

FEATURES

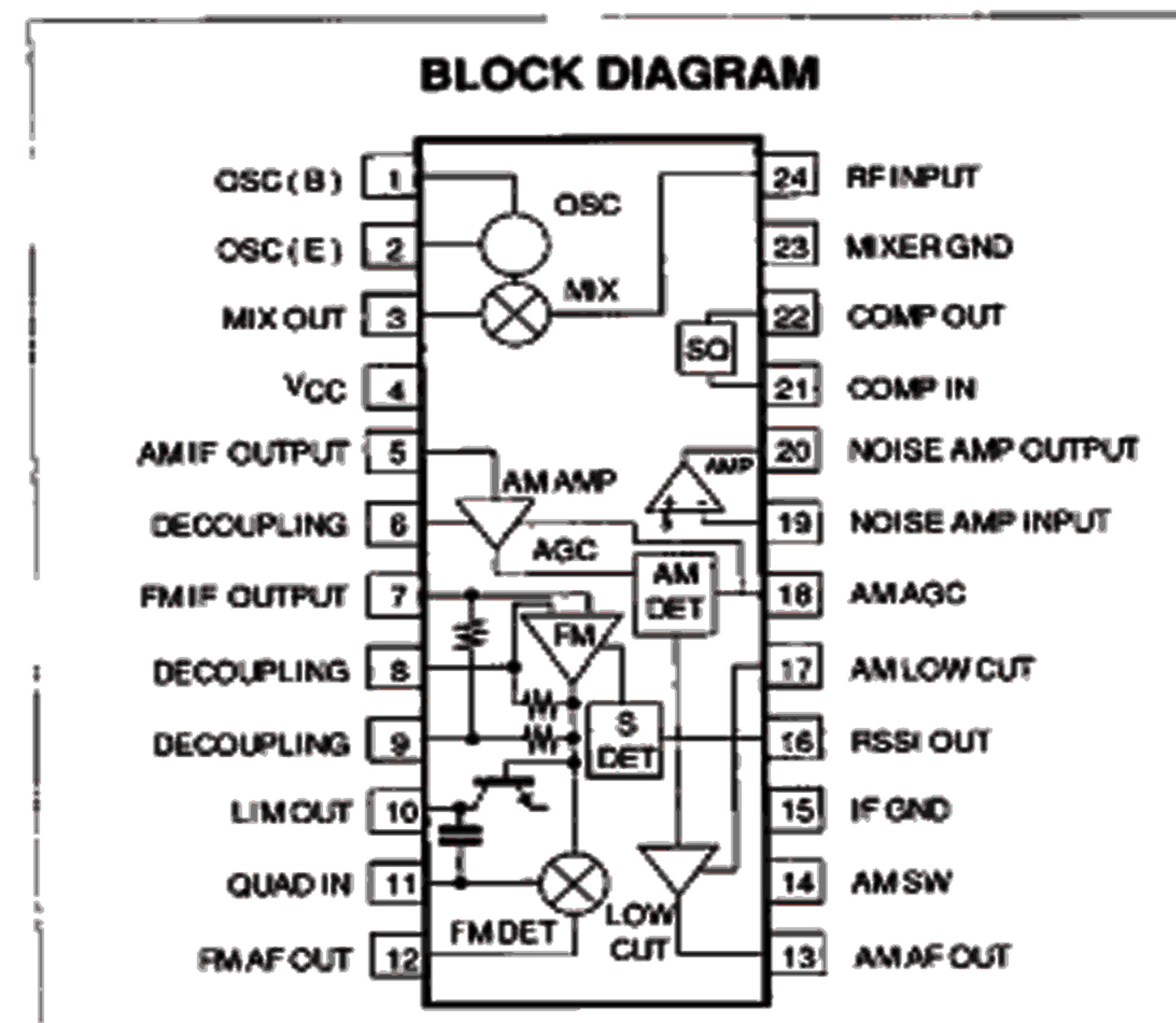
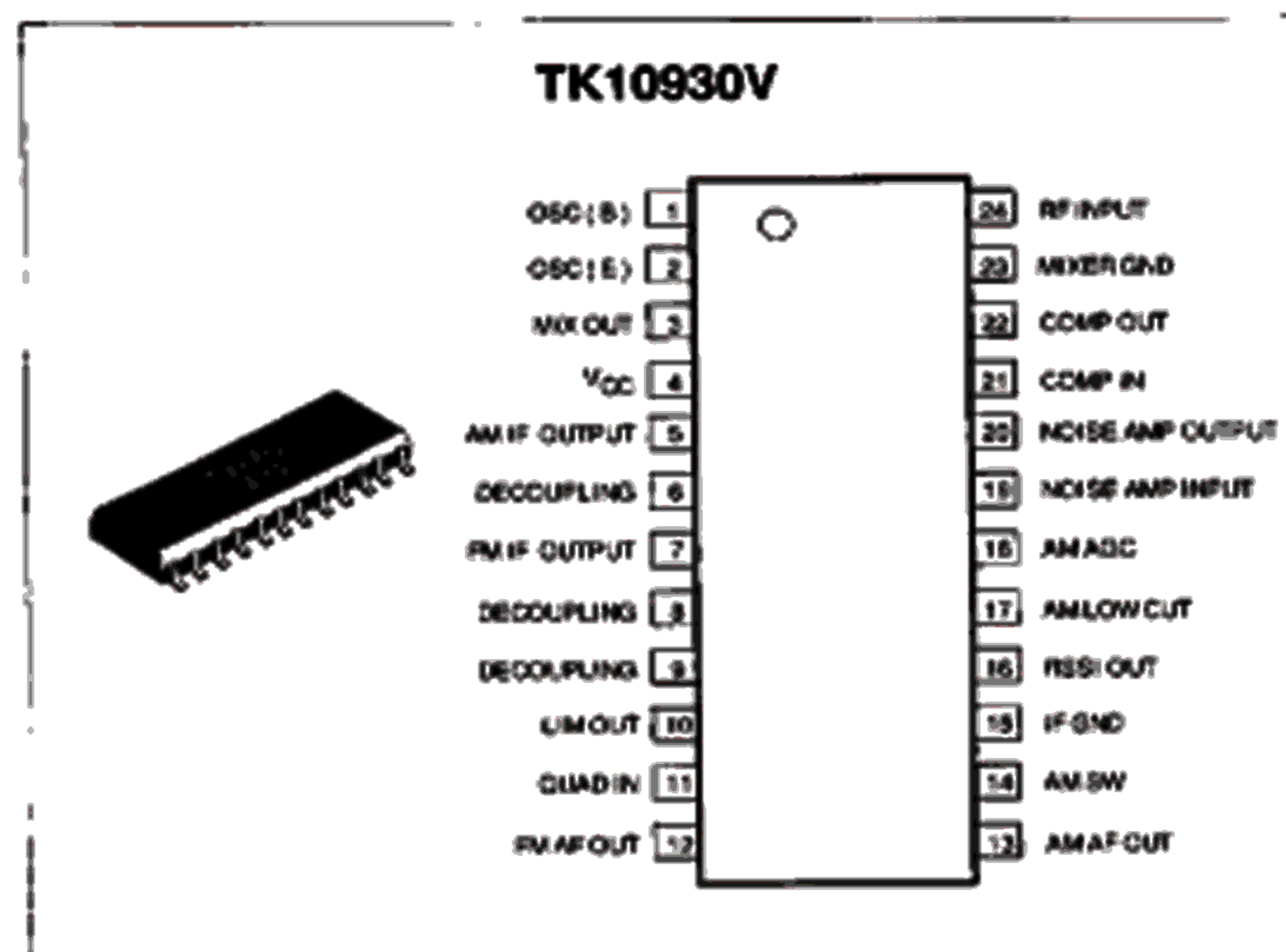
- AM/FM Simultaneous Detection
- Low Voltage Operation
- Low Operation Current AM & FM (6.8 mA TYP)
FM Only (3.9 mA TYP)
- Small Surface Mount Package

