

## YPNB SERIES Snubber/pulse - High current

Aluminium foil and metallised polypropylene film capacitor

**Main applications :** Type YPNB IGBT snubber capacitor modules for power electronics can be mounted directly onto the IGBT or mounted as a board level product for protection against transient voltages caused by the high di/dt that occurs at gate turn off.

**Dielectric :** Aluminium foil and metallised polypropylene film

**Coating (flame retardant) :** Solvent resistant plastic case with resin sealing (UL 94 V-0)

**Terminals :** Tinned copper lugs (lead-free) for screw fixing or soldering on PCBs (please refer to article table)

**Climatic category :** 25/85/21 (IEC 60252-1)

**Max. permissible ambient temperature :** +70°C, operation at rated power, current, voltage and natural cooling (+85°C observing voltage and current de-rating)

**Rated capacitance (Cr) :** 0,1 µF to 3,0 µF (YPNB). Refer to article table

**Capacitance tolerance (at 1kHz) :** ±5% (code=J), ±10% (code=K) and ±20% (code=M). Other tolerances upon request

**Rated voltage (Ur) :** 1000Vdc, 1200Vdc, 1600Vdc, 2000Vdc (+85°C), please refer to article table

**Non Recurrent Surge Voltage (Upk) :** 1000Vdc, 1200Vdc, 1600Vdc, 2000Vdc +85°C, please refer to article table

**Maximum peak current (Ipeak) :** Refer to article table, Max. non repetitive Ipk = 1,5 x Ipeak

**Dissipation factor (DF), max. :** (tgδ x10<sup>-4</sup>, measured at 25±5°C)



Freq.	Cr ≤ 0,1 µF	Cr > 1,0 µF
10kHz	5	6

**Insulation resistance (IR) :** Terminal to terminal → not less than 1,000 ΩF, Terminal to case → not less than 2,000M Ω

**Test voltage between terminals (Ut) :** 1,6xUr (DC) applied for 10s / 2xUr (DC) applied for 2s, at 25±5°C

**Test voltage between terminals and case (Utc) :** 3kV 50/60Hz applied for 60s at 25±5°C

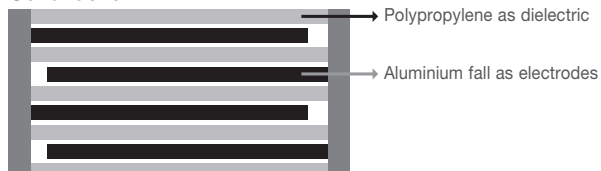
Comparative table of plastic film dielectric characteristics (typical values)

Characteristic	Polyester	Polycarbonate	Polypropylene	Polystyrene
Relative dielectric constant (25°C, 1KHz)	3,3	2,8	2,2	2,5
Max working temperature (°C)	125	125	105	70
Loss factor (x10 <sup>-4</sup> , 1KHz/100KHz)	50/180	10/100	2/3	2/3
Insulation resistance (MΩ x µF, +20°C)	30	50	300	300
Temperature coefficient (ppm/°C)	-	+150	+200	-150
Dielectric strength (V/µm)	250	180	350	150
Water absorption (% in weight)	0,2	0,3	<0,01	0,1
Density (g/cm <sup>3</sup> )	1,39	1,21	0,91	1,05

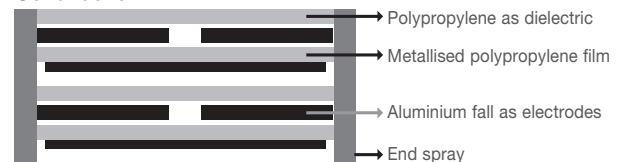
## Capacitors winding

Obtained by rolling process with a stated number of different types of films or films and metal foils, having characteristics, arrangement and sequence function of design targets, in order to obtain cylindrical rolls called windings.

