

**SANYO Semiconductors****DATA SHEET**

LA8662V — Monolithic Linear IC

Wideband FM IF system IC

Overview

The LA8662V is a Wideband FM IF system IC.

Functions

- Mixer circuit
- IF amplifier
- RSSI circuit
- FM demodulation circuit (quadrature detection)

Specifications**Maximum Ratings** at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V _{CC} max		9.0	V
Allowable power dissipation	Pd max	Ta ≤ 70°C	120	mW
Operating temperature	Topr		-20 to +70	°C
Storage temperature	Tstg		-40 to +125	°C

Operating Conditions at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	V _{CC}		5.0	V
Operating supply voltage range	V _{CC} op		3.0 to 7.0	V

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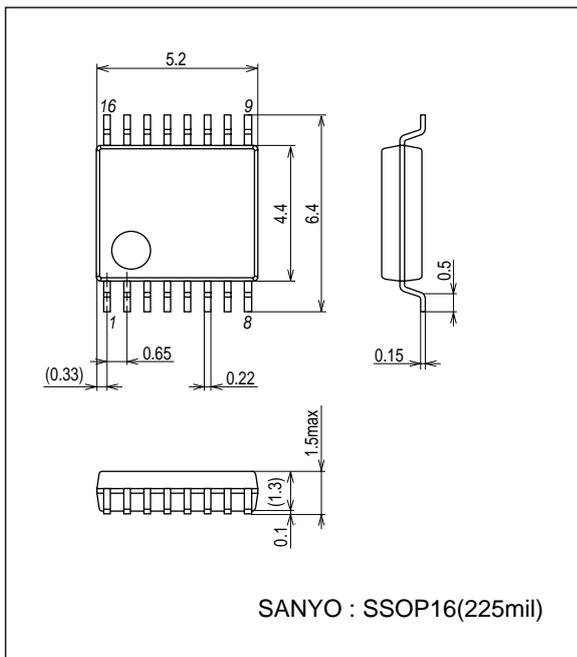
Electrical Characteristics at $T_a = 25^\circ\text{C}$, $V_{CC} = 5.0\text{V}$, $f_{RF} = 45\text{MHz}$, $f_{LO} = 55.7\text{MHz}$, -10dBm , $f_{IF} = 10.7\text{MHz}$,
 $f_{mode} = 1\text{kHz}$, $f_{dev} = \pm 75\text{kHz}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Quiescent current drain	I_{CCO}		4.5	6.5	8.7	mA
Mixer block						
Mixer operation frequency range	f_{in}		20		150	MHz
Mixer conversion gain	G_c		13	16	19	dB
Mixer intercept point	IIP3			-23		dBm
Mixer NF	NF			18		dB
Input impedance	Ri1			1		k Ω
	Ci1			3		pF
Output impedance	Ro1			330		Ω
Local oscillator block						
LO operation frequency range	f_{LO}		20		160	MHz
IF amplifier block						
IF amplifier gain	GIF			60		dB
IF Input impedance	Ri2			330		Ω
IF output impedance	Ci2			1.7		k Ω
RSSI block						
RSSI output 1	Vrssi1	$V_i = 40\text{dB}\mu\text{V}$	0.7	1.1	1.6	V
RSSI output 2	Vrssi2	$V_i = 60\text{dB}\mu\text{V}$	1.1	1.5	1.9	V
RSSI output 3	Vrssi3	$V_i = 80\text{dB}\mu\text{V}$	1.8	2.2	2.8	V
FM demodulation circuit block						
-3dB limiting sensitivity	Vs			30	37	dB μV
Demodulation output	V_O	$V_i = 80\text{dB}\mu\text{V}$	150	220	300	mVrms
Total harmonic distortion	THD	$V_i = 80\text{dB}\mu\text{V}$		0.5	0.8	%
SN ratio	S/N	$V_i = 80\text{dB}\mu\text{V}$	68	78		dB
AM removal ratio	AMR	AM 30% mod. 400Hz, $V_{IN} = 80\text{dB}\mu\text{V}$	40	55		dB

