

Description

The SL5019/P performs single conversion FM reception and consist of oscillator, mixer, limiting IF amplifier, and meter drive circuitry. These devices are designed for use in FM dual conversion communication equipment.

The SL5019/P is similar to the SL5018 FM IFs, except that a signal strength indicator replaces the scan function controlling driver which is in the SL5018.

The SL5019/P is design for the use of parallel LC components.

This device also requires fewer external parts than earlier products. The SL5019/P are available in dual-in-line and surface mount packaging.

Features

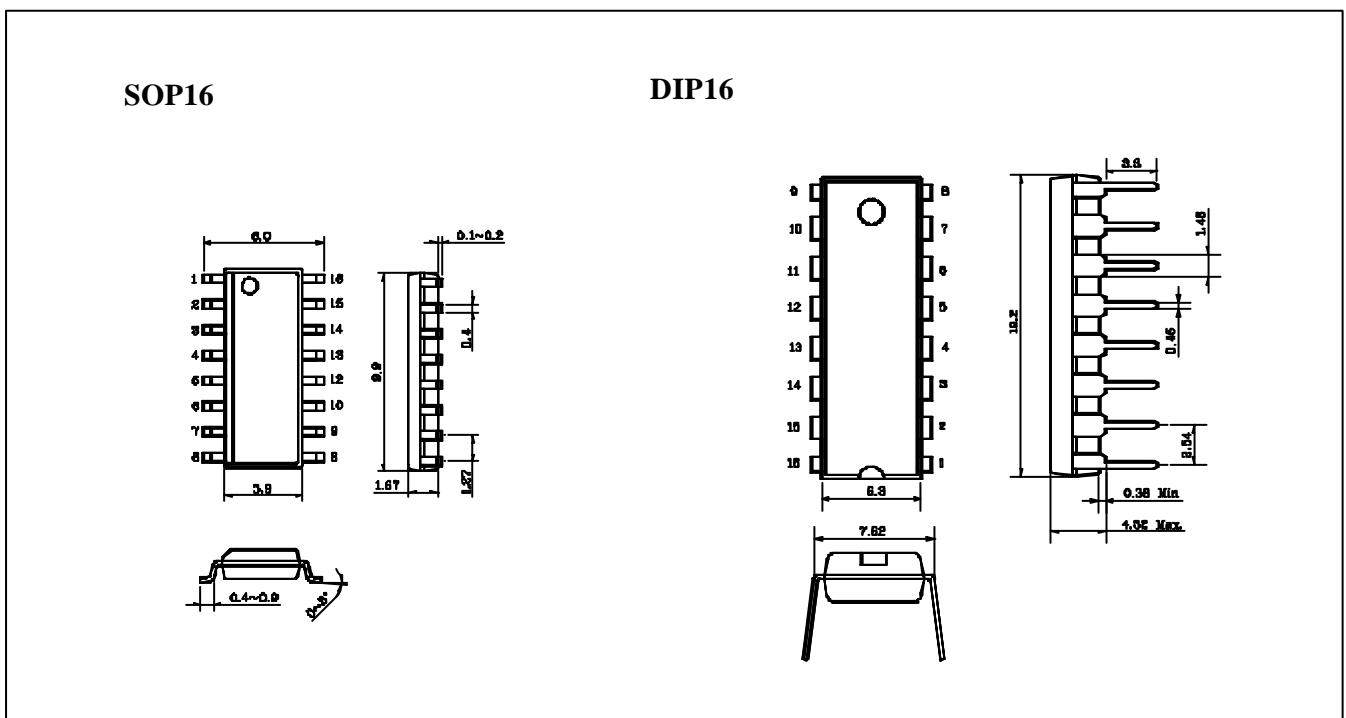
- Wide operating Supply Voltage Range : $V_{CC} = 2.0$ to $9.0V$
- Input Limiting Voltage Sensitivity of -3.0 dB ($2 \mu V$)
- Low Drain Current : $I_{CC} = 3.2mA$, ($V_{CC} = 4.0V$, Squelch off)
- Minimal Drain Current increase When Squelched
- Signal Strength indicator : 60dB Dynamic Range
- Mixer operation Frequency Up to 100MHz
- Fewer External Parts Required than Earlier Devices.