Construction

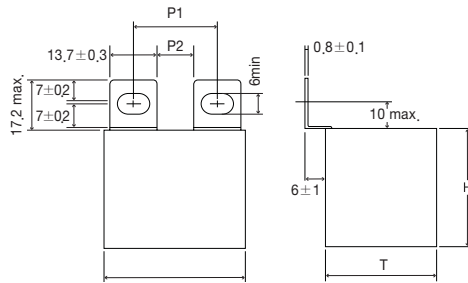


Construction

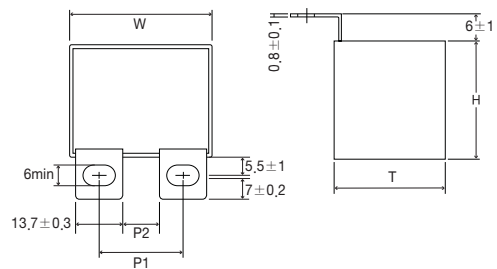


**YPNB** Specifications and Size

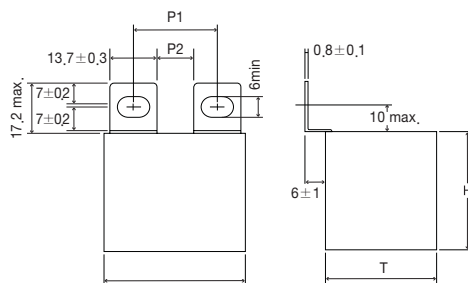
Style SN (for L=57.5mm only)



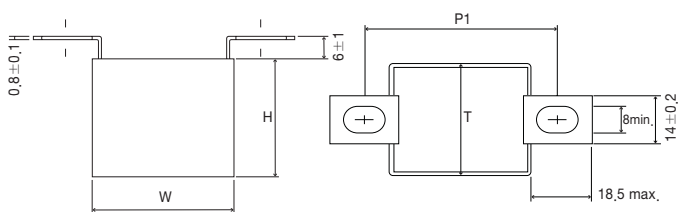
Style VP/VR



Style SP/SR



Style AP



Dimensions in mm

Fixing pitch and distance between lugs (mm)			
Lugs style	W	P1	P2
SP, VP, FP	43	23~28 (M6)	11
	58	37~42 (M6)	24
SR, VR, FR	43	20~25 (M6)	8
	58	34~39 (M6)	21
SN, VN	43	Not available	
	58	23~28 (M6)	11
AP	43	51~64 (M8)	-
	58	65~78 (M8)	-
BP	43	32~45 (M6)	17
	58	Not available	
Style CS (not for new design)	43	38,5	-
	58	52,5	-

Code Number	Cap $\mu F$	Voltage		dv/dt	Ipeak	ESR 25 °C 100KHz	Irms	Dimensions $\pm 2mm$ W x H x T
		Vdc	Vac	V// $\mu s$	A	m $\Omega$	A	
YPNB 1000V154*##	0,15	1000	500	800	120	9,1	7,9	43x30x22
YPNB 1000V224*##	0,22	1000	500	800	176	8,5	9	43x30x22
YPNB 1000V334*##	0,33	1000	500	800	264	7,6	11	43x30x22
YPNB 1000V474*##	0,47	1000	500	480	226	7,1	12,4	43x30x22
YPNB 1000V684*##	0,68	1000	500	480	326	6,3	14,5	43x30x22
YPNB 1000V105*##	1	1000	500	480	480	4,4	17,2	43x37x28
YPNB 1000V155*##	1,5	1000	500	480	720	2,7	21,3	43x37x28
YPNB 1000V205*##	2	1000	500	320	840	2,5	25	43x45x33
YPNB 1000V225*##	2,2	1000	500	320	704	2,4	27	43x45x33
YPNB 1000V305*##	3	1000	500	320	960	2,2	29	43x45x33

