



SANYO Semiconductors

DATA SHEET

LA1652V — Monolithic Linear IC Time Code Reception IC

Overview

The LA1652V receives long-wave standard broadcasts (Japan: JJY, Germany: DCF77, and others), detects the time code superposed on the long-wave standard waveform, and outputs that information. By using the time code information received with the LA1652V, applications can automatically correct the clock time.

Functions

- RF amplifier, rectifying circuit, detection circuit, time code output, standby circuit.

Features

- Low-voltage operation ($V_{CCOP} = 1.8V$ or higher).
- Standby mode current less than $0.1\mu A$.
Japan: JJY 40/60 kHz
Germany: DCF77 77.5 kHz

Specifications

Maximum Ratings at $T_a = 25^\circ C$

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply rating	$V_{CC\ max}$		5.0	V
Operating temperature	T_{opr}		-20 to +70	$^\circ C$
Storage temperature	T_{stg}		-40 to +125	$^\circ C$

Recommended Operating Conditions at $T_a = 25^\circ C$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Recommended supply voltage	V_{CC}			3.0		V
Operating supply voltage range	$V_{CC\ op}$		1.8		3.6	V

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LA1652V

Operating Characteristics

$V_{CC} = 3.0V$, Socket (Yamaichi Denki's IC51-0162-911) is used.

Overall Characteristics

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Operation current at no input	I_{CCO}	No input		55	70	μA
Standby current	I_{STB}	PIN15 voltage = 3.0V		0.01	0.1	μA

AMP input Characteristics

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input impedance	Z_I	PIN1		2		$M\Omega$
Input frequency range	F_{IN}		37.5		80.0	kHz
Minimum input voltage	V_{MIN}	PIN1 input		1	2	μV_{rms}
Maximum input voltage	V_{MAX}	PIN1 input	50	100		mVrms

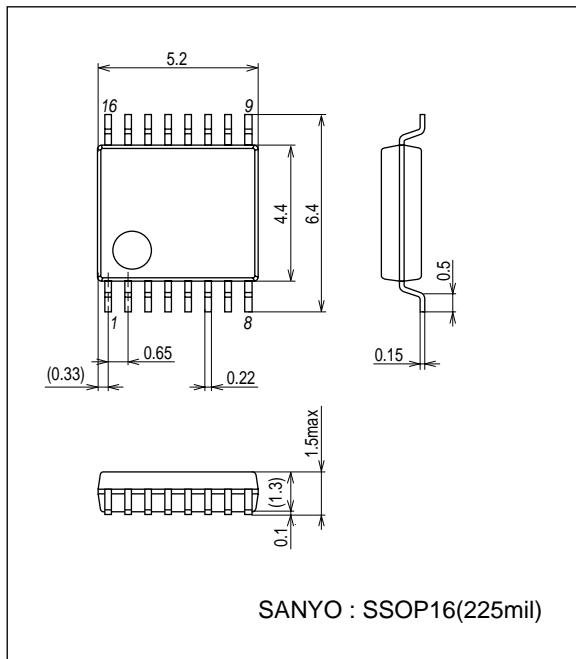
TCO output characteristics Input PIN = PIN1, $f_{in} = 40kHz$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Output voltage (High)	V_{OH}		29.0	29.0		V
Output voltage (Low)	V_{OL}			0.05	0.10	V
Output pulse width (500ms input)	T500	$V_{in} = 0$ to 100dB μV , AM modulation (1Hz square wave, duty = 50%, 10:1 modulation)	350	450	550	ms
Output pulse width (800ms input)	T800	$V_{in} = 0$ to 100dB μV , AM modulation (1Hz square wave, duty = 80%, 10:1 modulation)	650	750	850	ms
Output pulse width (200ms input)	T200	$V_{in} = 0$ to 100dB μV , AM modulation (1Hz square wave, duty = 20%, 10:1 modulation)	100	200	300	ms