Ordering Information

Type NO.	Marking	Package Code
SL5019	SL5019	SOP16
SL5019P	SL 5019	DIP16

Outline Dimensions

unit : mm



Absolute Maximum Ratings

(Ta = 25° C)

Characteristics	Symbol	Rating	Unit
Maximum Supply Voltage	$V_{CC(MAX)}$	10	V
Supply Voltage	V_{CC}	2.0 ~ 9.0	V
Detector input Voltage	$V_{IN(DET)}$	1.0	V_{p-p}
RF Input Voltage($V_{CC} = 4.0V$)	$V_{IN(RF)}$	1.0	V_{rms}
Squelch Input Voltage($V_{CC} = 4.0V$)	V_{sq}	6.0	V
Mute Function	V_{MUTE}	-0.7 ~ +10	V_{pk}
Mute Sink Current	I_{sq}	50	mA
Operating Temperature	T_{opr}	-20 ~ +70	°C
Storage Temperature	T_{stg}	-65 ~ +150	°C

Electrical Characteristics

(Unless otherwise specified Ta=25 °C , Vcc=4V, f₀=58.1125MHz, fm=1kHz, f = ± 3kHz)

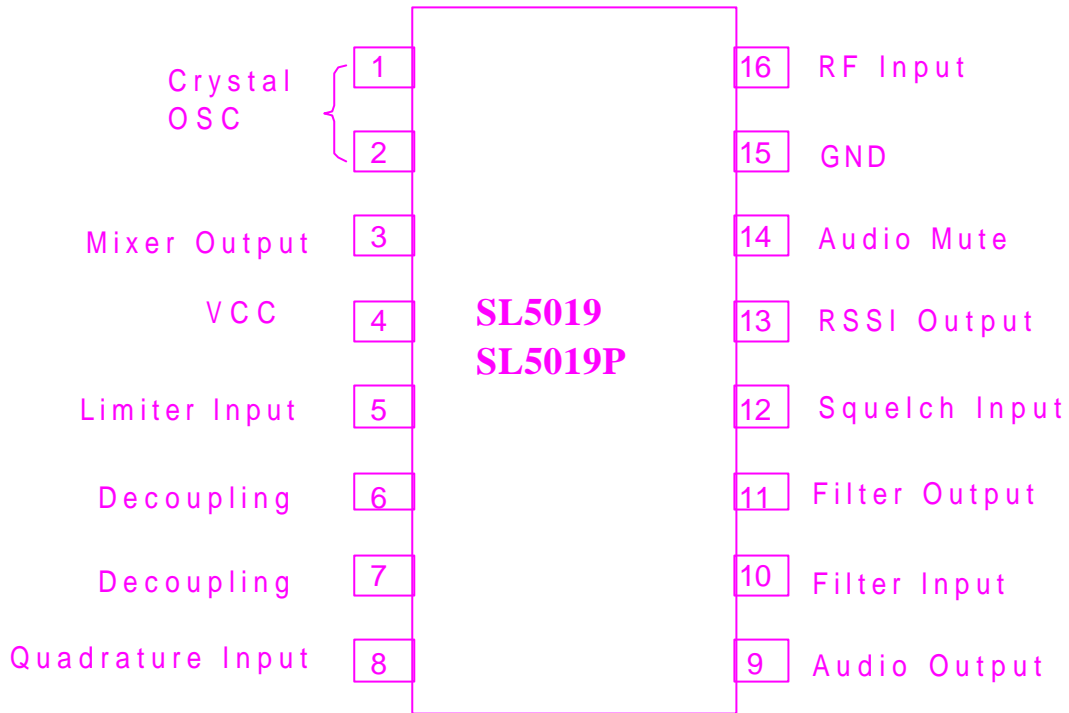
Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Squelch Current (No Signal)	I_{CC1}	Squelch off($V_{12} = 2V$)	-	3.2	4.2	mA
	I_{CC2}	Squelch on($V_{12} = 0V$)	-	3.6	4.8	
	dI_{CC1}	Squelch off, $V_{CC} = 2 \sim 9V$	-	1.0	2.0	
Detector Output DC Voltage	V_9	$V_8 = 2.0V$	0.9	1.6	2.3	V
Filter Output DC Voltage	V_{11}	No Input Signal	1.5	2.5	3.5	V
Trigger Hysteresis	H_{ys}	-	34	57	80	mV
Input for 12dB SINAD	V_{SIN}	Matched Input	-	1.0	-	mV_{rms}
		Unmatched Input	-	5.0	15	
Input for 20dB NQS	V_{NQS}	-	-	3.5	-	mV_{rms}

