BIPOLAR ANALOG INTEGRATED CIRCUIT

μPC1018C

AM TUNER, AM/FM-IF AMPLIFIER CIRCUIT
SILICON BIPOLAR MONOLITHIC INTEGRATED CIRCUIT

DESCRIPTION

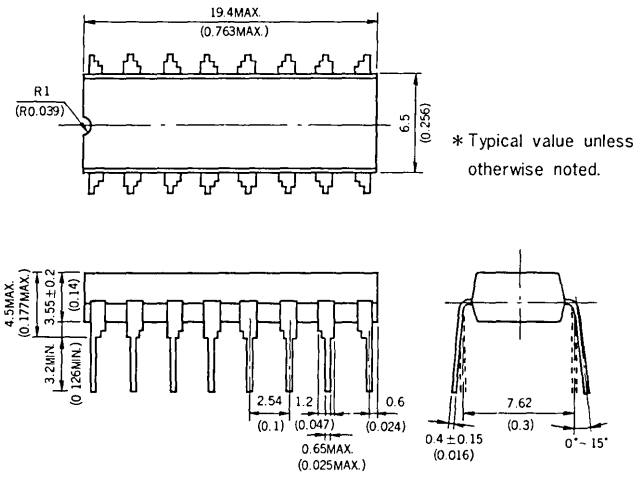
The μPC1018C is a silicon monolithic integrated circuit designed for AM/FM radios and cassette tape recorders with an AM/FM radio.

The μPC1018C contains a AM tuner and FM-IF amplifiers.

FEATURES

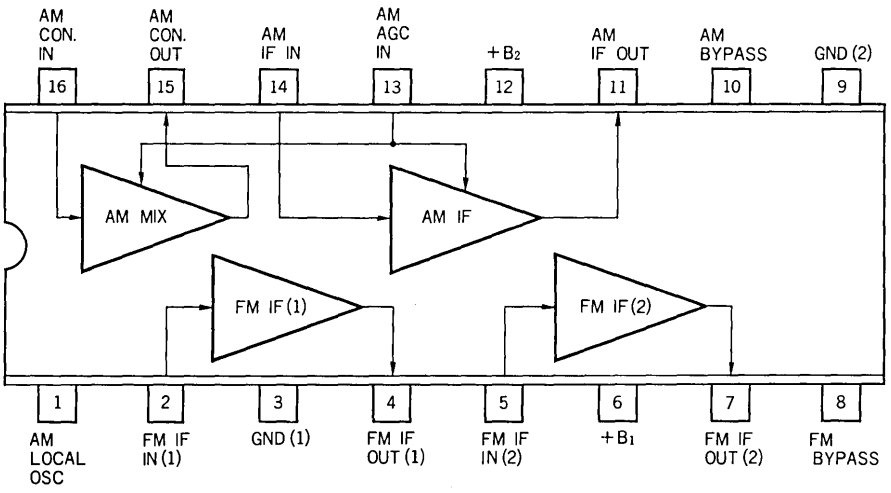
- Wide operating voltage. V_{CC} = 2.5 ~ 6.0V
- Excellent low voltage characteristics.
- High gain FM-IF amplifiers.
- The AM stage is composed of a mixer, a local oscillator, a IF amplifier and an AGC circuit.
- The AM stage has an excellent AGC characteristic and low distortion.

PACKAGE DIMENSIONS in millimeters (inches)



* Typical value unless otherwise noted.

