FIGURE CAPTIONS

Chapter 1

Fig.1-1 Device/Circuit/System design process

Chapter 2

Fig.2-1 Small-signal equivalent circuit model for a SiGe HBT in the forward active region

Fig.2-2 Equivalent circuit for a SiGe HBT at open-collector bias condition

Fig.2-3 (a) Plot of Re(Z_{22}–Z_{21}), Re(Z_{11}–Z_{12}), and Re(Z_{12}) versus 1/I_B, freq = 1.0GHz. (b) Evolution of the Im(Z_{11}–Z_{12}), Im(Z_{12}), and Im(Z_{22}–Z_{21}) versus ω when the device is biased at high base current density (I_B=40 mA)

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Fig.2-17 Plot of $Im(A_{c,12}/|A_c|)$ versus 1/ω. V_{BE}=0.83V, V_{CE}=3V, I_C=1.516mA, and I_B=9.136μA

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Fig.2-22 Measured and simulated S12 and S21 of the 4×0.24×32 μm^2 SiGe HBT in the frequency range of 1–20 GHz biased at V_{BE}=0.83V, V_{CE}=3V, I_B=9.136μA, and I_C=1.516mA

Chapter 3

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Chapter 4

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