

## filter\_bp2.gce

### Attributes

```
mainvars: x y
stparams: y_sv=0 y1_sv=0
iparms: flag_asympt=0
rparams:
+   f0=1
+   k=1
+   B=0.5
```

### Description

`filter_bp2.gce` is a second-order band-pass filter with the transfer function given by

$$y(s) = k \frac{Bs}{s^2 + Bs + \omega_0^2} x(s), \quad (1)$$

where  $\omega_0 = 2\pi f_0$ .

In AC analysis, the above equation holds with the substitution  $s = j\omega$ . The integer parameter `flag_asympt` is useful for plotting the Bode approximations (magnitude and phase) of a transfer function involving `filter_bp2.gce`. When this flag is set to 1, the Bode approximation of Eq. 1 is used; if it is 0, normal (i.e., exact) computation of  $y(s)$  is carried out.