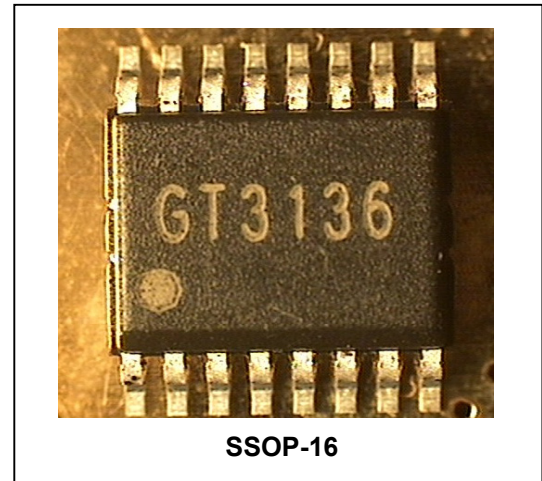


DESCRIPTION

GT3136 is an FM IF detector IC, which contains Mixer, IF Amplifier, RSSI circuit, Quadrature Detector and Noise Detector.

FEATURES

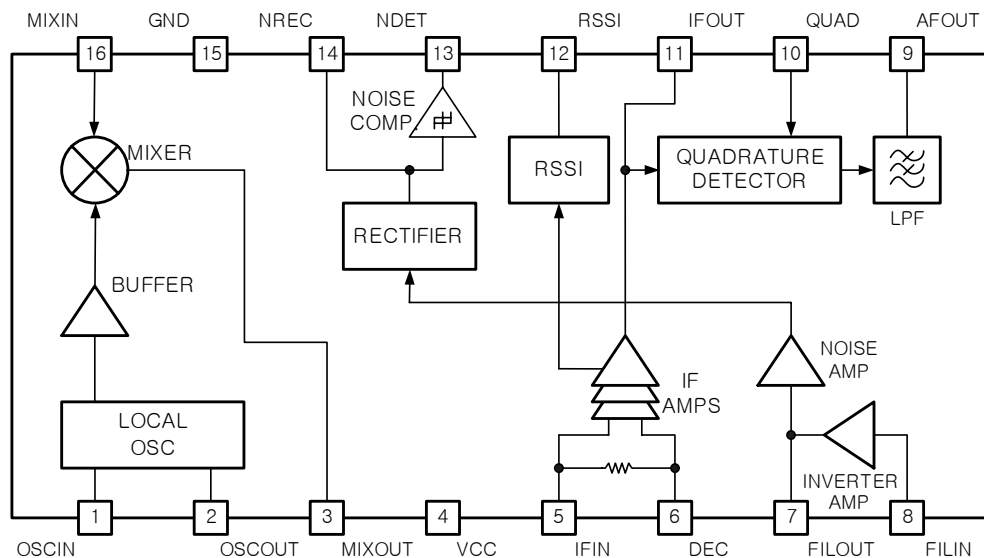
- Low operating voltage : $V_{cc} = 1.8 \sim 5.5V$
- Operating frequency : $10 \sim 100MHz$
- Excellent temperature characteristics
- High sensitivity
12dB sensitivity : 5dBuV (11dBuV EMF)
- Quadrature detector,
both ceramic and coil discriminators are usable
- High intercept point : 98dBuV
- Noise detection circuit
- RSSI function
- SSOP16 package (Pb-free and RoHS compliant)



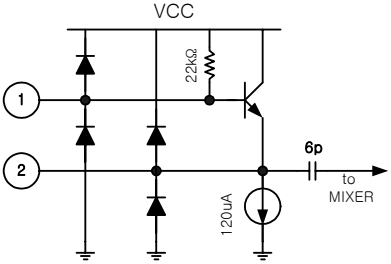
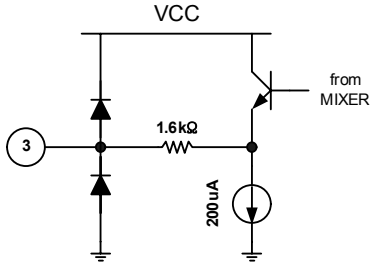
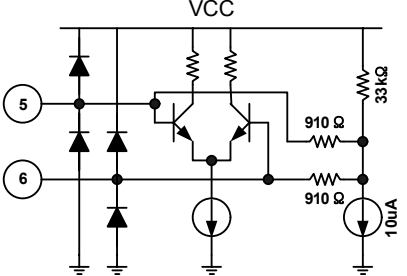
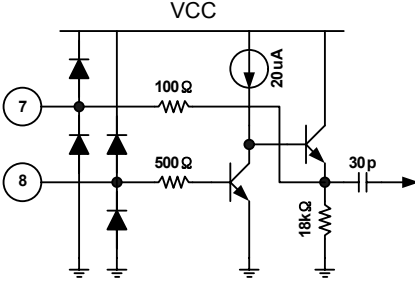
APPLICATIONS