BLOCK DIAGRAM (Top View)



ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

Supply Voltage	V_{CC}	9.0	V
Package Dissipation	P_D	350*	mW
Operating Temperature	T_{opt}	−20 to +75	°C
Storage Temperature	T_{stg}	−40 to +125	°C

*Ta = 75°C

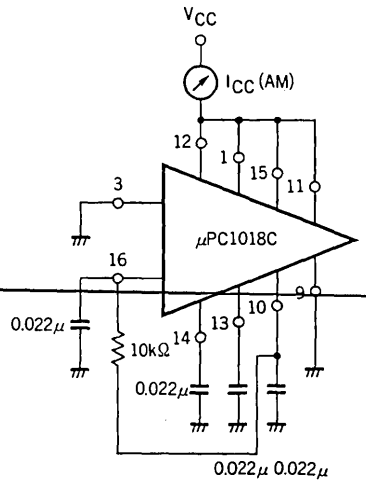
RECOMMENDED OPERATING CONDITION (Ta = 25°C)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V_{CC}	2.5	4.0	6.0	V

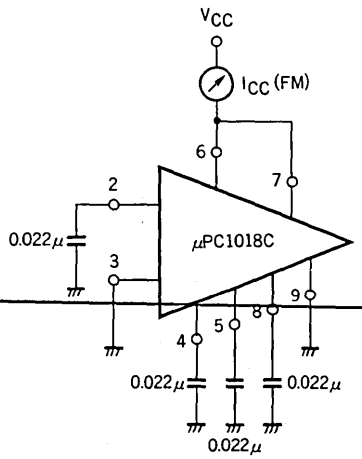
ELECTRICAL CHARACTERISTICS (Ta = 25°C, V_{CC} = 4.0V)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS	TEST CIRCUIT
Circuit Current	I_{CC}(AM)	4.5	8.0	11.5	mA	No Signal (AM)	1
Voltage Gain (MIX)	A_v (MIX)	7.5	11.5	15.5	dB	f=1MHz, R_G=50Ω R_L=1kΩ (AM)	3
Voltage Gain (IF)	A_v (IF)	44.0	50.0	56.0	dB	f=455kHz, R_G=50Ω R_L=330Ω (AM)	3
Circuit Current	I_{CC}(FM)	5.0	9.0	13.0	mA	No Signal (FM)	2
Voltage Gain (IF_1)	A_v (IF_1)	38.0	42.0	46.0	dB	f=10.7MHz, R_G=50Ω R_L=1kΩ (FM)	4
Voltage Gain (IF_2)	A_v (IF_2)	27.0	33.0	39.0	dB	f=10.7 MHz, R_G=50Ω R_L=330Ω (FM)	4