APPLICATIONS

- Portable Instrumentation
- Communications Receivers
- Amateur Radio Transceivers
- Scanners

DESCRIPTION

The TK10930 is a AM/FM Detector IF IC specially suited where simultaneous AM and FM signal detection is required. This makes the device suited for portable scanners, aircraft receivers, amateur radio, and is specially designed for portable operation due to low voltage and current requirements. The TK10930 is available in a VSOP-24 surface mount package.



ORDERING INFORMATION

TK10930 □ □ □ □

□ □ □ □
 ————
 □ □ □ □
 ————
 □ □ □ □
 ————
 □ □ □ □
 ————
 □ □ □ □

Tape/Reel Code
 Temp. Range
 Package Code

PACKAGE CODE	TEMP. RANGE	TAPE/REEL CODE
V: Surface Mount	C: -30 to +75 °C	BX: Bulk/Bag TX: Paper Tape TR: Tape Right TL: Tape Left MG: Magazine

TK10930

ABSOLUTE MAXIMUM RATINGS

Input Voltage V_{CCMAX} 10 V
 Operating Voltage Range 2.5 to 8.5 V
 Power Dissipation (Note 1) 400 mW
 Junction Temperature 150 °C

Storage Temperature Range -55 to +150 °C
 Operating Temperature Range -30 to +75 °C
 Lead Soldering Temp. (10 sec.) 300 °C

ELECTRICAL CHARACTERISTICS

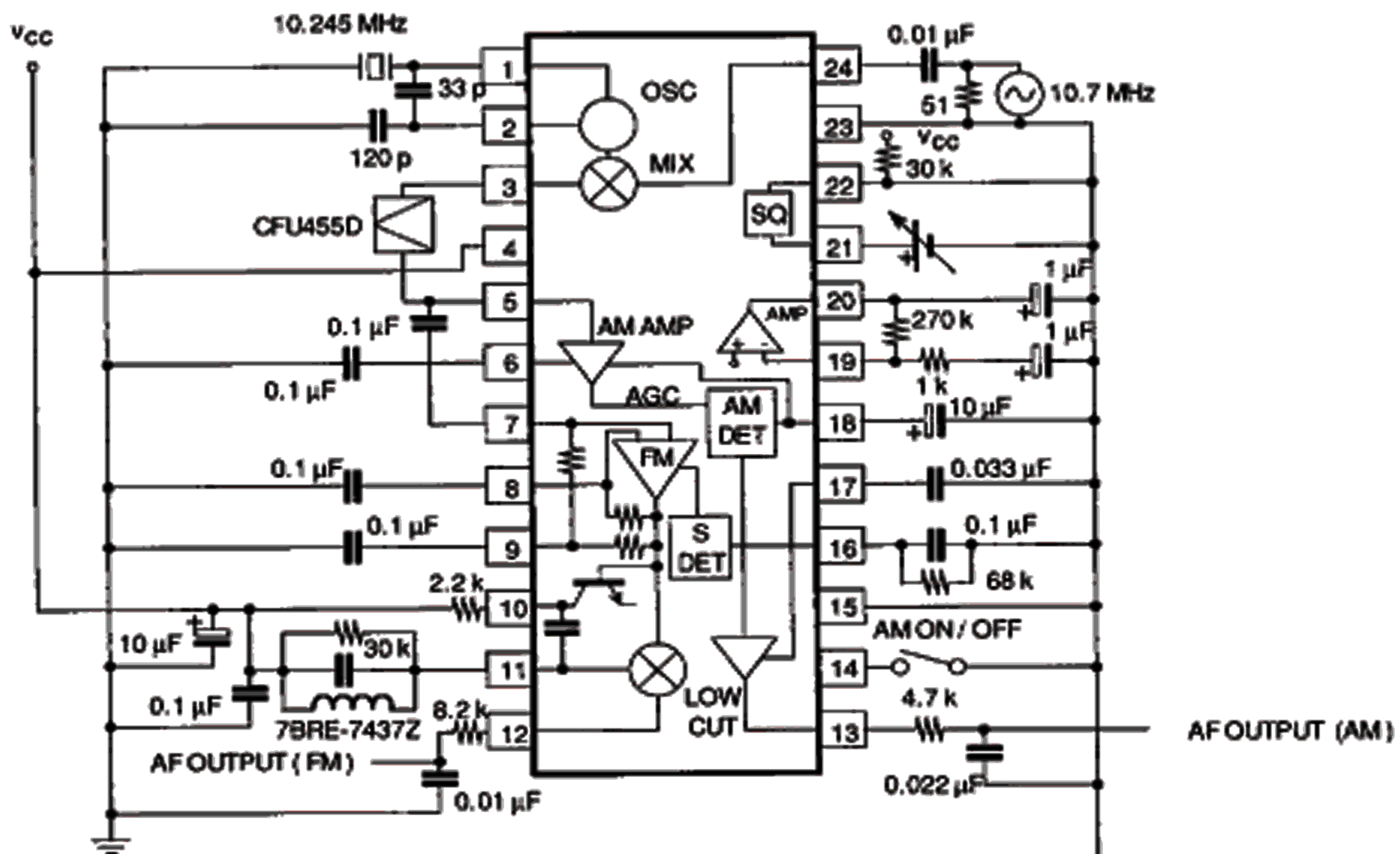
Test conditions: $V_{CC} = 3.0$ V, $T_A = 25$ °C, unless otherwise specified.

SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I_{CC1}	Supply Current 1	No input		6.8	8.9	mA
I_{CC2}	Supply Current 2	No input		3.9	5.3	mA
M_C	Mixer Conversion Gain			20		dB
M_Z	Mixer Input Resistance	Measurement		3.6		k Ω
FM Section						
Limit 1	Limiting Sensitivity	-3 dB Point		2.0	8.0	μ V
V_{OUT1}	Demodulation Output Voltage	$V_{IN} = 10$ mV, ± 3 kHz DEV	85	150	230	mV(rms)
THD 1	Total Harmonic Distortion	$V_{IN} = 10$ mV, ± 3 kHz DEV		1.0	2.0	%
Z_{OUT}	Output Impedance	$V_{IN} = 10$ mV		800		Ω
THD	Total Harmonic Distortion	$V_{IN} = 10$ mV		1.0	2.0	%
F_G	Filter Amplifier Gain	$F_{IN} = 30$ kHz, $V_O = 100$ mV	30	38		dB
S_H	Scan Control High Level	2.5 V Squelch Input	2.3			V
S_L	Scan Control Low Level	0 V Squelch Input			0.3	V
HYS	Squelch Hysteresis			30		mV
S_0	Output Voltage	$V_{IN} = 0.00$ mV, $R_S = 68$ k Ω		0.05	0.5	V
S_1	Output Voltage 1	$V_{IN} = 0.01$ mV, $R_S = 68$ k Ω	0.05	0.5	0.9	V
S_2	Output Voltage 2	$V_{IN} = 0.1$ mV, $R_S = 68$ k Ω	0.7	1.2	1.7	V
S_3	Output Voltage 3	$V_{IN} = 1$ mV, $R_S = 68$ k Ω	1.2	1.8	2.5	V

Note 1: Power dissipation must be derated at the rate of 3.3 mW/°C at $T_A = 25$ °C and above.