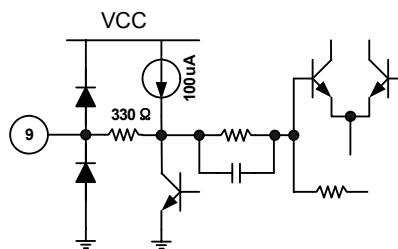
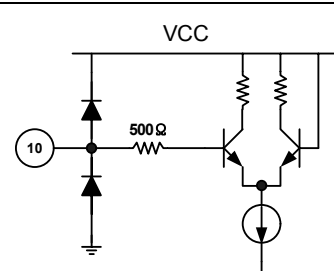
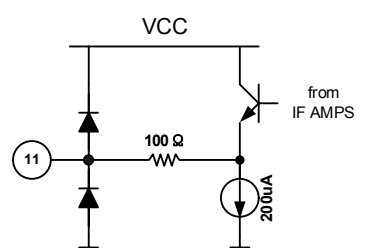
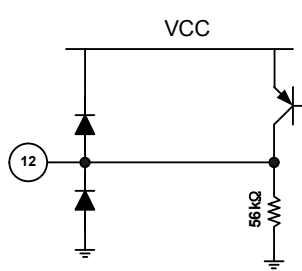
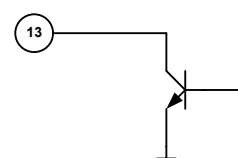
- Cordless phone, R/C receiver for mobile toy, car key, walkie-talkie and shortwave radio set
- Other wireless communication systems

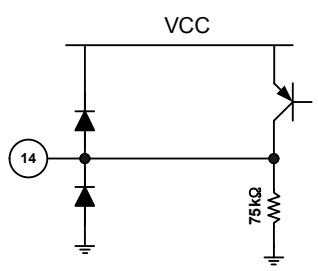
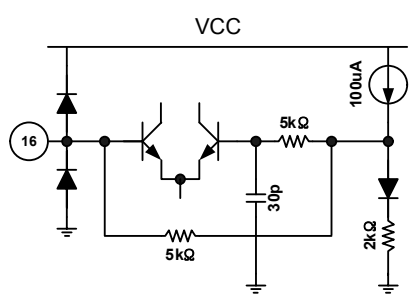
BLOCK DIAGRAM



PIN DESCRIPTION

Pin No.	Symbol	Function Description	Internal Equivalent Circuit
1	OSCIN	Local Oscillator base input	
2	OSCOUT	Local Oscillator emitter input	
3	MIXOUT	Mixer output (Output impedance : 1.8kΩ)	
4	VCC	Power Supply	
5	IFIN	IF Amplifier input (Input impedance : 1.8kΩ)	
6	DEC	Decoupling input for bias.	
7	FILOUT	Inverter Amp. output	
8	FILIN	Inverter Amp. input	

Pin No.	Symbol	Function Description	Internal Equivalent Circuit
9	AFOUT	Demodulated Signal output (Output impedance : 360Ω)	
10	QUAD	Phase shift signal input of Quadrature Detector.	
11	IFOUT	IF Amplifier output.	
12	RSSI	RSSI output	
13	NDET	Noise Comparator output	

Pin No.	Symbol	Function Description	Internal Equivalent Circuit
14	NREC	Rectifier output	
15	GND	Ground	
16	MIXIN	Mixer input	

DC voltage for pins (Typical values for reference)

 $(V_{CC}=2V)$

Pin No.	Pin Name	Voltage	Pin No.	Pin Name	Voltage
1	OSCIN	1.91	9	AFOUT	-
2	OSCOUT	1.22	10	QUAD	2.00
3	MIXOUT	0.69	11	IFOUT	1.05
4	VCC	2.00	12	RSSI	-
5	IFIN	1.58	13	NDET	-
6	DEC	1.58	14	NREC	-
7	FILOUT	0.66	15	GND	0.00
8	FILIN	0.70	16	MIX IN	0.93

