M
0.012μF	5.0	11.0	18.0	15.0	400	504 E3	R75PI 2120M	1.8µF	14.0	28.0	32.0	27.5	130	160 E3	R75PR4180M
0.015μF	5.0	11.0	18.0	15.0	400	504 E3	R75PI 2150M	2.2μF	18.0	33.0	32.0	27.5	130	160 E3	R75PR4220M
0.018μF	5.0	11.0	18.0	15.0	400	504 E3	R75Pl 2180M	2.7μF	18.0	33.0	32.0	27.5	130	160 E3	R75PR4270M
0.022μF	5.0	11.0	18.0	15.0	400	504 E3	R75PI 2220M	3.3µF	22.0	37.0	32.0	27.5	130	160 E3	R75PR4330M
0.027µF	5.0	11.0	18.0	15.0	400	504 E3	R75PI 2270M	3.9µF	22.0	37.0	32.0	27.5	100	126 E3	R75PR4390M
0.033μF	5.0	11.0	18.0	15.0	400	504 E3	R75PI 2330M	4.7μF	22.0	37.0	32.0	27.5	100	126 E3	R75PR4470M
0.039μF	5.0	11.0	18.0	15.0	400	504 E3	R75PI 2390M	1.5µF	11.0	22.0	41.5	37.5	130	160 E3	R75PW4150M
0.047μF	5.0	11.0	18.0	15.0	400	504 E3	R75PI 2470M	1.8µF	11.0	22.0	41.5	37.5	130	160 E3	R75PW4180M
0.056μF	5.0	11.0	18.0	15.0	400	504 E3	R75PI 2560M	2.2μF	13.0	24.0	41.5	37.5	130	160 E3	R75PW4220M
0.068μF	5.0	11.0	18.0	15.0	400	504 E3	R75PI 2680M	2.7µF	16.0	28.5	41.5	37.5	130	160 E3	R75PW4270M
0.082μF	6.0	12.0	18.0	15.0	400	504 E3	R75PI 2820M	3.3µF	16.0	28.5	41.5	37.5	130	160 E3	R75PW4330M
0.10μF	6.0	12.0	18.0	15.0	400	504 E3	R75PI 3100M	3.9µF	19.0	32.0	41.5	37.5	100	126 E3	R75PW4390M
0.12μF	7.5	13.5	18.0	15.0	400	504 E3	R75PI 3120M	4.7μF	19.0	32.0	41.5	37.5	100	126 E3	R75PW4470M
0.15μF	7.5	13.5	18.0	15.0	400	504 E3	R75PI 3150M	5.6µF	20.0	40.0	41.5	37.5	100	126 E3	R75PW4560M
0.18μF	8.5	14.5	18.0	15.0	400	504 E3	R75PI 3180M	Mechani	cal ver	sion ar	nd pacl	kaging	(Table 1)	// //
0.22μF	8.5	14.5	18.0	15.0	400	504 E3	R75PI 3220M	Internal							
0.22μF	9.0	12.5	18.0	15.0	400	504 E3	R75PI 3220N	Tolerand	e: J (±	5%); I	K(±10)%); M	$1 (\pm 20\%)$	o)	
0.27μF	10.0	16.0	18.0	15.0	400	504 E3	R75PI 3270M								
0.33μF	10.0	16.0	18.0	15.0	400	504 E3	R75PI 3330M								
0.33µF	13.0	12.0	18.0	15.0	400	504 E3	R75PI 3330N								

Mechanical version and packaging (Table 1) Internal use

19.0

19.0 | 18.0 | 15.0

18.0

15.0

400

400

504 E3

Tolerance: J (\pm 5%); K (\pm 10%); M (\pm 20%)

All dimensions are in mm.

11.0

0.39µF 11.0 0.47μF

Note: If the working voltage (V) is lower than the rated voltage (V_R) , the capacitor may work at higher dv/dt. In this case the maximum value allowed is obtained multiplying the above value (see table dv/dt) with the ratio V_R/V . The pulse characteristic K_0 depends on the voltage wave-form and in any case it cannot overcome the value given in the above table. The dv/dt test is carried out at 2 times the above values.

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*Not suitable for across-the-line applications. Please refer to Interference Suppression Capacitors (page 109).

504 E3 R75PI 3390--M--

R75PI 3470--M--

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REDUCED SIZES

METALLIZED POLYPROPYLENE FILM CAPACITOR D.C. AND PULSE APPLICATIONS

PRODUCT CODE: R75 (Digit 12: A to Z)

ELECTRICAL CHARACTERISTICS

Rated voltage (V_R): 160Vdc - 250Vdc - 400Vdc - 630Vdc. Rated temperature (T_R): +85°C Temperature derated voltage:

The following decreasing factor has to be applied on the

rated voltage:

+85°C to +105°C: 2.00% per °C for V_R (d.c.) +85°C to +105°C: 1.25% per °C for V_R (a.c.)

