

DIFFERENTIAL/ CASCODE AMPLIFIER

CA3028A

General-purpose amplifier used in differential or cascode if amplifier, converter for FM broadcast band, limiter, mixer, oscillator, and audio, sense, and dc amplifier applications. 8-lead "TO-5" package; Outline No. 4. For schematic diagram and characteristics curves, see Figs. 138, 152, 153, 162, and 168.

MAXIMUM RATINGS

Positive DC Supply Voltage	V _{CC}	+18	V
Negative DC Supply Voltage	V _{EE}	-6	V
Input Signal Voltage (Single-ended)		6	V _{p-p}
Total Device Dissipation		300	mW
Temperature Range:			
Operating		-55 to 125	°C
Storage		-65 to 200	°C

TYPICAL CHARACTERISTICS (At ambient temperature = 25°C)

		Differential Amplifier	Cascode Amplifier	
Quiescent Operating Current:				
V _{CC} = +9V	I _Q or I _S	2.5	—	mA
V _{CC} = +12V	I _Q or I _S	3.4	—	mA
Input Bias Current:				
V _{CC} = +9V	I _I	29	—	μA
V _{CC} = +12V	I _I	44	—	μA
AGC Bias Current (Into Constant-Current Source Terminal No. 7):				
V _{AGC} = +9V	I _{AGC}	1.28		mA
V _{AGC} = +12V	I _{AGC}	1.65		mA
Device Dissipation:				
V _{CC} = +9V	P _T	56		mW
V _{CC} = +12V	P _T	113		mW
Power Gain:				
V _{CC} = +9V, f = 100 MHz	G _P	17	20	dB
V _{CC} = +9V, f = 10.7 MHz	G _P	32	39	dB
Noise Figure:				
(V _{CC} = +9V, f = 100 MHz)	NF	6.7	7.2	dB
Input Admittance				
(V _{CC} = +9V, f = 10.7 MHz)	Y ₁₁	0.5 + j0.5	0.6 + j1.6	mmho
Reverse Transfer Admittance				
(V _{CC} = +9V, f = 10.7 MHz)	Y ₁₂	0.01 - j0.0002	0.0003 - j0	mmho
Forward Transfer Admittance				
(V _{CC} = +9V, f = 10.7 MHz)	Y ₂₁	-37 + j0.5	99 - j18	mmho
Output Admittance				
(V _{CC} = +9V, f = 10.7 MHz)	Y ₂₂	0.04 + j0.23	0 + j0.08	mmho
Power Output (Untuned)				
(V _{CC} = +9V, f = 10.7 MHz)	P _O	5.7	—	μW
Voltage Gain				
(V _{CC} = +9V, R _L = 1 kΩ, f = 10.7 MHz)	A	32	98	dB
Useful Frequency Range		dc to 120		MHz
AGC Range, Maximum Power Gain to Full Cutoff:				
(V _{CC} = +9V, f = 10.7 MHz)	AGC	62	—	dB