Electrical Characteristics

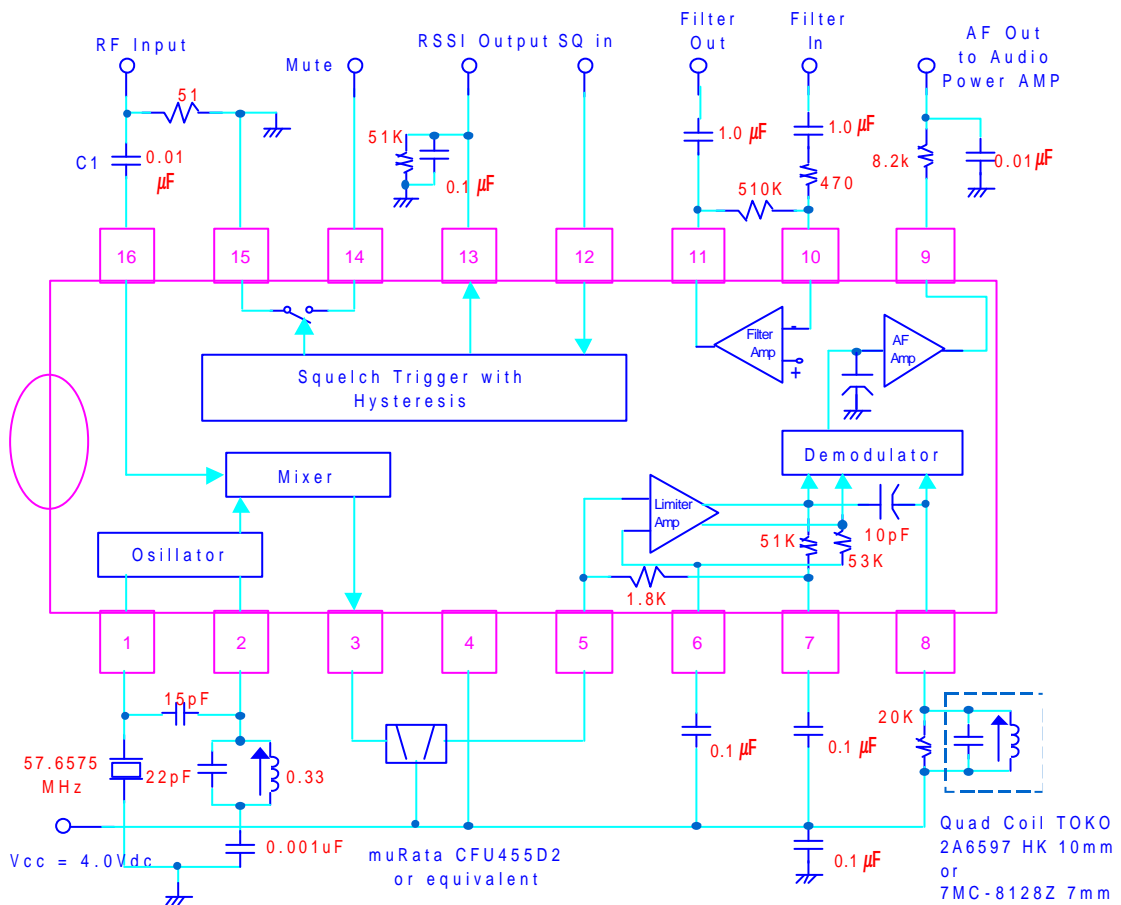
(Unless otherwise specified $T_a=25\text{ }^\circ\text{C}$, $V_{CC}=4\text{V}$, $f_0=58.1125\text{MHz}$, $f_m=1\text{kHz}$, $f = \pm 3\text{kHz}$)

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Recovered Audio Output Voltage	AF_O	$V_{in} = -30\text{dBm}$	120	200	320	mV_{rms}
Recovered Audio Drop Voltage Loss	AF_{Loss}	$V_{in} = -30\text{dBm}$ $V_{CC}=4.0\sim 2.0\text{V}$	-8.0	-1.5	-	dB
Meter Drive Output Voltage (No Modulation)	MV_1	$V_{in} = -100\text{ dBm}$	-	0.3	0.5	V
	MV_2	$V_{in} = -70\text{ dBm}$	1.1	1.5	1.9	
	MV_3	$V_{in} = -40\text{ dBm}$	2.0	2.5	3.1	
Filter Amp Gain	A_V (Amp)	$R_f=600$, $f_s = 10\text{kHz}$ $V_{fa}=1.0\text{mV}_{\text{rms}}$	47	50	-	dB
Mixer Conversion Gain	$A_V(\text{Mix})$	$V_{in} = -40\text{dBm}$, $R_L = 1.8\text{ k}$	14	20	-	dB
Signal to Noise Ratio	S/N	$V_{in} = -30\text{dBm}$	36	67	-	dB
Total harmonic Distortion	THD	$V_{in}=-30\text{dBm}$ $\text{BW}=400\text{Hz} \sim 30\text{kHz}$	-	0.6	3.4	%
Detector Output Impedance	Z_O	-	-	450	-	
Detector Output Voltage	DV_O	$V_{in} = -30\text{dBm}$ No Modulation	-	1.45	-	V
Meter Driver	M_O	$V_{in} = -100 \sim -40\text{dBm}$	-	0.8	-	$\mu\text{A}/\text{dB}$
Meter Driver Dynamic Range	RF_{IN}	-	-	60	-	dB
	IF_{IN}	-	-	80	-	
Mixer Third Order Input Intercept Point	ITO_{MIX}	$f_1 = 58.125\text{MHz}$ $f_2 = 58.1375\text{MHz}$	-	-22	-	dBm
Mixer Input Resistance	R_{in}	-	-	3.3	-	k
Mixer Input Capacitance	C_{in}	-	-	2.2	-	pF