 $(UNIT : V)$

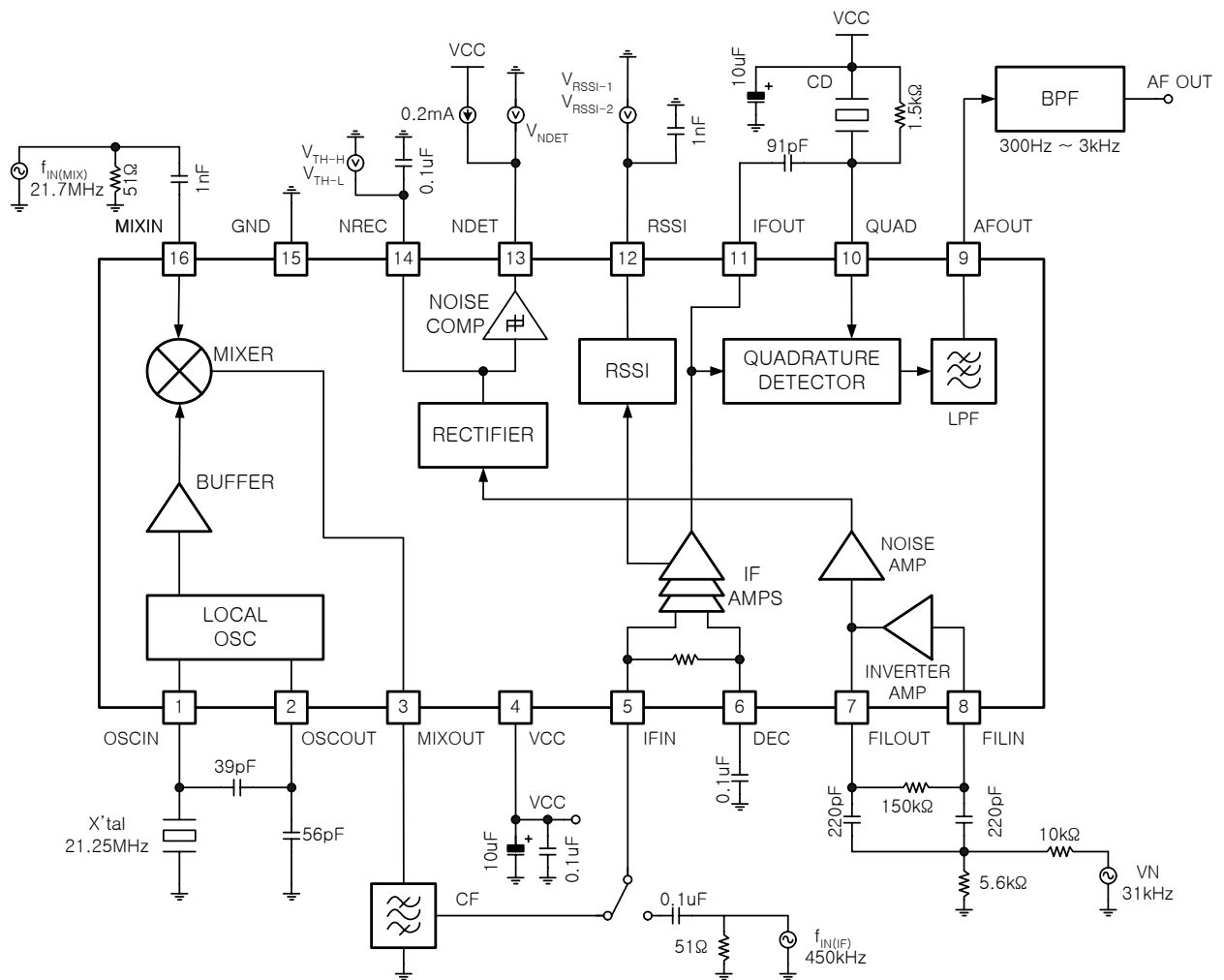
ELECTRICAL CHARACTERISTICS

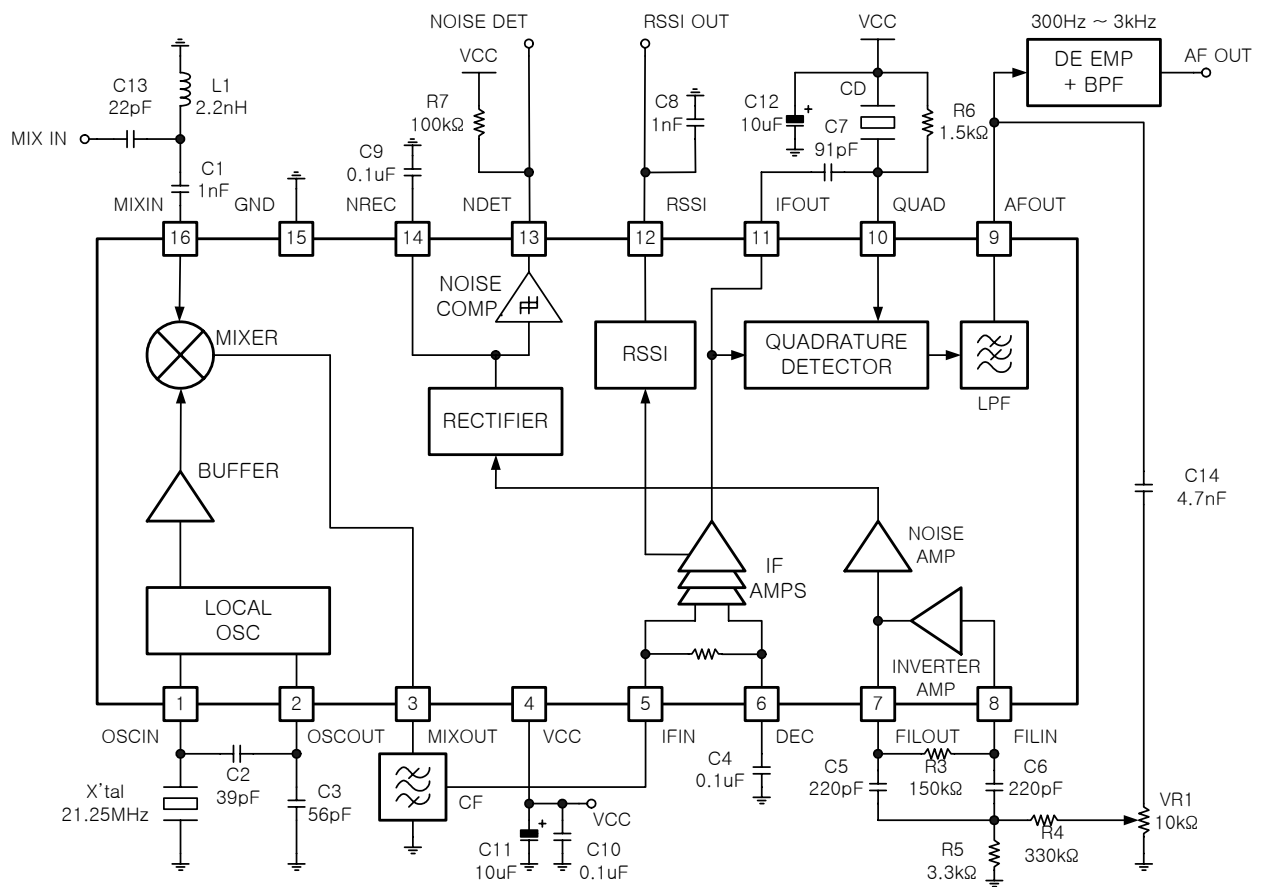
Characteristic	Symbol	Rating	Unit
Supply Voltage	V_{CC}	7	V
Power Dissipation	P_D	560	mW
Operation Temperature	T_{opr}	-30 ~ 85	°C
Storage Temperature	T_{stg}	-50 ~ 150	°C

