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Electronic Lighting Ballasts

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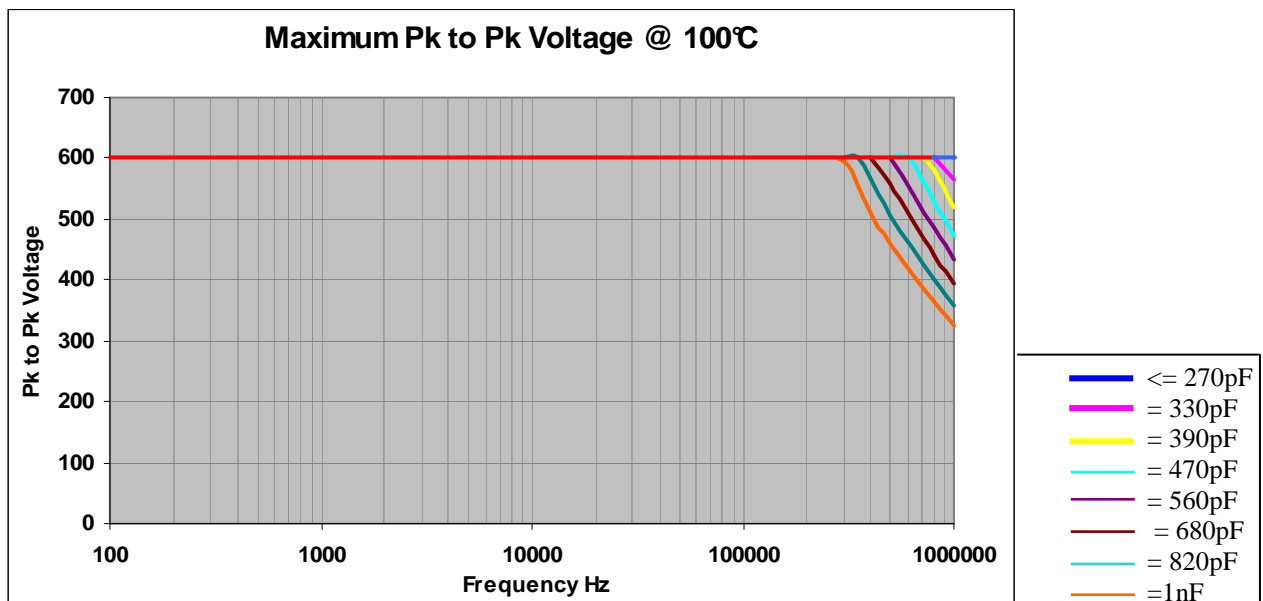


Introduction

All fluorescent lamps require a ballast to provide the electrical power to preheat the lamp electrodes, strike the lamp, provide the running power and control the discharge current. This can be achieved by either electromagnetic or high frequency electronic ballasts. With the introduction of new regulations in 2005 covering the European Union, USA and Japan, the use of the older electromagnetic ballasts will no longer be permitted, apart from repairing older systems until 2010. High frequency electronic ballasts provide increased luminous flux from the fluorescent lamp and negate the need for a starter, thus saving energy and costs.

With more manufacturers of high frequency electronic ballasts converting to low cost surface mount capacitors, for use in the snubber circuit of the ballast, Syfer Technology Ltd has introduced a range of capacitors specifically intended for this application. This range is available in the popular 1206 case size and is manufactured from the stable COG/NPO dielectric. This is particularly suitable for the ballast operating frequencies of 20KHz to 100KHz.

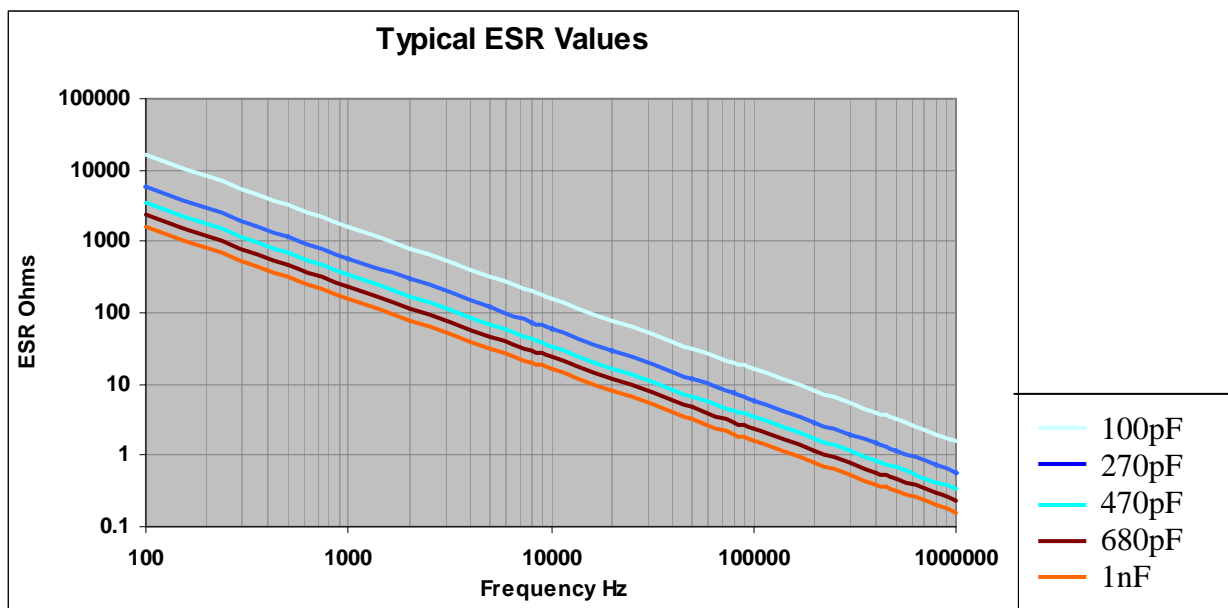
The range features capacitance values up to 1nF, with a maximum peak to peak voltage of 600V over a wide operating frequency range (see below).





