

# AN6454SH

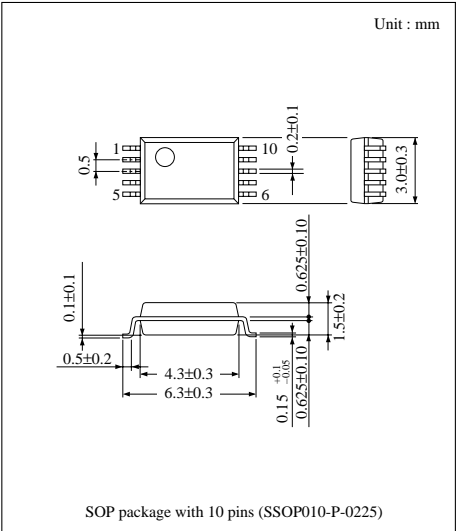
## Pager Direct Conversion FSK Demodulator Mixer IC

### Overview

The AN6454SH supports direct conversion FSK demodulation for pagers, and incorporates two mixers.

### Features

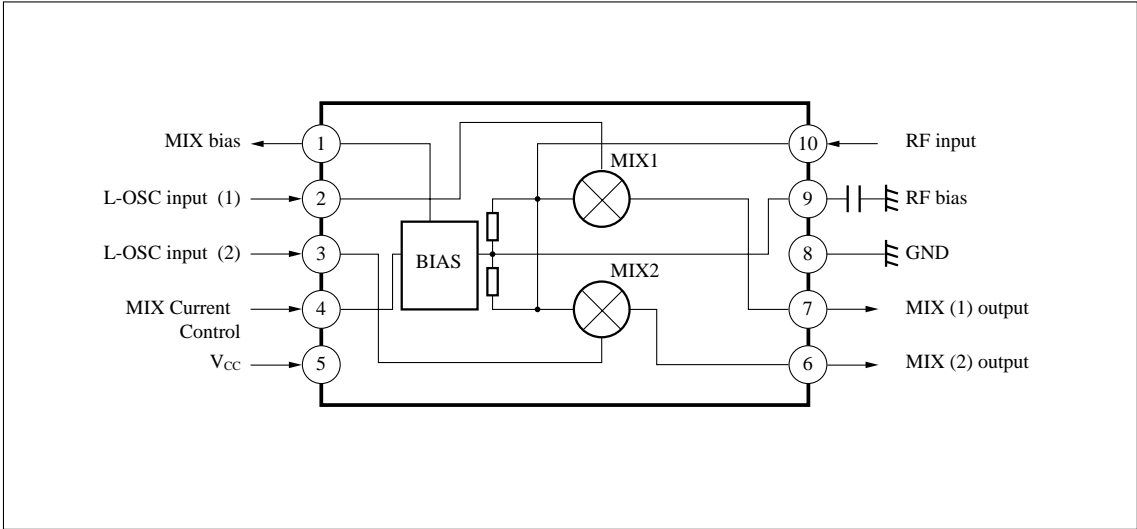
- Low current consumption : 1mA
- Incorporates two mixers. 450MHz input frequency.
- Small surface-mount package with 0.5mm pitch.



### Pin Descriptions

Pin No.	Description	Pin No.	Description
1	MIX bias	6	MIX (2) output
2	L-OSC input (1)	7	MIX (1) output
3	L-OSC input (2)	8	GND
4	MIX current control	9	RF bias
5	V <sub>CC</sub>	10	RF input

### Functional Block Diagram



■ Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Supply voltage	V <sub>CC</sub>	4	V
Supply current	I <sub>CC</sub>	20	mA
Power dissipation	P <sub>D</sub>	143.5 (Ta=75°C)	mW
Operating ambient temperature	T <sub>opr</sub>	−20 to + 70	°C
Storage temperature	T <sub>stg</sub>	−55 to +125	°C

Note) Protect pins 3, 9, and 10 from electrostatic discharge.

■ Recommended Operating Range

Parameter	Symbol	Range
Operating supply voltage range	V <sub>CC</sub>	1.8 to 3V

■ Electrical Characteristics (V<sub>CC</sub>=2.0V, Ta=25±2°C)

Parameter	Symbol	Condition	min	typ	max	Unit
Current consumption	I <sub>tot</sub>		0.6	1.0	1.4	mA
MIX output level (1)	VMIX1	Input Level −54dBm, f=450.0045MHz	−38	−34	−30	dBs
MIX output level (2)	VMIX1	Input Level −54dBm, f=450.0045MHz	−38	−34	−30	dBs


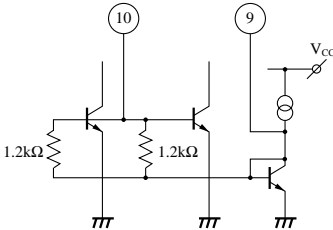
■ Electrical Characteristics (Design Values for Reference) (V<sub>CC</sub>=2.0V, Ta=25±2°C)  
The following are design values for reference only (not guaranteed)

Parameter	Symbol	Condition	min	typ	max	Unit
RF bias voltage	V <sub>RF</sub>		—	0.745	—	V
MIX bias current	V <sub>MIX</sub>		—	1.3	—	V
MIX output level difference	DV <sub>mix</sub>	DV <sub>mix</sub> =V <sub>mix1</sub> −V <sub>mix2</sub>	−3.2	—	3.2	dB
Output noise level	V <sub>n3</sub>	$V_{n3} = \sqrt{\frac{(V_{n2})^2 + (V_{n2})^2}{2}}$	—	—	25	dBs

■ Pin Descriptions

Pin No.	Symbol	Description	Equivalent circuit
1	MIX bias	Local oscillator bias. Normally grounded though a capacitor.	
2	L-OSC input 1	Local oscillator inputs to Pin2 w and 3 are different in phase by $\pi/2$ . These inputs are different in frequency by FM Dev from Pin 10 input.	
3	L-OSC input 2		
4	MIX-current control	Current input to this pin controls the IC's operation and total current. This pin may be connected to Pin 22 of AN6400.	
5	V <sub>CC</sub>	This is the supply voltage pin.	
6	MIX2 output	Direct-conversion mixer outputs (FM Dev.). These outputs are different in phase by $\pi/2$ from each other. These pins may be to AN6400 or other direct conversion demodulator ICs for data retrieval.	
7	MIX1 output		

■ Pin Descriptions (Cont.)

Pin No.	Symbol	Description	Equivalent circuit
8	GND	This is the ground pin.	
9	RF bias	This is the bias pin for RF input to Pin 10. The bias is internally provided. This pin must be ground through a capacitor.	
10	RF input	FSK-modulated RF signals from an RF amplifier are input to this pin. RF signals with up to 450MHz are acceptable.	

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