Package Dimensions

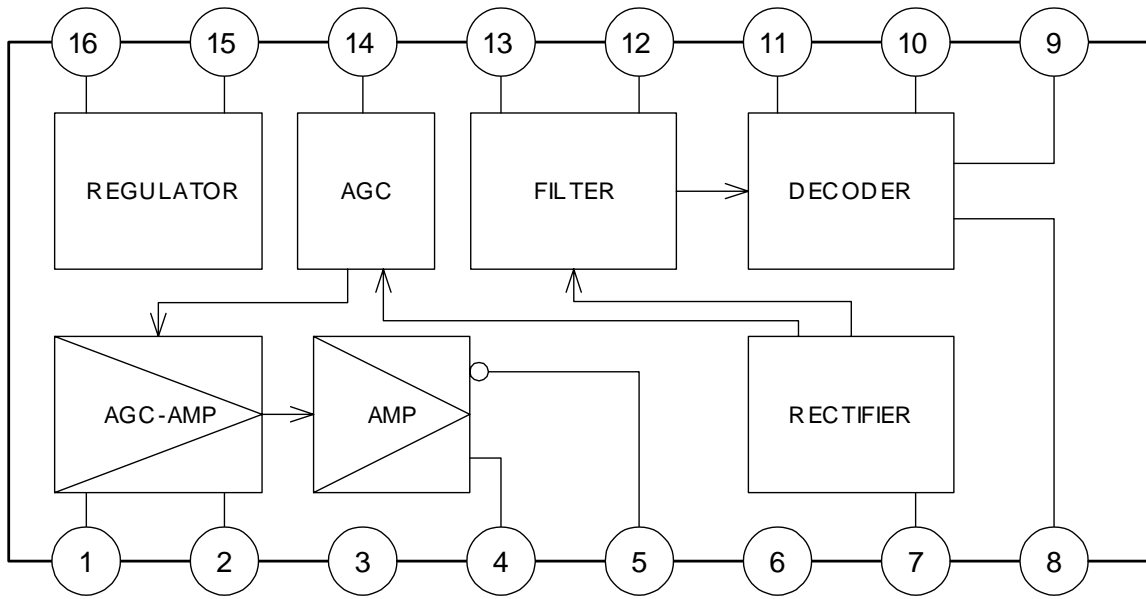
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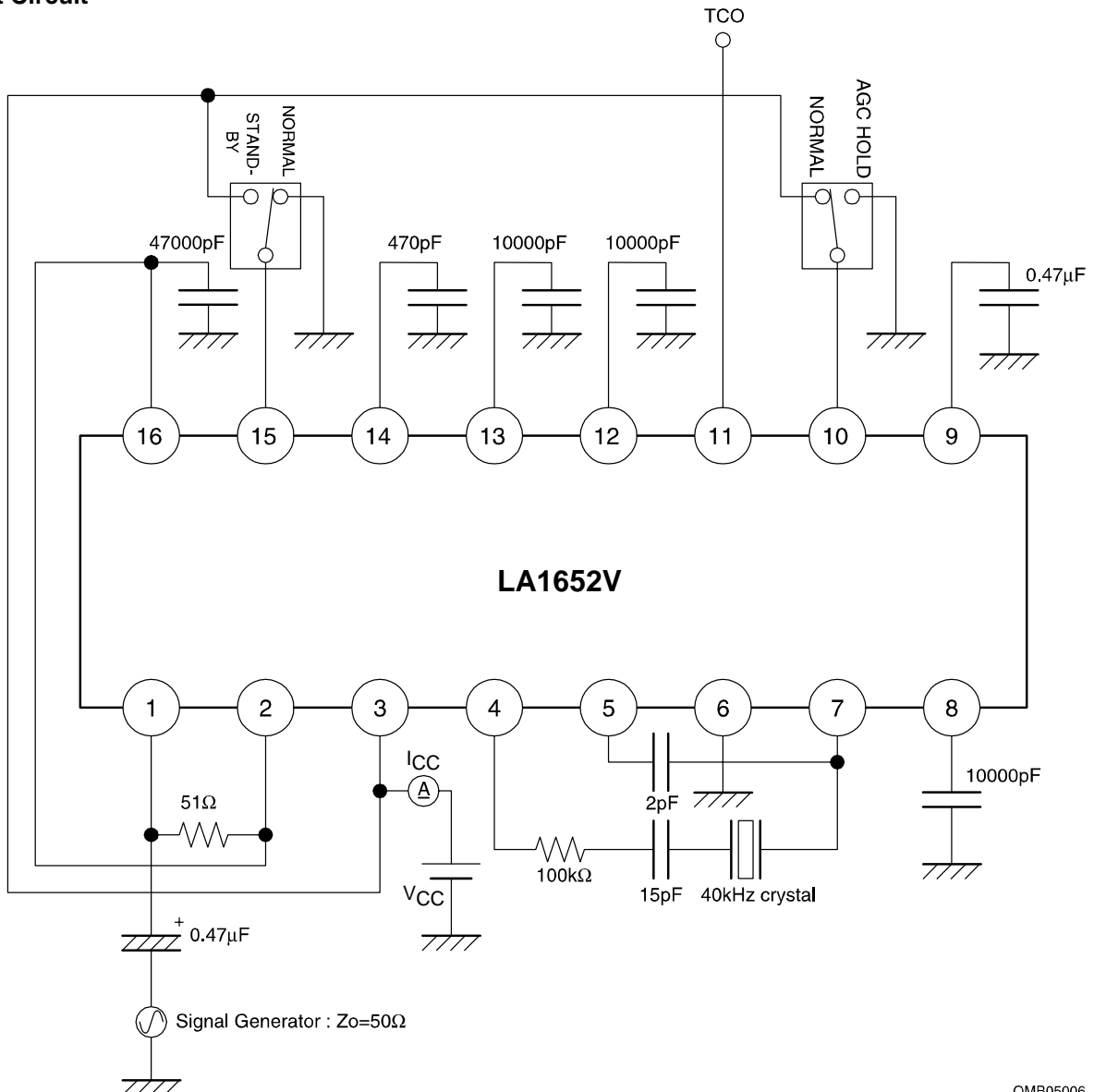
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Block Diagram



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Test Circuit



OMB05006

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