PIN Configuration

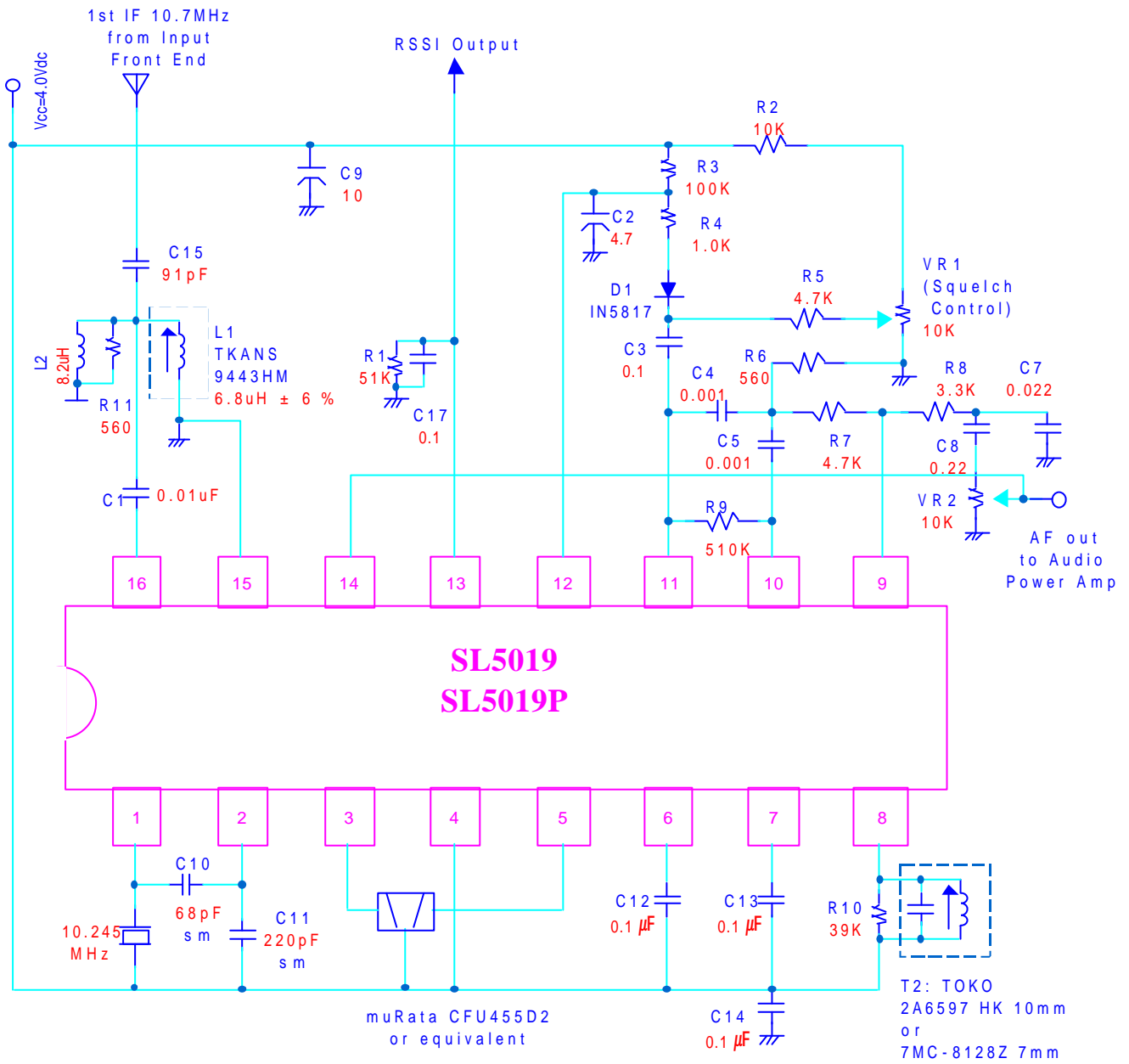


Block Diagram and Test Circuit



Units: R:ohm, C: μ F Unless otherwise noted capacitors marked "sm" are silver mica.

Application Circuit



Units: R:ohm, C:μF Unless otherwise noted capacitors marked "sm" are silver mica.

Typical Performance Characteristics

