μA703

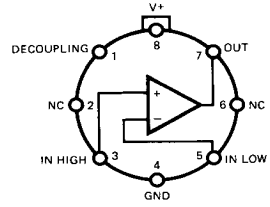
RF-IF AMPLIFIER

FAIRCHILD LINEAR INTEGRATED CIRCUITS

GENERAL DESCRIPTION — The μA703 is a monolithic RF-IF Amplifier constructed using the Fairchild Planar* epitaxial process and is intended for use as a limiting or non-limiting amplifier, harmonic mixer, or oscillator to 150 MHz. The low internal feedback of the device insures a higher stability-limited gain than that available from conventional circuitry. Including the biasing network in the same package reduces the number of external components required, thereby increasing the reliability and versatility of the device.

- **29 mmho MINIMUM FORWARD TRANSADMITTANCE**
- **1.0 mmho/0.05 mmho MAXIMUM INPUT/OUTPUT CONDUCTANCE**
- **18 pF/4.0 pF MAXIMUM INPUT/OUTPUT CAPACITANCE**

CONNECTION DIAGRAM
8-PIN METAL CAN
(TOP VIEW)
PACKAGE OUTLINE 5C
PACKAGE CODE H



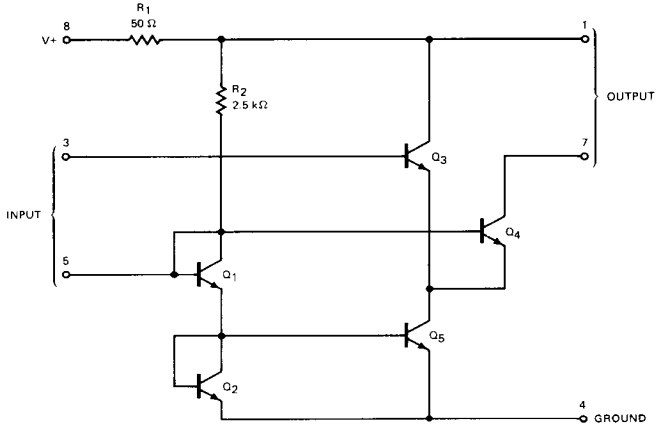
ORDER INFORMATION

TYPE	PART NO.
μA703	μA703HM
μA703C	μA703HC

ABSOLUTE MAXIMUM RATINGS

Supply Voltage	20 V
Output Collector Voltage	24 V
Voltage Between Input Terminals	±5.0 V
Internal Power Dissipation	200 mW
Operating Temperature Range (μA703)	−55°C to +125°C
Operating Temperature Range (μA703C)	0°C to +70°C
Storage Temperature Range	−65°C to +150°C
Pin Temperature (Soldering, 10 s)	300°C

EQUIVALENT CIRCUIT



*Planar is a patented Fairchild process.

μA703

ELECTRICAL CHARACTERISTICS: $T_A = 25°C$, $V_+ = 12$ V unless otherwise specified

CHARACTERISTICS	CONDITIONS	MIN	TYP	MAX	UNITS
Power Consumption	$e_{IN} = 0$		110	170	mW
Quiescent Output Current	$e_{IN} = 0$	2.1	2.5	3.1	mA
Peak-to-Peak Output Current	$e_{IN} = 400$ mV rms, f = 1 kHz	4.0			mA
Output Saturation Voltage				1.7	V
Forward Transadmittance	$e_{IN} = 10$ mV rms $f \leq 1$ kHz	29	35		mmbo
Input Conductance	$e_{IN} < 10$ mV rms, $f \leq 5$ MHz		0.30	0.43	mmbo
Input Capacitance	$e_{IN} < 10$ mV rms, $f \leq 5$ MHz		7.0	16.0	pF
Output Capacitance	$f \leq 5$ MHz		2.0	3.0	pF
Output Conductance	$e_O \leq 100$mV rms, $f \leq 5$ MHz		0.02	0.04	mmbo
The following specifications apply for $-55°C \leq T_A \leq +125°C$					
Quiescent Output Current	$e_{IN} = 0$	1.7		3.1	mA
Peak-to-Peak Output Current	$e_{IN} = 400$ mV rms, f = 1 kHz	3.2			mA
Output Saturation Voltage				1.8	V
Forward Transadmittance	$e_{IN} = 10$ mV rms, $f \leq 1$ kHz	21			mmbo
Input Conductance	$e_{IN} < 10$ mV rms, $f \leq 5$ MHz			1.2	mmbo
Output Conductance	$e_O \leq 100$ mV rms, $f \leq 5$ MHz			0.05	mmbo