Unless otherwise specified,

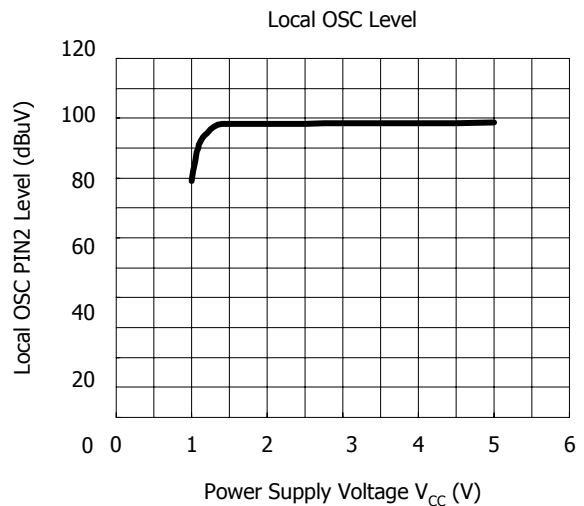
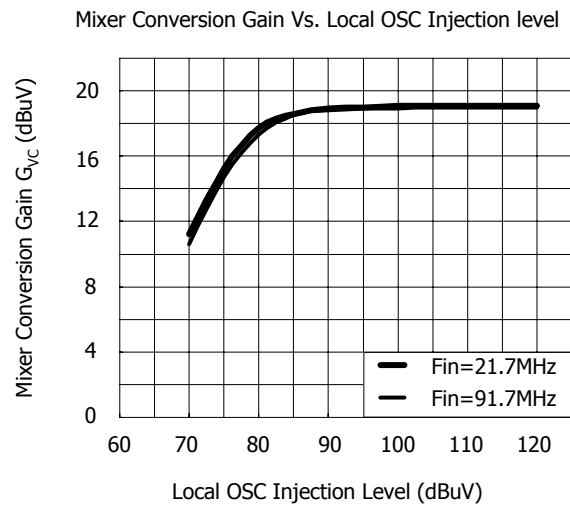
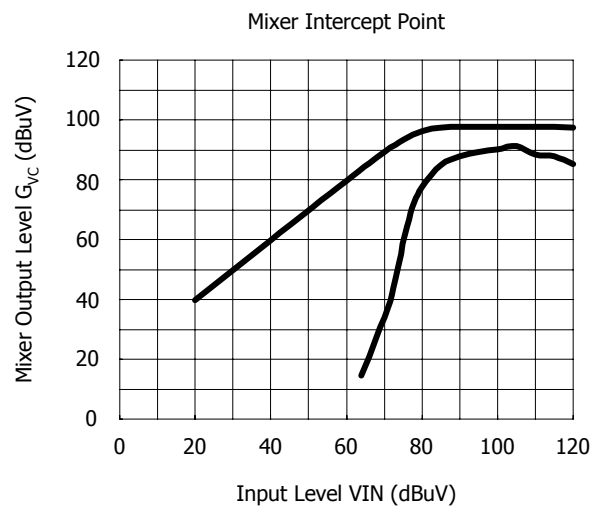
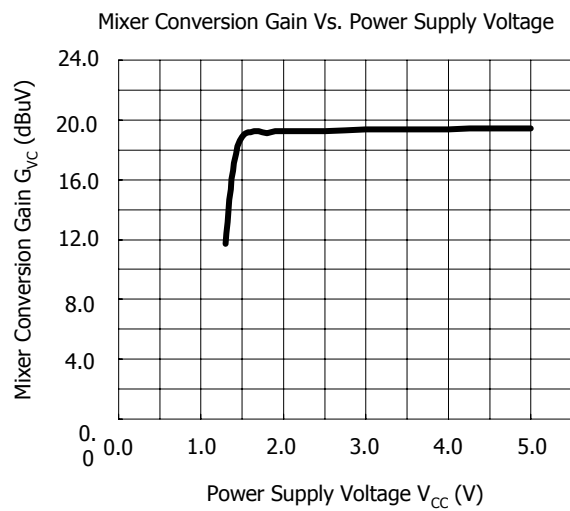
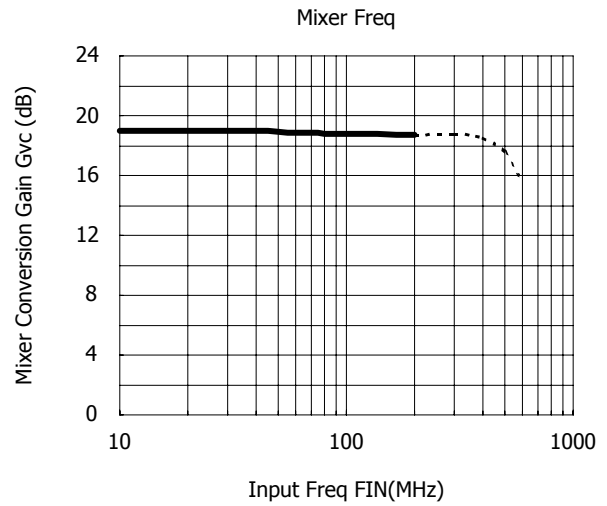
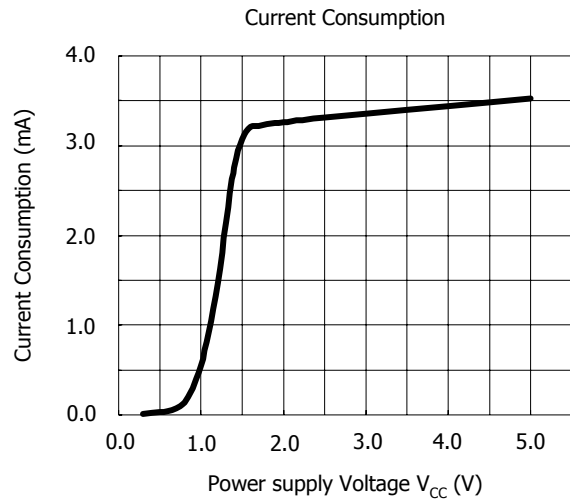
($V_{CC} = 2.0V$, $F_{IN(MIX)} = 21.7MHz$, $f_{IN(IF)} = 450kHz$, $\Delta f = \pm 1.5kHz$, $f_{MOD} = 1kHz$, $T_a = 25^\circ C$)