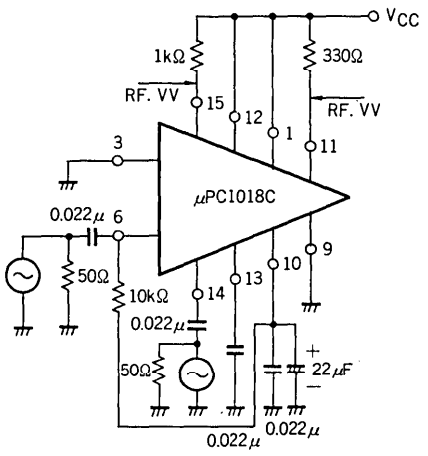
TEST CIRCUIT 1



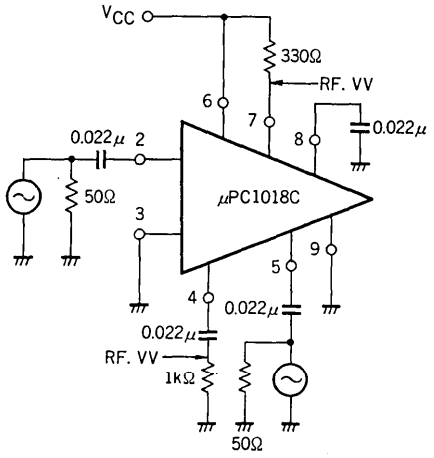
TEST CIRCUIT 2



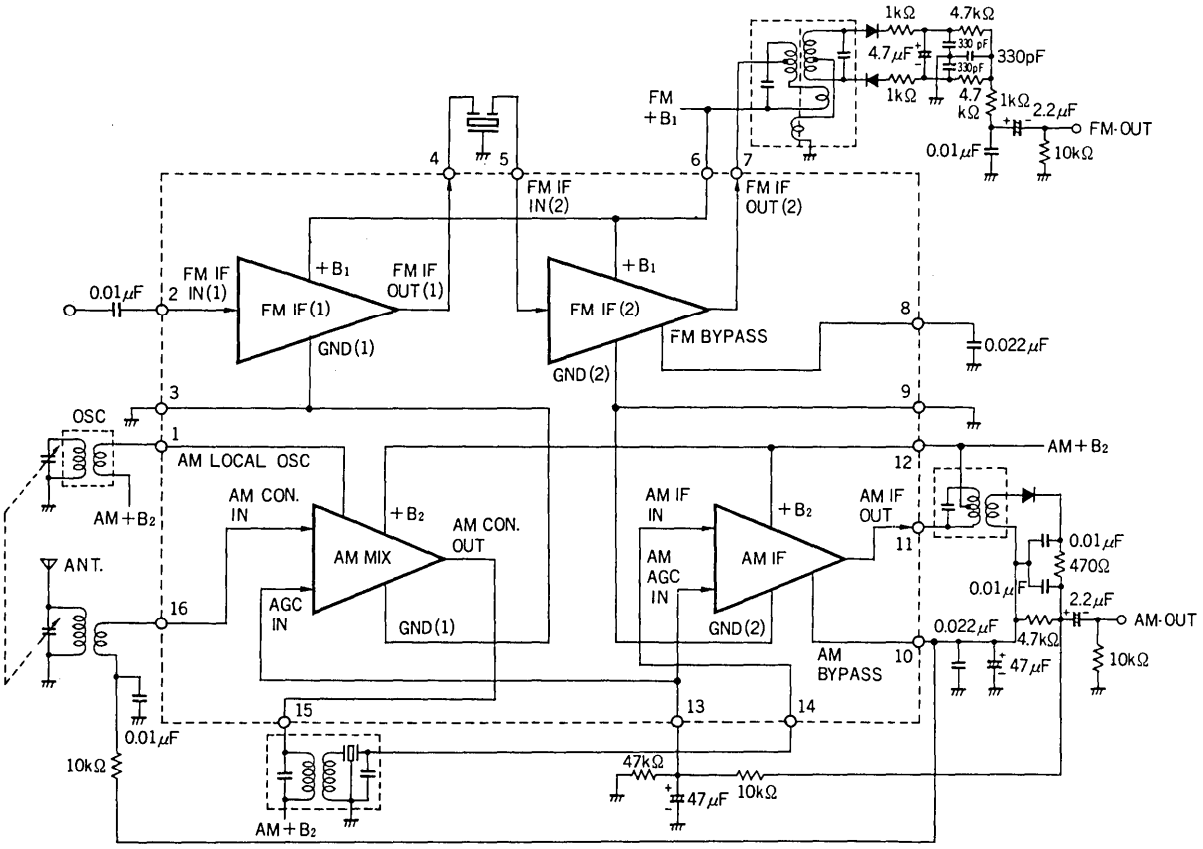
TEST CIRCUIT 3



TEST CIRCUIT 4



TYPICAL APPLICATION

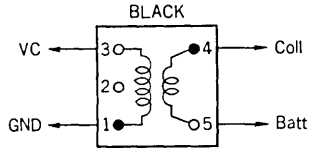


COIL SPECIFICATIONS

① AM LOCAL OSCILATION COIL (MW) 7BR-4398X (TOKO)

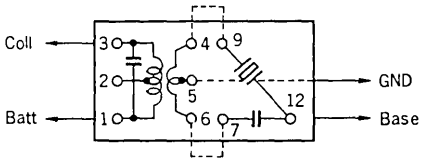
TYPE NO. 7P
BODY COLOR BLACK

1−3 65T
4−6 11T



L=150μH (±6%)
Qu>80 (f=1.4MHz)

② AM IF COIL CFZ-455C (TOKO)

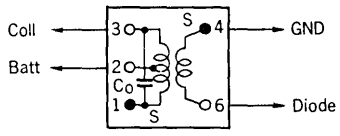


BAND WIDTH 6kHz MIN.
SELECTIVITY (±10kHz DETUNING) 20dB MIN.

