AN3917S

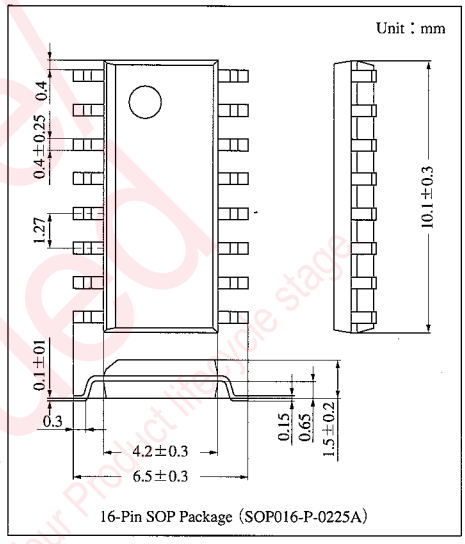
Crystal Oscillator IC with Built-in Multiplier (2 Times)

■ Overview

AN3917S is a voltage oscillator (VCO) IC using a quartz crystal.

■ Features

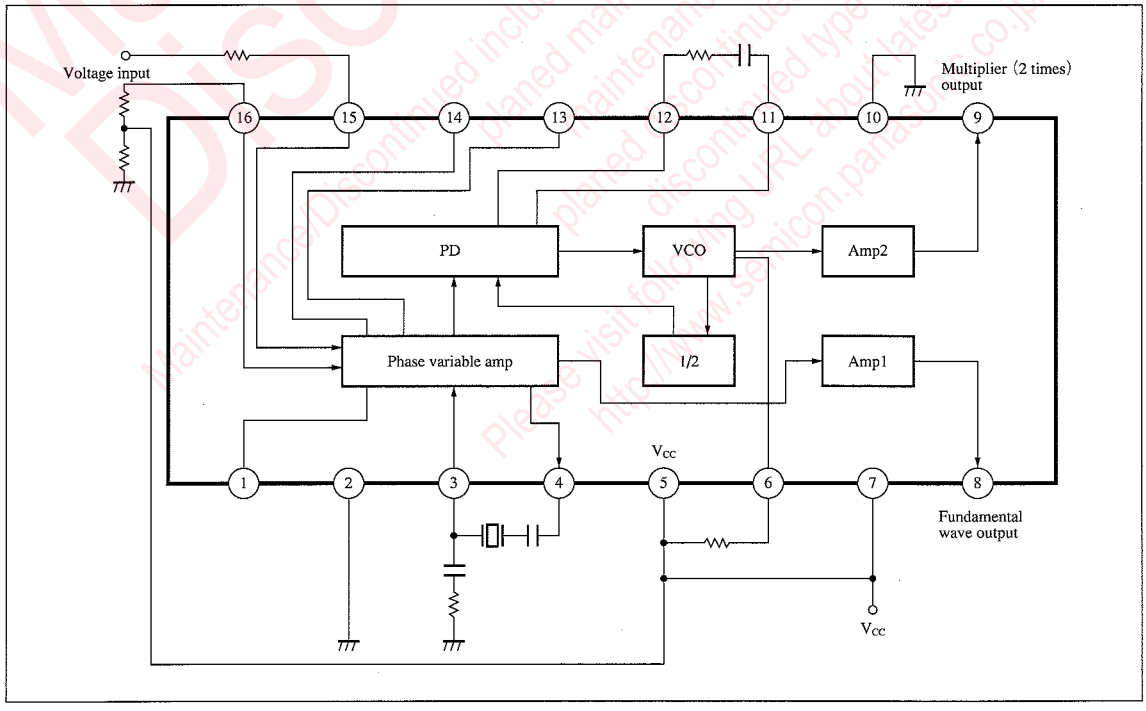
- Applicable to wide frequency range.
- Built-in fundamental wave output and multiplier (2 times) output
- Can also be used as a multiplier (2 times) for an external signal.
- Large output signal level



16-Pin SOP Package (SOP016-P-0225A)

ICs for TV

■ Block Diagram



■ Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Supply voltage	V_{CC}	5.7	V
Supply current	I_{CC}	36	mA
Power dissipation Note 2)	P_D	180	mW
Operating ambient temperature Note 1)	T_{opr}	−20 to +75	℃
Storage temperature Note 1)	T_{stg}	−55 to +125	℃

Note 1) Ta=25℃ for other than storage temperature, operating ambient temperatures and power dissipation.
Note 2) Allowable power dissipation of the package at Ta=70℃.

■ Recommended Operating Range (Ta=25℃)