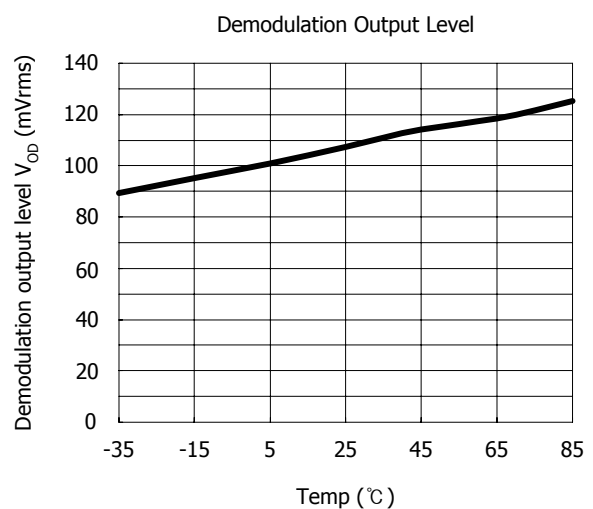
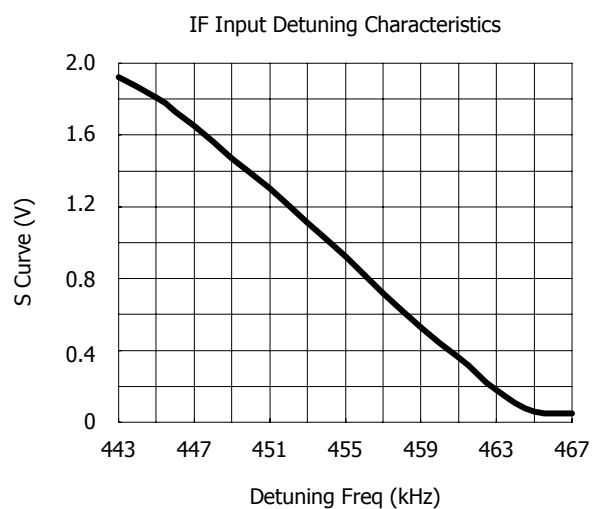
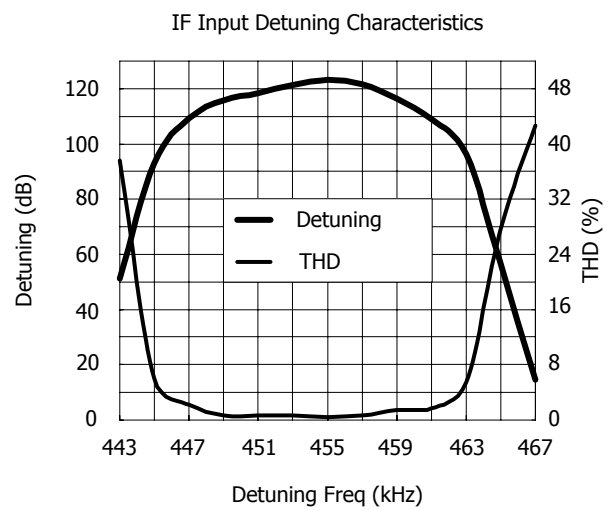
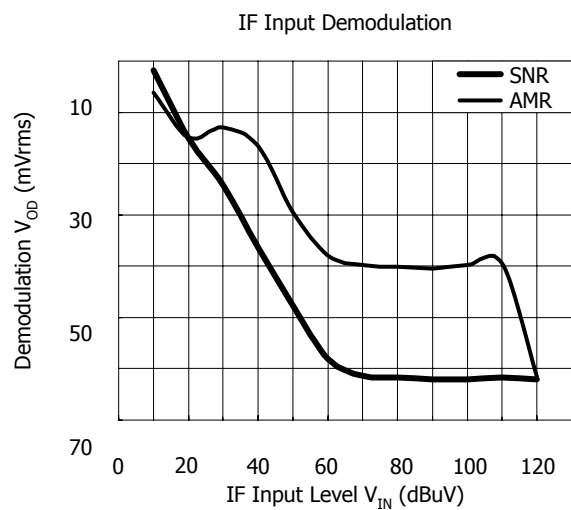
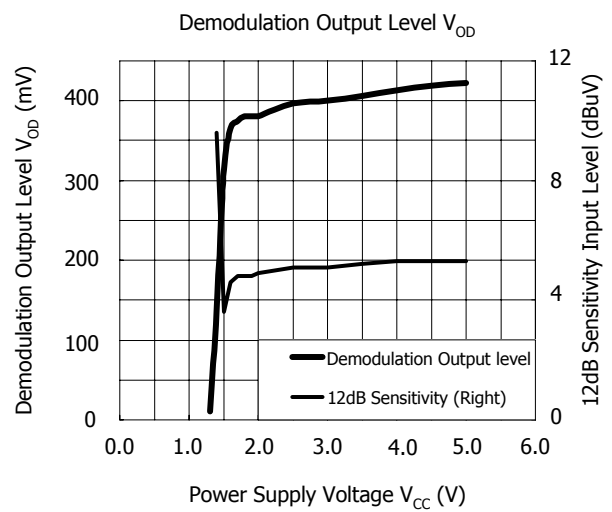
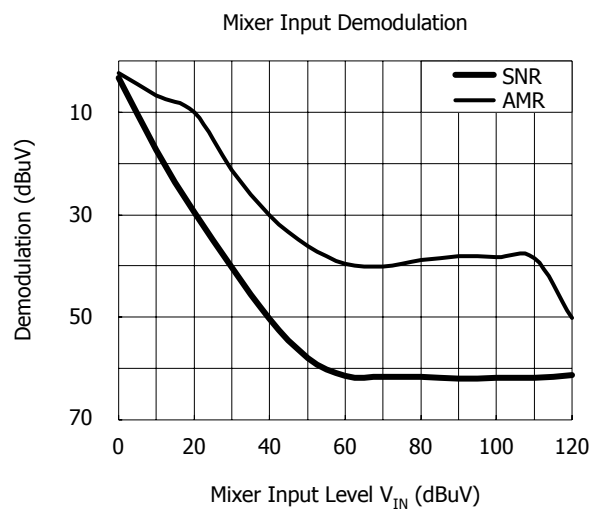
Characteristic		Symbol	Test Condition		Min	Typ.	Max	Unit
Power Supply Voltage		V _{CC}	-		1.8	2	5.5	V
Current Consumption		I _{CCQ}	-		-	3.3		mA
Mixer Conversion Gain		G _{VC}	Measured through ceramic filter. [V _{IN(MIX)} = 46dBuV]		16	19	22	dB
Mixer Intercept Point		P _{IM}	Input 50Ω		-	96	-	dBuV
Mixer Input Impedance		R _{IN(MIX)}	-		-	4.8	-	kΩ
		C _{IN(MIX)}			-	2.8	-	pF
Mixer Output Resistance		R _{O(MIX)}	-		1.2	1.8	2.4	kΩ
12dB Sensitivity		12dB SN	-		-	5	-	dBuV
Demodulation Output Level		V _{OD}	V _{IN(IF)} = 80dBuV		-	102	-	mVrms
SN Ratio		SN	V _{IN(IF)} = 80dBuV		43	62	-	dB
AM Rejection Ratio		AMR	V _{IN(IF)} = 80dBuV, AM = 30%		-	40	-	dB
IF AMP. Input Resistance		R _{IN(IF)}	-		1.2	1.8	-	kΩ
RSSI Output Voltage		V _{RSSI-1}	V _{CC} = 3V	V _{IN(IF)} = 30dBuV	200	441	520	mV
		V _{RSSI-2}		V _{IN(IF)} = 100dBuV	1.4	2.2	2.6	V
Noise Detection Output Voltage		V _{NDET}	I SINK = 0.2mA		-	0.1	0.5	V
Noise Detection Output Leak Current		I _{LEAK}	V _{NREC} = 0.6V, V _{NDET} = 2V		-	0	5	uA
Noise	"H" Level	V _{TH-H}	-		-	0.50	0.7	V
Detection Level	"L" Level	V _{TH-L}			0.3	0.43	-	

