

MOTOROLA SEMICONDUCTOR TECHNICAL DATA

The RF Line

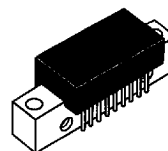
Wideband Linear Amplifiers

... designed for amplifier applications in 50 to 100 ohm systems requiring wide bandwidth, low noise and low distortion. This hybrid provides excellent gain stability with temperature and linear amplification as a result of the push-pull circuit design.

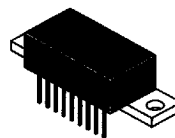
- Specified Characteristics at $V_{CC} = 15\text{ V}$, $T_C = 25^\circ\text{C}$:
 - Frequency Range — 10 to 1200 MHz
 - Output Power — 1.0 W Typ @ 1 dB Compression, $f = 900\text{ MHz}$
 - Power Gain — 15.5 dB Typ @ $f = 1000\text{ MHz}$
 - Noise Figure — 7.5 dB Typ @ $f = 500\text{ MHz}$
 - ITO — 40.5 dBm Typ @ $f = 1000\text{ MHz}$
- All Gold Metallization for Improved Reliability
- Optimized for 15 Volt Operation
- CA5915 is Optimized for 15 V Operation

CA5915 CA5915S

15 dB
10–1200 MHz
1.0 WATT
WIDEBAND
LINEAR AMPLIFIERS



CASE 714P, STYLE 3
(CA)
CA5915



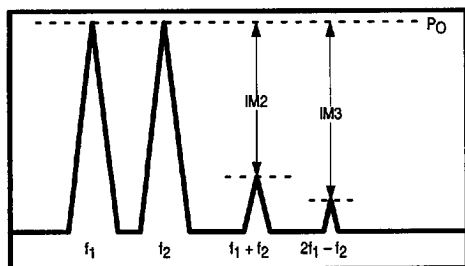
CASE 714T, STYLE 2
CA5915S

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
DC Supply Voltage	V_{CC}	18	Vdc
RF Power Input	P_{in}	+20	dBm
Operating Case Temperature Range	T_C	-40 to +100	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to +125	$^\circ\text{C}$

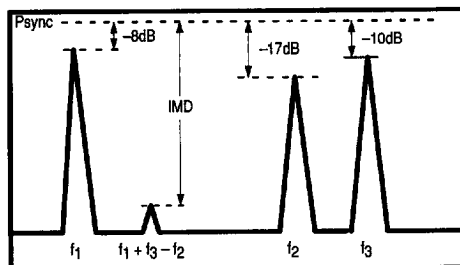
ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$, $V_{CC} = 15\text{ V}$, 50 Ω system unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Supply Current	I_{CC}	—	700	760	mA
Frequency Range (3 dB Down at 10 MHz)	BW	10	—	1200	MHz
Gain Flatness ($f = 40\text{--}1200\text{ MHz}$)	—	—	1	2	dB
Power Gain ($f = 1000\text{ MHz}$)	P_G	14.5	15.5	—	dB
Noise Figure, Broadband $f = 500\text{ MHz}$ $f = 1200\text{ MHz}$	NF	—	7.5 8.5	8.5 9.5	dB
Power Output — 1.0 dB Compression ($f = 900\text{ MHz}$)	P_O 1dB	800	1000	—	mW
Third Order Intercept (See Figure 1, $f_1 = 10\text{--}1200\text{ MHz}$)	ITO	—	40.5	—	dBm
Input/Output VSWR $f = 40\text{--}900\text{ MHz}$ $f = 900\text{--}1200\text{ MHz}$	VSWR	— —	— 2.6:1	2:1 —	—
Second Harmonic Distortion ($P_O = 100\text{ mW}$, $f_{2H} = 1200\text{ MHz}$)	d_{so}	—	-50	-45	dB
Intermodulation Distortion, 3 Tone (Vision Carrier = -8.0 dB, Sound Carrier = -10 dB, Sideband Signal = -17 dB. See Figure 2, $f = 860\text{ MHz}$, $P_{sync} = 200\text{ mW}$)	IMD	—	-60	—	dB
Second Order Intermodulation Distortion ($P_O = 2.75\text{ dBm}$, $f_1 = 373\text{ MHz}$, $f_2 = 450\text{ MHz}$, See Figure 1)	IM2	—	-65	-60	dB



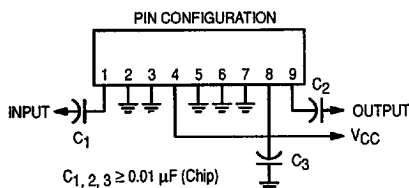
$$ITO = P_O + \frac{IM3}{2} @ IM3 > 60dB$$

Figure 1. 2-Tone Intermodulation, Test A



f1: video
f2: sideband
f3: sound

Figure 2. 3-Tone TV Intermodulation Test



CA5915 (Case 714P-02, Style 3)
CA5915S (Case 714T-02, Style 2)

Figure 3. External Connections