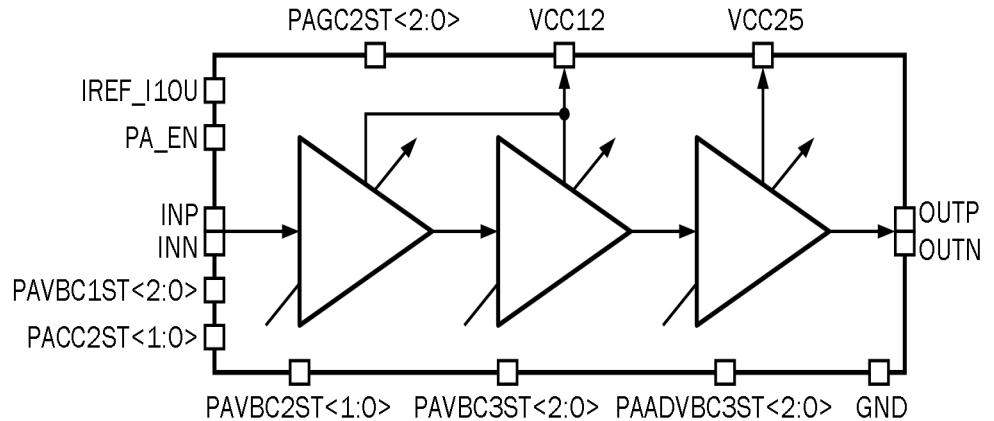


75 to 3000 MHz Power amplifier
OVERVIEW

065TSMC_PA_01 is a broadband power amplifier, which consist of three cascades. With a view to use QAM, QPSK, OFDM modulations schemes amplifier with increased linearity operating in A class is used. First cascade operates as preamplifier of incoming signal, also due to scheme of connection with



common gate it provides matching of input impedance in wide range of frequencies. Broadband amplification is reached due to tuning of resonance frequencies of two cascades to different values and also by including additional resistors into load networks, this provides necessary amplification levels on low frequencies.

IP technology: TSMC CMOS 65 nm.

IP status: silicon proven.

Area: 1.65mm².

ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Conditions	Value			Units
			min	typ.	max	
First supply analog voltage	V _{CC25}	-	2.375	2.5	2.625	V
Second supply analog voltage	V _{CC12}	-	1.14	1.20	1.26	V
Operating temperature range	T _j	-	-40	+85	+125	°C
Operating frequency range	F	-	75	-	3000	MHz
Input resistance	R _{IN}	-	-	25	-	Ohm
Output resistance	R _{OUT}	-	-	25	-	Ohm
Maximum output power	P _{MAX}	P _{in} = -13dBm, F = 3GHz	-	8.0	-	dBm
Input 1dB compression point	P _{1dB}	F = 75MHz	-	-9.5	-	dBm
		F = 3GHz	-	-10.5	-	dBm
Linear output third-order intercept point	OIP3	F = 75MHz	-	1	-	dBm
		F = 1.5GHz	-	1.98	-	dBm
		F = 3GHz	-	1.95	-	dBm
Current consumption in an active mode at maximum power output	@V _{CC25}	F = 75MHz	-	178	-	mA
		F = 1.5GHz	-	145	-	mA
		F = 3GHz	-	156	-	mA
	@V _{CC12}	F = 75MHz	-	68.4	-	mA
		F = 1.5GHz	-	67.1	-	mA
		F = 3GHz	-	61.9	-	mA
Current consumption in a standby mode	I _{ST}	@V _{CC25}	-	425	-	nA
		@V _{CC12}	-	277	-	nA
Digital input-logic high	V _{IH}	-	0.8V _{CC25}	-	V _{CC25}	V
Digital input-logic low	V _{IL}	-	0	-	0.2V _{CC25}	V