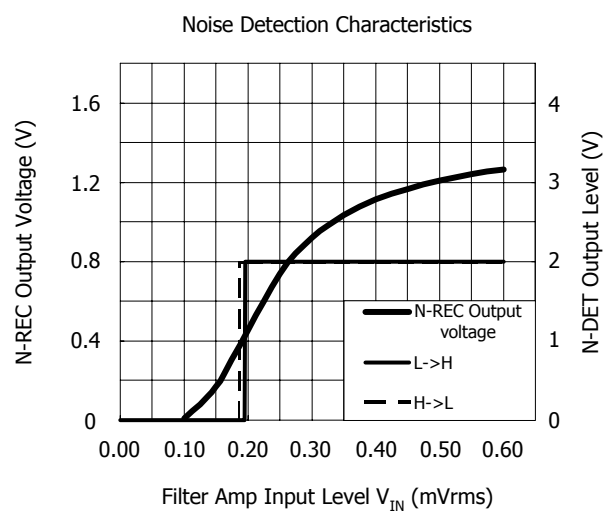
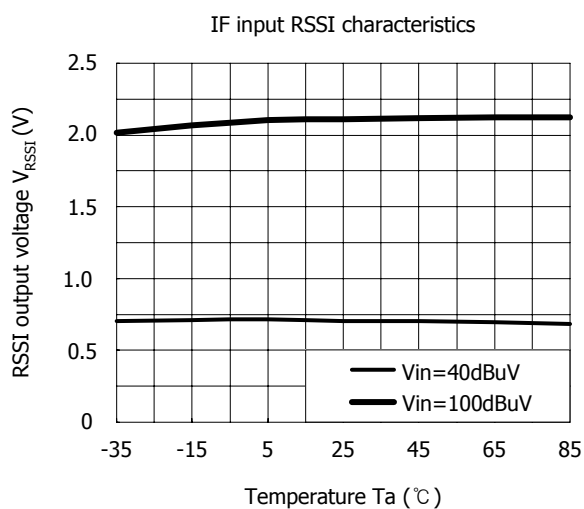
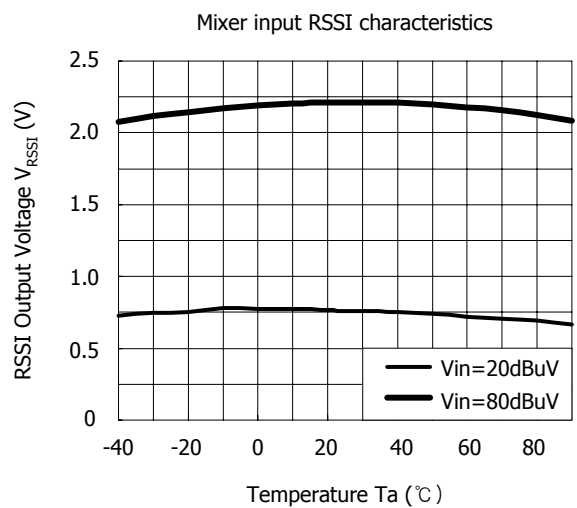
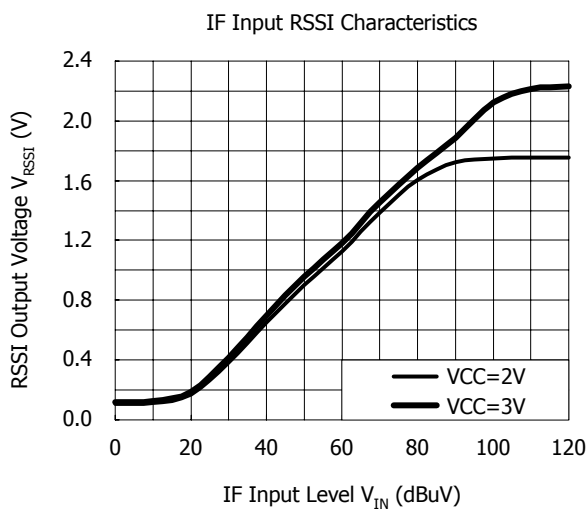
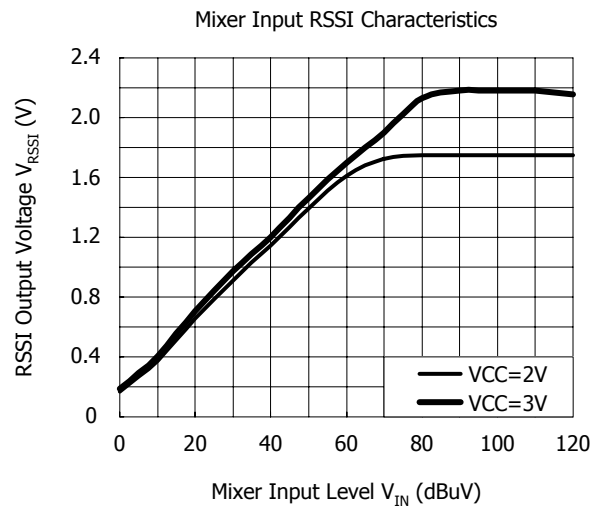
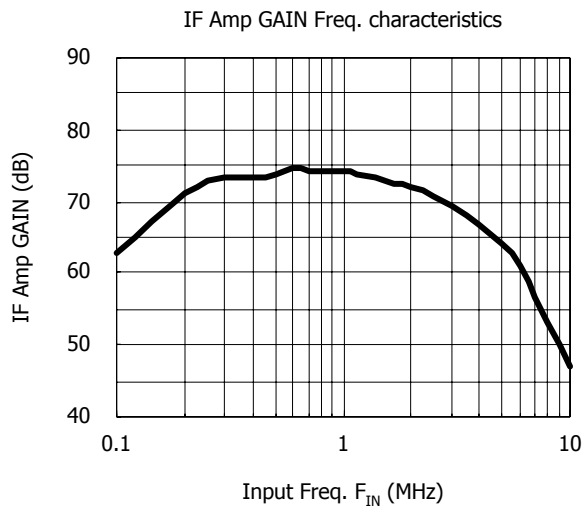
TEST CIRCUIT


