

Summary of BJT Current Mirrors

Current Mirror	Accuracy	Output Resistance	Input Resistance	Minimum Output Voltage	Minimum Input Voltage
Simple	Poor	r_o	$\frac{1}{g_m}$	$V_{CE}(\text{sat})$	V_{BE}
Cascode	Excellent	$\beta_F r_o$	$\frac{2}{g_m}$	$V_{CE}(\text{sat}) + V_{BE}$	$2V_{BE}$
Wide Output Swing Cascode	Excellent	$\beta_F r_o$	$\frac{1}{g_m}$	$2V_{CE}(\text{sat})$	V_{BE}
Self-biased Cascode	Excellent	$\beta_F r_o$	$R + \frac{1}{g_m}$	$2V_{CE}(\text{sat})$	$V_{CE}(\text{sat}) + V_{BE}$
Wilson	Poor	$\beta_F r_o$	$\frac{2}{g_m}$	$V_{CE}(\text{sat}) + V_{BE}$	$V_{CE}(\text{sat}) + V_{BE}$
Regulated Cascode	Good-Excellent	$\beta_F r_o$	$\frac{1}{g_m}$ or less	$V_{CE}(\text{sat})^*$	$V_{CE}(\text{sat})^*$

* One can design the regulated cascode so that effectively the minimum value of V_{MIN} (out) is just $V_{CE}(\text{sat})$.