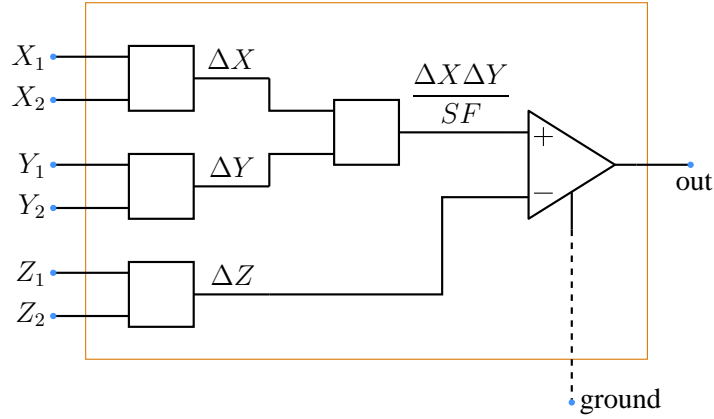


## multiplier\_1.gme

### Attributes

mainnodes\_anlg: x1 x2 y1 y2 z1 z2 out ground

rparms: sf=10 vcc=15



### Description

multiplier\_1.gme is an ideal behavioral model of the analog multiplier MPY634 for which

$$V_{\text{out}} = A \left[ \frac{(X_1 - X_2)(Y_1 - Y_2)}{SF} - (Z_1 - Z_2) \right]. \quad (1)$$

$SF$  is a scaling factor,  $A$  is the gain of the amplifier, and  $X_1$ ,  $X_2$ , etc. are the node voltages at the corresponding nodes in the figure. In applications involving this component, a feedback loop from the output to one of the inputs ensures that  $V_{\text{out}}$  is finite, and assuming the amplifier gain  $A$  to be large, we get

$$\frac{(X_1 - X_2)(Y_1 - Y_2)}{SF} \approx (Z_1 - Z_2). \quad (2)$$

AC behaviour is not implemented.