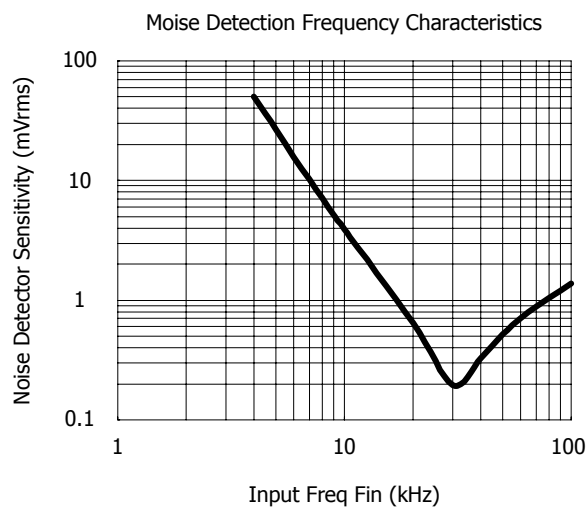
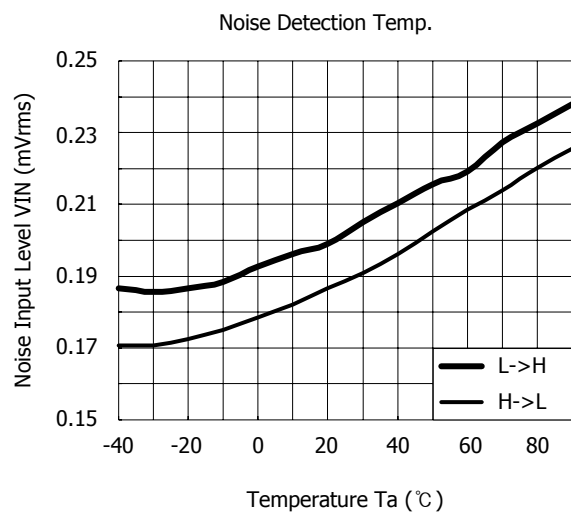
APPLICATION CIRCUIT