Capacitance range: $0.01 \mu F$ to $4.7 \mu F$

Capacitance values:

E12 series (IEC 60063 Norm).

Capacitance tolerances (measured at 1 kHz):

 $\pm 5\%$ (J); $\pm 10\%$ (K); $\pm 20\%$ (M).

Total self-inductance (L): (Lead length ~2 mm)

Pitch (mm)	7.5	10	15	22.5	27.5	37.5			
L (nH) ≈	8	9	10	18	18	20			

Dissipation factor (DF):

 $tg\delta \times 10^{-4}$ at +25°C ± 5 °C

	_			
ı	kHz	C ≤ 0.1µF	0.1 < C ≤ 1.0μF	1 < C ≤ 4.7μF
	1	≤ 4	≤ 5	≤6
	10	≤ 6	≤12	
	100	≤30		

Insulation resistance:

Test conditions

Temperature: $+25^{\circ}C \pm 5^{\circ}C$ Voltage charge time: 1 min Voltage charge: 100Vdc

Performance

 \geq 1 × 10⁵ M Ω for C \leq 0.33 μ F $(5 \times 10^5 \,\mathrm{M}\Omega)^*$ ≥30000 s for C >0.33μF (150000 s)*

* Typical value.

Test voltage between terminations:

1.6 × V_R applied for 2 s at +25°C ± 5°C

TEST METHOD AND PERFORMANCE

Damp heat, steady state:

Test conditions

Temperature: +40°C ± 2°C Relative humidity (RH): 93% ±2% Test duration: 56 days Performance

Capacitance change I∆C/CI: ≤2%

DF change $(\Delta tg\delta)$: \leq 10 \times 10⁻⁴ at 1kHz Insulation resistance: ≥50% of initial limit.

Endurance:

Test conditions

 $+85^{\circ}C \pm 2^{\circ}C$ Temperature: Test duration: 2000 h Voltage applied: $1.25 \times V_{R}$

Performance

Capacitance change $|\Delta C/C|$: $\leq 3\%$

DF change ($\Delta tg\delta$): $\leq 10 \times 10^{\text{-4}}$ at 10kHz for $C \leq 1 \mu F$

 $\leq 10 \times 10^{-4}$ at 1kHz for C > 1 μ F

≥50% of initial limit. Insulation resistance:

Resistance to soldering heat:

Test conditions

Solder bath temperature: +260°C ± 5°C Dipping time (with heat screen):10 s \pm 1 s

Performance

Capacitance change I∆C/CI: ≤1%

 \leq 10 \times 10⁻⁴ at 10kHz for C \leq 1 μ F DF change ($\Delta tg\delta$):

 $\leq 10 \times 10^{-4}$ at 1kHz for C > 1 μ F

Insulation resistance: ≥ initial limit.

Long term stability (after two years):

Storage: standard environmental conditions (see page 11).

Performance

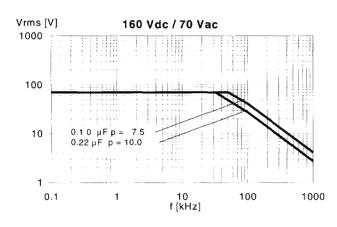
Capacitance change $|\Delta C/C|$: $\leq 0.5\%$

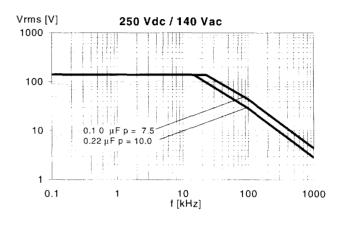
81 02/2003 REDUCED SIZES

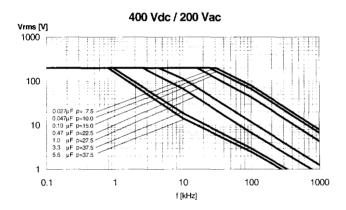
METALLIZED POLYPROPYLENE FILM CAPACITOR D.C. AND PULSE APPLICATIONS

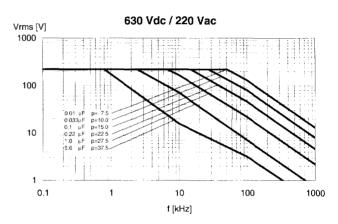
PRODUCT CODE: R75 (Digit 12: A to Z)

MAX. VOLTAGE (Vr.m.s.) VERSUS FREQUENCY (sinusoidal wave-form / T_h ≤ 40°C)









Note: p (pitch) in mm.

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