## YPNB Specifications and Sizes

Code Number	Cap $\mu\text{F}$	Voltage		dv/dt	Ipeak	ESR 25 °C 100KHz	Irms	Dimensions $\pm 2\text{mm}$
		Vdc	Vac	V/ $\mu\text{s}$	A	m $\Omega$	A	W x H x T
YPNB 1200V154*##	0,15	1200	550	900	135	9,1	8,4	43x30x22
YPNB 1200V224*##	0,22	1200	550	900	198	8,5	11	43x30x22
YPNB 1200V334*##	0,33	1200	550	900	258	7,6	11,5	43x30x22
YPNB 1200V474*##	0,47	1200	550	550	297	7,1	13,5	43x30x22
YPNB 1200V564*##	0,56	1200	550	550	308	6,9	14,2	43x30x22
YPNB 1200V684*##	0,68	1200	550	550	374	6,3	15,6	43x30x22
YPNB 1200V754*##	0,75	1200	550	550	412	5,6	16,8	43x37x28
YPNB 1200V105*##	1	1200	550	550	550	4,4	18,6	43x37x28
YPNB 1200V125*##	1,2	1200	550	550	660	3,6	21	43x37x28
YPNB 1200V155*##	1,5	1200	550	550	825	2,4	23	43x37x28
YPNB 1200V205*##	2	1200	550	350	700	2,5	28	43x45x33
YPNB 1200V225*##	2,2	1200	550	350	770	2,4	29	43x45x33
YPNB 1200V305*##	3	1200	550	350	1050	2,1	32	43x45x33

Code Number	Cap $\mu\text{F}$	Voltage		dv/dt	Ipeak	ESR 25 °C 100KHz	Irms	Dimensions $\pm 2\text{mm}$
		Vdc	Vac	V/ $\mu\text{s}$	A	m $\Omega$	A	W x H x T
YPNB 1600V104*##	0,1	1600	630	1000	100	10	9,4	43x30x22
YPNB 1600V154*##	0,15	1600	630	1000	150	8	11,5	43x30x22
YPNB 1600V224*##	0,22	1600	630	1000	220	7,5	13	43x30x22
YPNB 1600V334*##	0,33	1600	630	800	264	7	14	43x30x22
YPNB 1600V474*##	0,47	1600	630	800	376	6,6	16	43x37x28
YPNB 1600V564*##	0,56	1600	630	800	448	6,2	18	43x37x28
YPNB 1600V684*##	0,68	1600	630	800	544	6	19	43x37x28
YPNB 1600V754*##	0,75	1600	630	500	375	5,8	20	43x37x28
YPNB 1600V105*##	1	1600	630	500	500	3,2	23,8	43x45x33
YPNB 1600V125*##	1,2	1600	630	500	600	2,8	25	43x45x33

Code Number	Cap $\mu\text{F}$	Voltage		dv/dt	Ipeak	ESR 25 °C 100KHz	Irms	Dimensions $\pm 2\text{mm}$
		Vdc	Vac	V/ $\mu\text{s}$	A	m $\Omega$	A	W x H x T
YPNB 2000V104*##	0,1	2000	650	1100	110	8	10	43x30x22
YPNB 2000V154*##	0,15	2000	650	1100	165	7,5	11	43x30x22
YPNB 2000V224*##	0,22	2000	650	850	187	7	13,8	43x30x22
YPNB 2000V334*##	0,33	2000	650	850	280	6,4	16,9	43x37x28
YPNB 2000V474*##	0,47	2000	650	850	400	6	19	43x37x28
YPNB 2000V564*##	0,56	2000	650	600	336	5,5	21,5	43x37x28
YPNB 2000V684*##	0,68	2000	650	600	408	5	24	43x45x33
YPNB 2000V754*##	0,75	2000	650	600	450	4,2	25	43x45x33
YPNB 2000V105*##	1	2000	650	600	550	3,1	29	43x45x33

- (1) Change the \* symbol with the needed capacitance tolerance code: J= $\pm 5\%$ , K= $\pm 10\%$ , M= $\pm 20\%$  and the ## characters with the needed style code -  
(2) Maximum values at 100kHz, +70°C for case operating T= +85°C (YPNB only: at T amb. >+70°C and T case) +85°C voltage and current de-rating must be observed), C tol.  $\pm 10\%$   
(3) Typical values at 100kHz. (4) Not suitable for across the line application.