ELECTRICAL CHARACTERISTIC CURVES

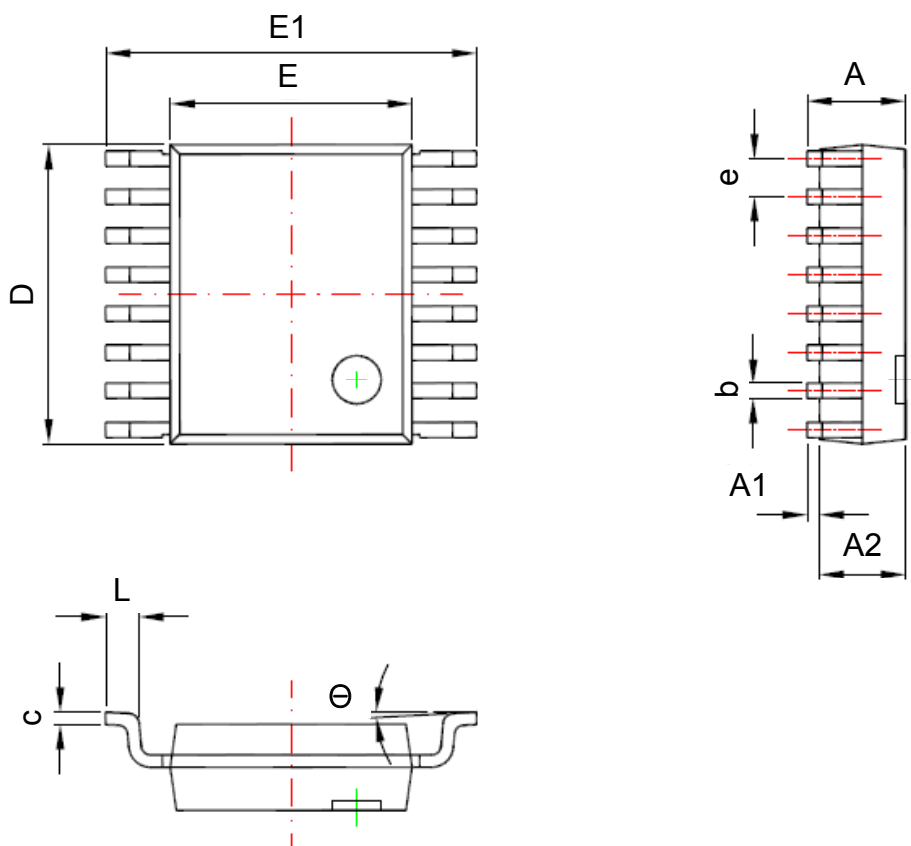








PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions in millimeter		Dimensions in inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.200	0.300	0.008	0.012
c	0.170	0.250	0.007	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	0.635(BSC)		0.025(BSC)	
L	0.400	1.270	0.016	0.050
Θ	0°	8°	0°	8°