



Category: Current Source

**CIRCUIT IDEAS FOR DESIGNERS**

Schematic no. cs\_11004.0

**Current Source Multiplication****Description**

This is a current multiplication circuit. Current  $I_{SET}$  is set by determining  $V_+$  and  $R_{SET}$  values.  $I_{SET}$  is given by the equation:  $I_{SET} = (V_+ - V_{DS}) / R_{SET}$  where  $V_{DS}$  is the drain and gate connected voltage of  $Q_{SET}$  at the selected current level  $I_{SET}$ . The output current  $I_{SOURCE}$  is given by  $I_{SOURCE} = (n \times I_{SET})$  where  $n$  is the number of FETs connected in parallel. Note that all  $Q$ ,  $Q_{SET}$ ,  $Q_1$ ,  $Q_2 \dots Q_N$  must be of the same device type and the same threshold voltages but not necessarily from the same IC package. Devices from the same package would deliver better results due to close tracking of adjacent MOSFETs. ALD1108xx devices would generally give better results. If  $Q_{SET}$  is from ALD1108xx, then  $Q_1$  through  $Q_N$  must also be from the same ALD1108xx types.

For full schematic diagram and notes, please register and login at [aldinc.com](http://aldinc.com)