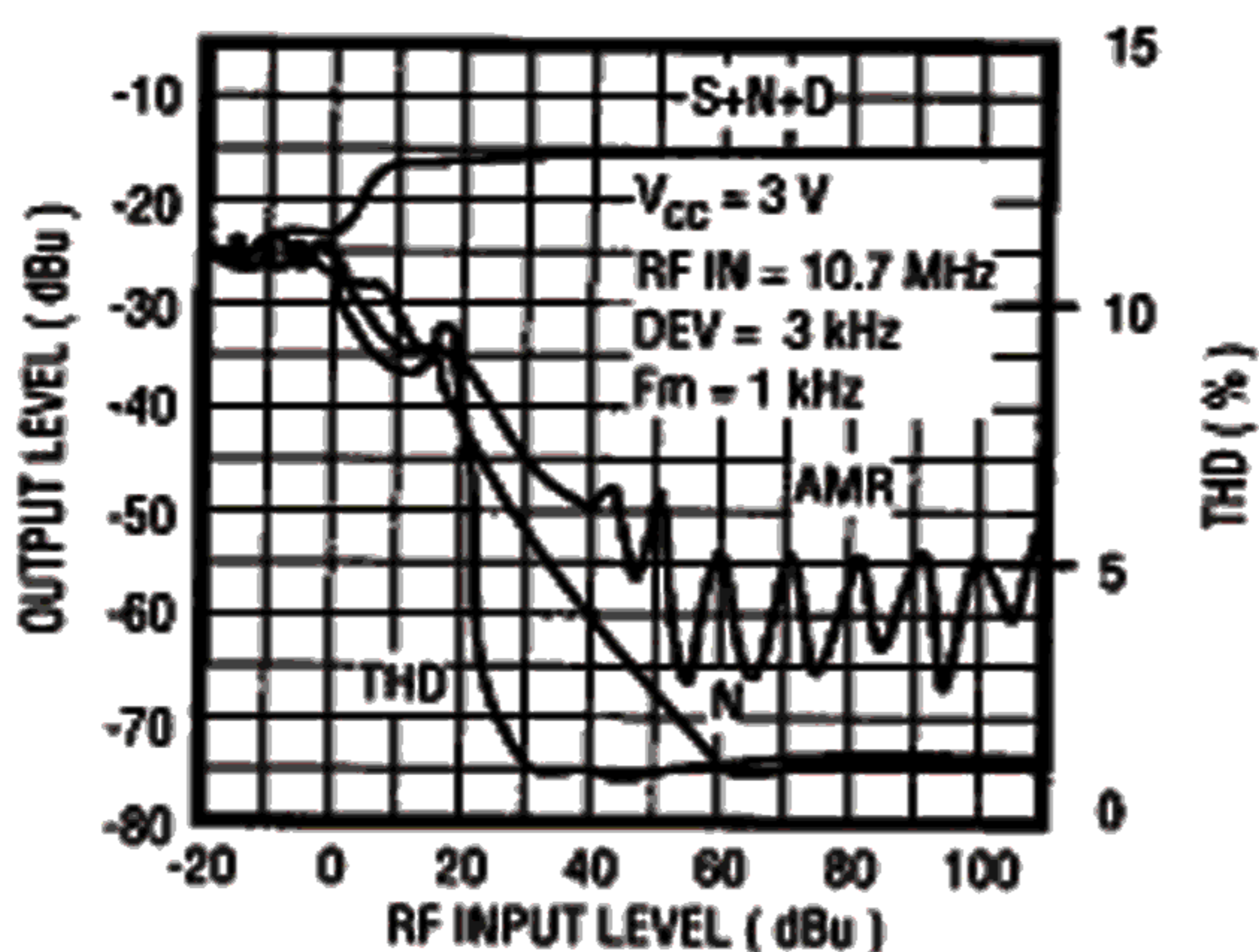
ELECTRICAL CHARACTERISTICS (CONT.)Test conditions: $V_{CC} = 3.0\text{ V}$, $T_A = 25\text{ }^\circ\text{C}$, unless otherwise specified.

SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS
S_4	Output Voltage 4	$V_{IN} = 10\text{ mV}$, $R_S = 68\text{ k}\Omega$	1.6	2.3	2.9	V
S_5	Output Voltage 5	$V_{IN} = 100\text{ mV}$, $R_S = 68\text{ k}\Omega$	1.8	2.4	2.9	V
AM Section						
US	Sensitivity	20 mV(rms)	20	15		dB μ
V_{OUT2}	Demodulation Output Voltage	1 kHz 30%, $V_{IN} = 1\text{ mV}$	60	120	160	mV(rms)
THD 2	Total Harmonic Distortion 1	1 kHz 30%, $V_{IN} = 1\text{ mV}$		1.0	2.0	%
THD 3	Total Harmonic Distortion 2	1 kHz 80%, $V_{IN} = 1\text{ mV}$		2.0	4.0	%
S/N	S/N	1 kHz 30%, $V_{IN} = 1\text{ mV}$	40	48		dB
V_{OUT}	AM On DC Level (Pin 14)		-0.3		0.3	V