Effective Series Resistance (ESR)

The low, stable ESR (see below) of this range, particularly at the ballast operating frequency 20 to 100KHz, results in a wide operating ambient temperature range of -55°C to $+100^{\circ}\text{C}$.



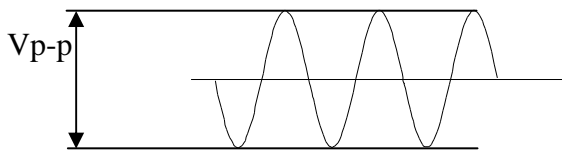


Pk to Pk Voltage

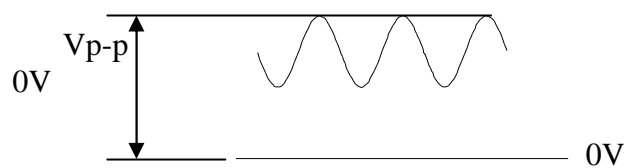
Voltage waveforms produced in ballasts result in very high dv/dt figures, this range is capable of withstanding a dv/dt in excess of 5000V/uSec. The voltage waveforms used may be of several varying types, depending on application. The maximum peak to peak voltage should be defined as below.

Definition of maximum Pk to Pk Voltage

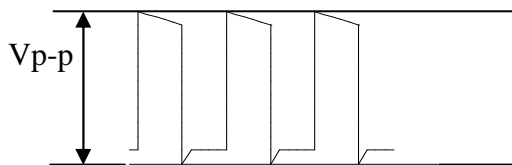
AC Voltage



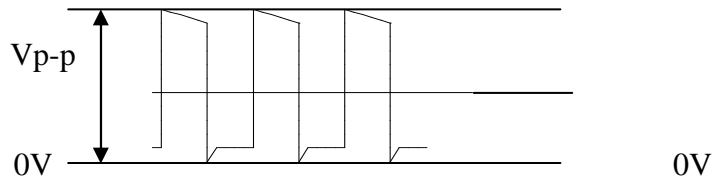
DC + AC Voltage



Pulsed Voltage



Pulsed Voltage



The rated peak to peak voltage of 600 volts should not be exceeded in each of the above options.

Ordering Information

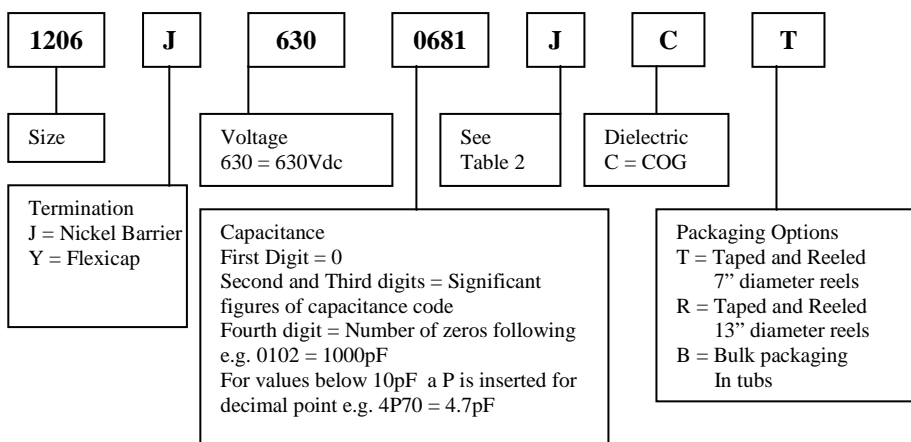


Table 2 Capacitance Tolerance

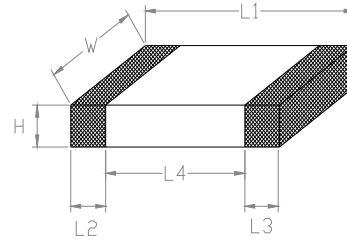
Nominal Cap value 4.7pF – 8.2pF
C = ± 0.25pF
D = ± 0.50pF
F = ± 1.0pF

Nominal Cap value 10pF – 1000pF
F = ± 1%
G = ± 2%
J = ± 5%
K = ± 10%



Mechanical Specification

Syfer Size	1206
Length (L1) mm	3.20 ± 0.30
Width (W) mm	1.60 ± 0.20
Thickness (H) mm	1.60 Max.
Termination Bands mm(L2, L3)	0.25 – 0.75
Creepage Distance (L4)	1.40 Min.
Termination Material	Nickel Barrier
Solderability	IEC 68-2-20



Electrical Specification

Dielectric	: COG 0 ± 30 ppm/°C
Operating Temperature range	: -55°C to + 100°C
Dissipation Factor	: Cr > 50pF ≤ 0.0015
	: Cr ≤ 50pF = 0.0015 (15+0.7)Cr
Rated Voltage	: 630Vdc/600V Peak to peak
Insulation Resistance	: >100Gohms
Voltage Proof	: 1.5 x Rated Voltage for 5 seconds
dv/dt Rating	: >5000V/uSec
Climatic Category	: 55/125/56
Ageing Rate	: Zero

For further information or technical assistance please contact our Sales Department on +44 1603 723310 or by Email at sales@syfer.co.uk