③ AM DETECTION COIL (455kHz) 7LC-252222No. (TOKO)

TYPE NO. 7P
BODY COLOR BLACK

1−3 146T
2−3 37T
4−6 33T

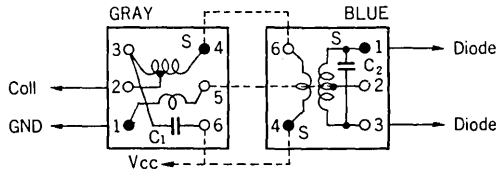


CAPACITOR Co·····180pF
Qu·····70±20%

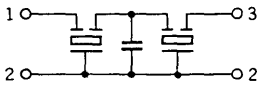
④ FM DETECTION COIL (10.7MHz) (TOKO)

		CAPACITOR						
PLIMARY	119AC-470085L8	(GRAY) 47pF(C_1)	4−2	5½T	2−3	8T	1−5	5½T
SECONDARY	119FC-560061N6	(BLUE) 56pF(C_2)	1−2	6T	2−3	6T	4−6	1T

TYPE NO. 7P



⑤ FM CERAMIC FILTER (10.7MHz) CFS-107M (TOKO)

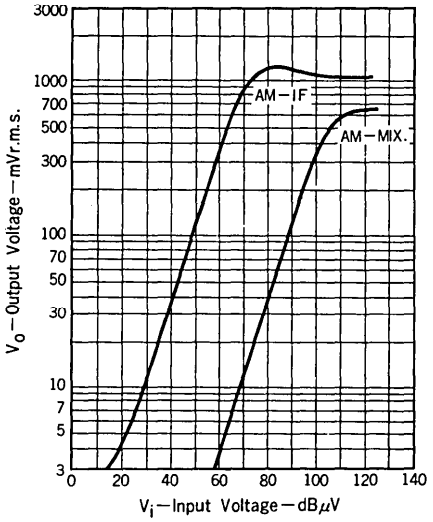


1. INPUT
2. GND
3. OUTPUT

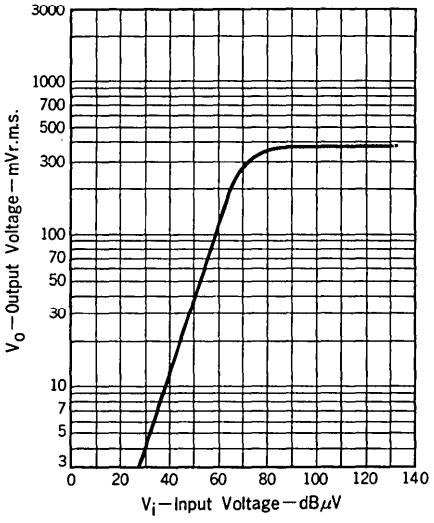
− 3dB BAND WIDTH·····300±50kHz
−20dB BAND WIDTH·····600kHz(MAX.)
INSERTION LOSS·····6dB(MAX.)

TYPICAL CHARACTERISTICS (Ta = 25°C)

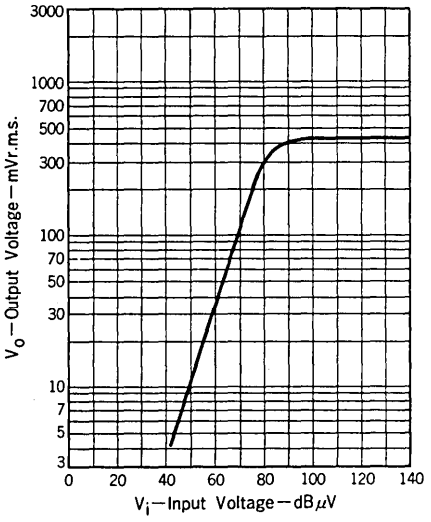
AM–MIX, AM–IF
OUTPUT VOLTAGE vs. INPUT VOLTAGE