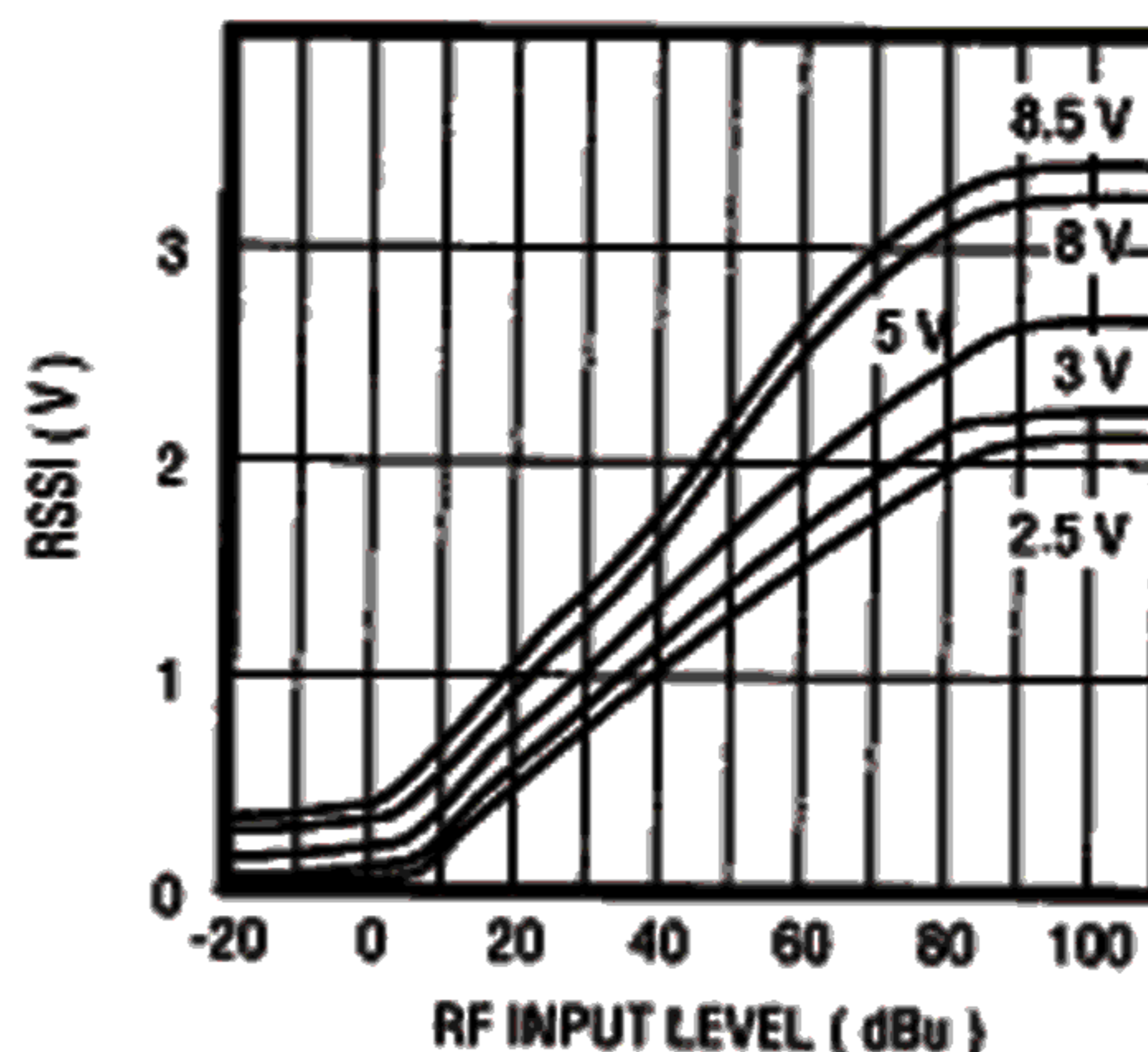
TEST CIRCUIT

TYPICAL PERFORMANCE CHARACTERISTICS

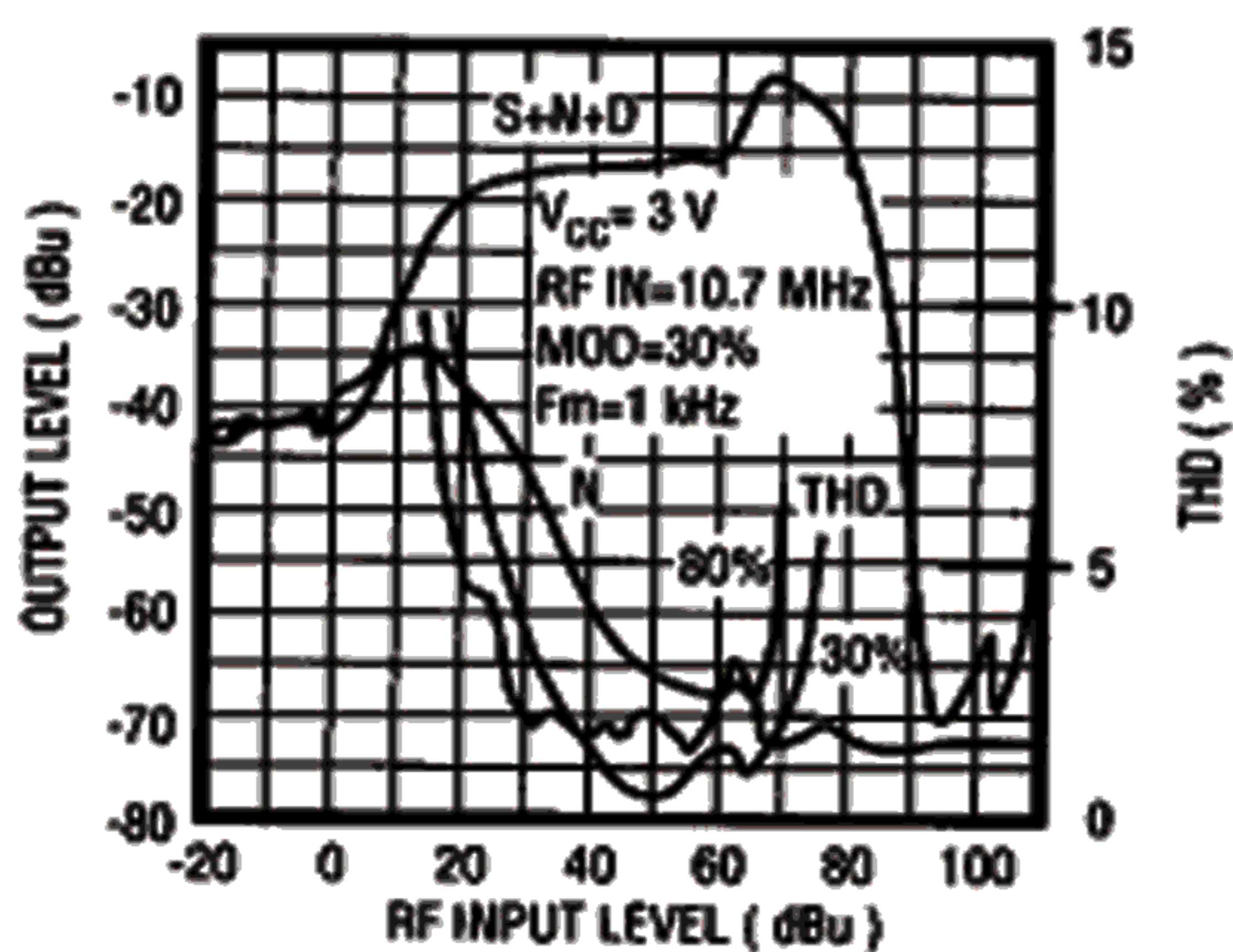
GENERAL CHARACTERISTICS (FM)



RSSI CHARACTERISTICS



GENERAL CHARACTERISTICS (AM)



VAGC CHARACTERISTICS