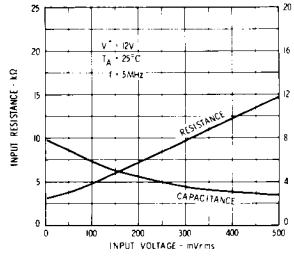
μA703C

ELECTRICAL CHARACTERISTICS: $T_A = 25°C$, $V_+ = 12$ V unless otherwise specified)

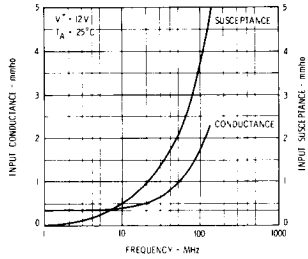
CHARACTERISTICS	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Supply Current	$e_{IN} = 0$		9.0	14	mA
Power Consumption	$e_{IN} = 0$		110	170	mW
Quiescent Output Current	$e_{IN} = 0$	1.5	2.5	3.3	mA
Peak-to-Peak Output Current	$e_{IN} = 400\ mV_{rms}$, f = 1 kHz	3.0			mA
Output Saturation Voltage	$I_7 = 2.5$ mA			1.7	V
Forward Transadmittance	$e_{IN} = 10\ mV_{rms}$, f = 1 kHz	29	33		mmho
Input Conductance	$e_{IN} < 10\ mV_{rms}$, f = 10.7 MHz		0.35	1.0	mmho
Input Capacitance	$e_{IN} < 10\ mV_{rms}$, f = 10.7 MHz		9.0	18	pF
Output Conductance	$e_{OUT} = 100\ mV_{rms}$, f = 10.7 MHz		0.03	0.05	mmho
Output Capacitance	$e_{OUT} = 100\ mV_{rms}$, f = 10.7 MHz		2.0	4.0	pF
Noise Figure	f = 10.7 MHz, $R_S = 500\ \Omega$		6.0		dB
	f = 100 MHz, $R_S = 500\ \Omega$		8.0		dB

TYPICAL PERFORMANCE CURVES FOR μA703

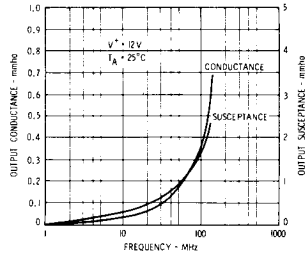
INPUT RESISTANCE AND CAPACITANCE AS A FUNCTION OF INPUT VOLTAGE



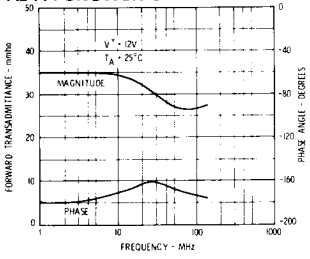
INPUT ADMITTANCE AS A FUNCTION OF FREQUENCY



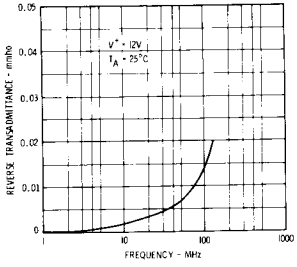
OUTPUT ADMITTANCE AS A FUNCTION OF FREQUENCY



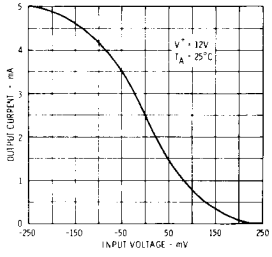
FORWARD TRANSADMITTANCE AS A FUNCTION OF FREQUENCY



MAXIMUM REVERSE TRANSADMITTANCE AS A FUNCTION OF FREQUENCY



OUTPUT CURRENT AS A FUNCTION OF INPUT VOLTAGE



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