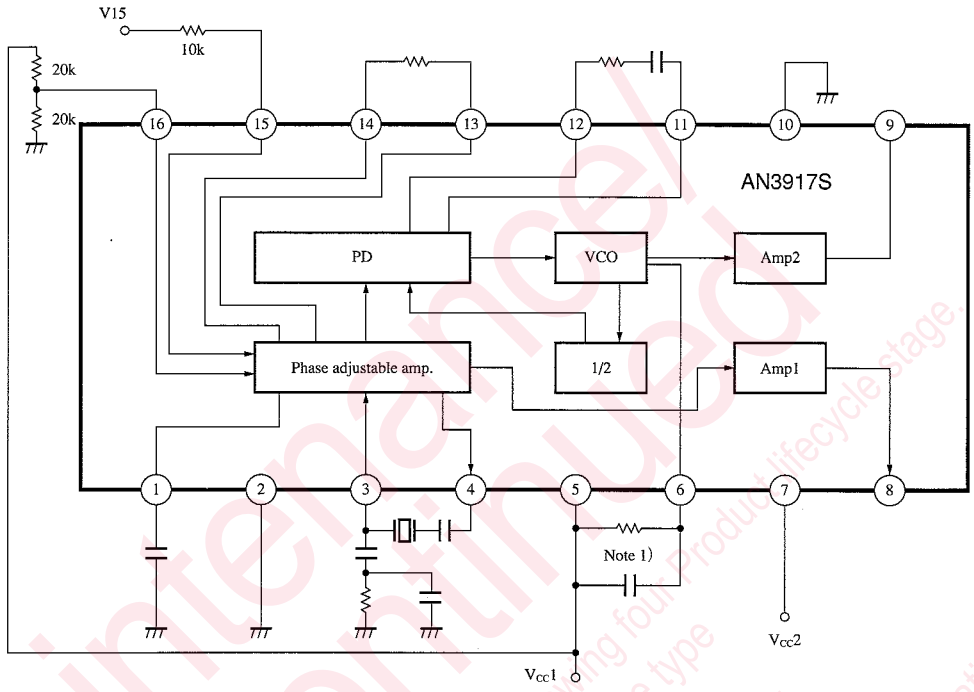
Parameter	Symbol	Range
Operating supply voltage range	V_{CC}	4.5V to 5.5V
Applicable frequency range	XTAL	13.2MHz to 21.5MHz 26.4MHz to 43.0MHz (using a multiplier [2 times])

■ Electrical Characteristics (unless otherwise specified, ambient temperature is 25±2℃)

Parameter	Symbol	Condition	min	typ	max	Unit
Total circuit current	Itot	V15=2.5V, f9=40.0092MHz	20	26	32	mA
Center frequency	Δf9	V15=2.5V, deviation from 40.0092MHz	−35	0	35	ppm
VCXO gain (ΔV=0.1V)	β	V15=2.5→2.4V, variation in f9	8	12	16	ppm
VCXO positive deviation	+Δf9	V15=4.5V, deviation from 40.0092MHz	200	270	400	ppm
VCXO negative deviation	−Δf9	V15=0.5V, deviation from 40.0092MHz	−1000	−650	−300	ppm
Output voltage at Pin⑧	V_O8	V15=2.5V, fundamental-wave component at Pin⑧ (20MHz)	3.3	4.0	—	V_{P-P}
Output voltage at Pin⑨V	V_O9	V15=2.5V, fundamental-wave component at Pin⑨ (40MHz)	3.1	3.5	—	V_{P-P}

Note) V_{CC} (at Pins⑤ and ⑦) =5.0 V for all Parameters.

■ Block Diagram



Note1) The resistor at Pin⑥ must have an accuracy of ±1% and a temperature characteristic of ±300 ppm/℃.

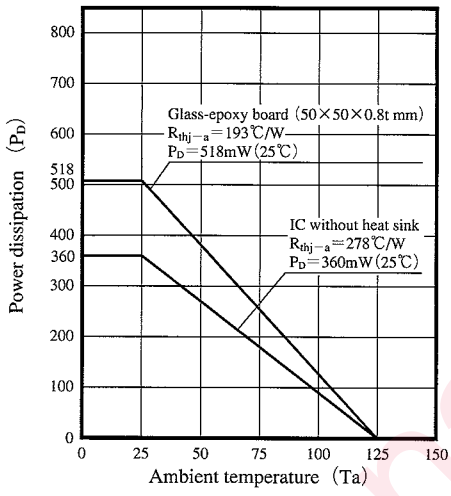
■ Pin Descriptions

Pin No.	Pin name	Pin No.	Pin name
1	Phase adjustment	9	VCO output (doubled frequency)
2	GND1 (analog)	10	GND2 (digital)
3	Phase adjustable amp. input	11	Phase detection output 1
4	Phase adjustable amp. output	12	Phase detection output 2
5	$V_{CC}1$ (analog)	13	Conversion gain adjustment 1
6	VCO frequency adjustment	14	Conversion gain adjustment 2
7	$V_{CC}2$ (digital)	15	VCO input (+)
8	VCO output (fundamental frequency)	16	VCO input (−)

■ Characteristics Curve

Power dissipation for SO-16D package

$P_D - Ta$



V15 vs. output frequency in test circuit 1

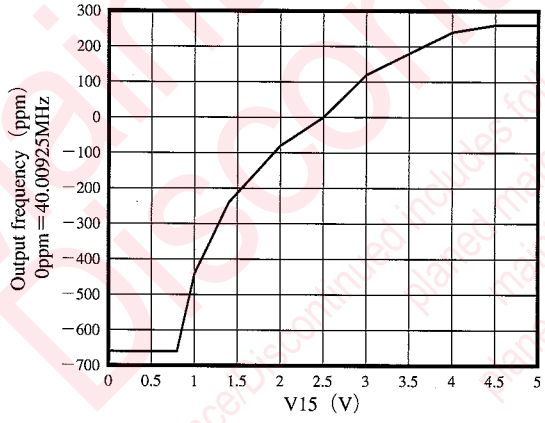


Fig.1 V15 vs. output frequency in test circuit 1

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