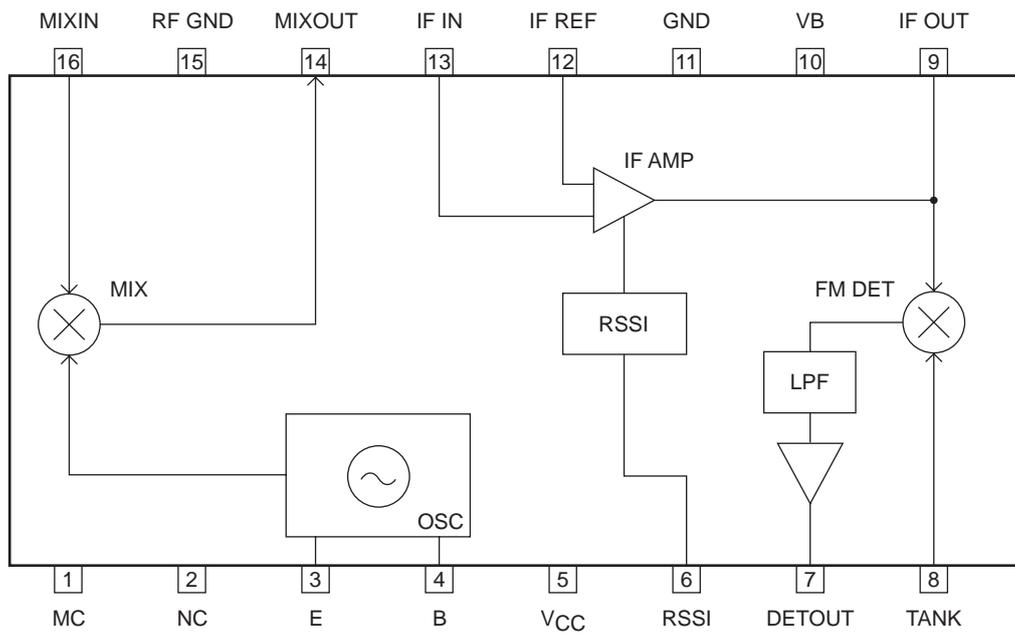
Package Dimensions

unit : mm (typ)

3178B



Block Diagram



Pin Functions

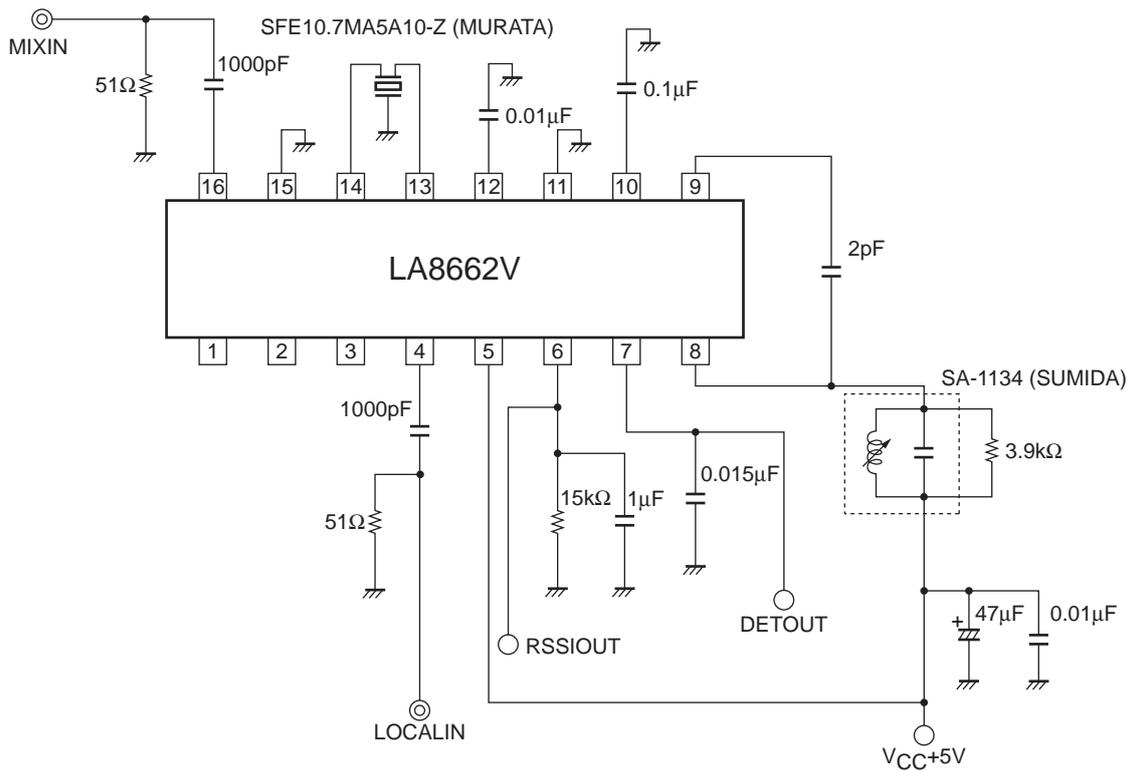
Pin No.	Pin name	Function	Equivalent Circuit
1	NC		
2	NC		
3 4	E B	LOCAL oscillation transistor Base, emitter (Pin 4 is for local signal input)	
5	VCC	VCC	
6	RSSI	RSSI output	
7	DETOUT	Detection output	
8	TANK	For connection of TANK (resonance circuit)	

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Pin No.	Pin name	Function	Equivalent Circuit
9	IFOUT	IF amplifier output	
10	VB	For connection of reference bias decoupling capacity	
11	GND	GND (other than MIX)	
12	IFREF	IF input	
13	IFIN	IF amplifier reference input	
14	MIXOUT	Mixer output	
15	RFGND	GND (MIX)	
16	MIXIN	Mixer input	

Test Circuit and Sample Application Circuit



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