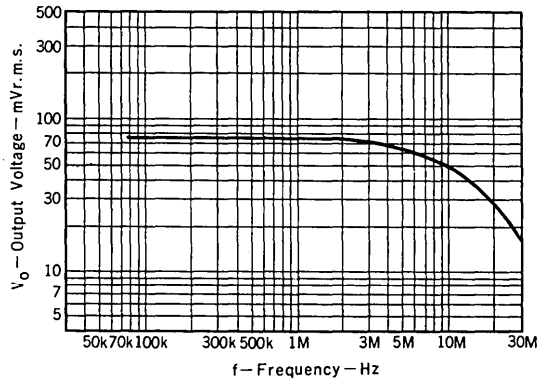
$FM–IF_1$
OUTPUT VOLTAGE
vs. INPUT VOLTAGE



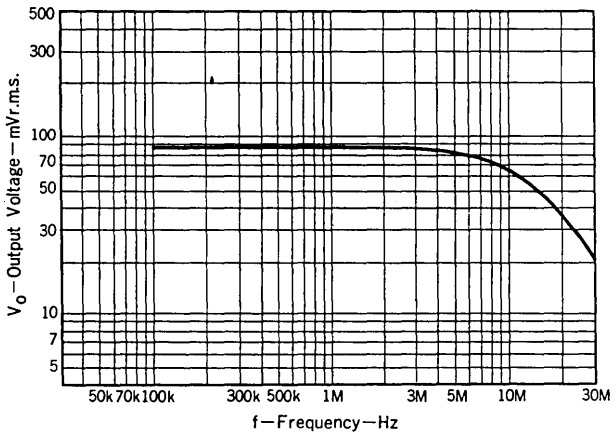
$FM–IF_2$
OUTPUT VOLTAGE vs.
INPUT VOLTAGE



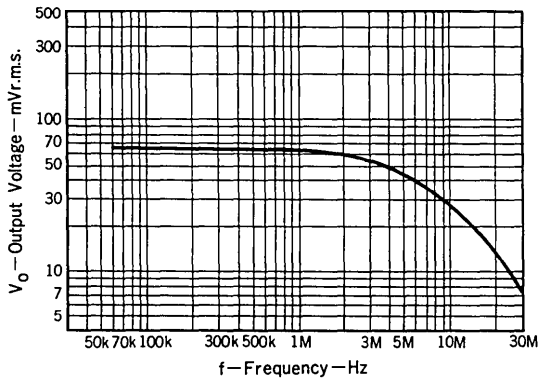
AM–MIX
OUTPUT VOLTAGE vs. FREQUENCY



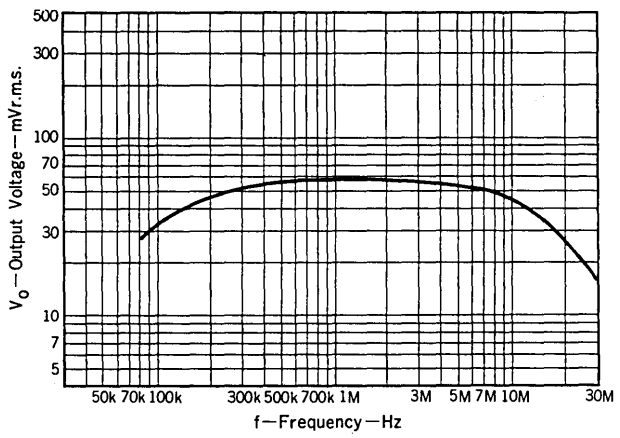
$FM–IF_1$
OUTPUT VOLTAGE vs. FREQUENCY



AM–IF
OUTPUT VOLTAGE vs. FREQUENCY



FM–IF
OUTPUT VOLTAGE vs. FREQUENCY



P.W. BOARD PATTERN