

AN3917S

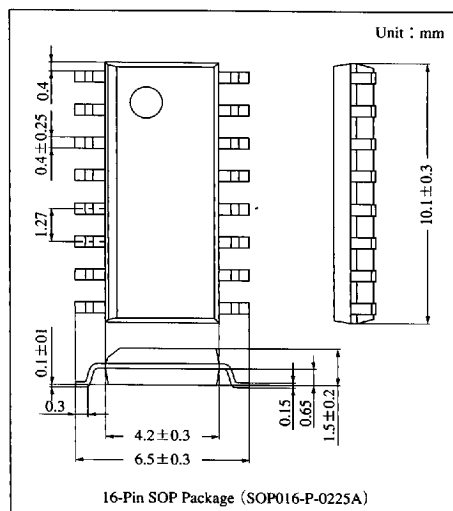
Crystal Oscillator IC with Built-in Multiplier (2 Times)

Overview

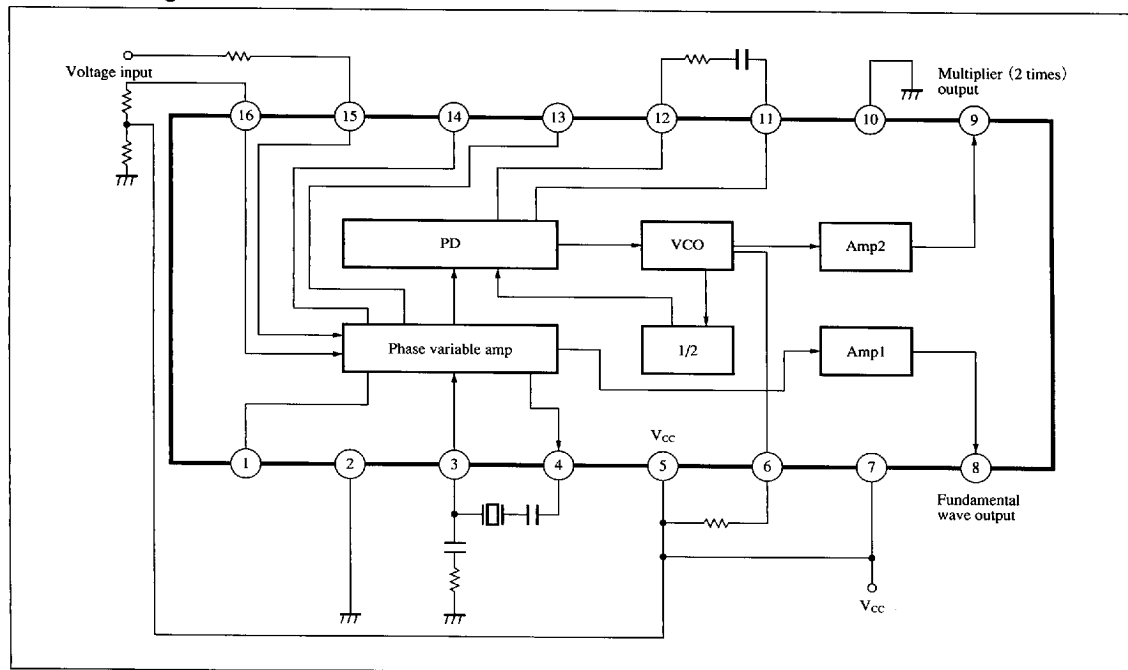
AN3917S is a voltage oscillator (VCO) IC using a quartz crystal.

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



Block Diagram



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■ 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	°C
Storage temperature ^{Note 1)}	T _{stg}	−55 to +125	°C

Note 1) Ta=25°C for other than storage temperature, operating ambient temperatures and power dissipation.

Note 2) Allowable power dissipation of the package at Ta=70°C.

■ Recommended Operating Range (Ta=25°C)

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°C)

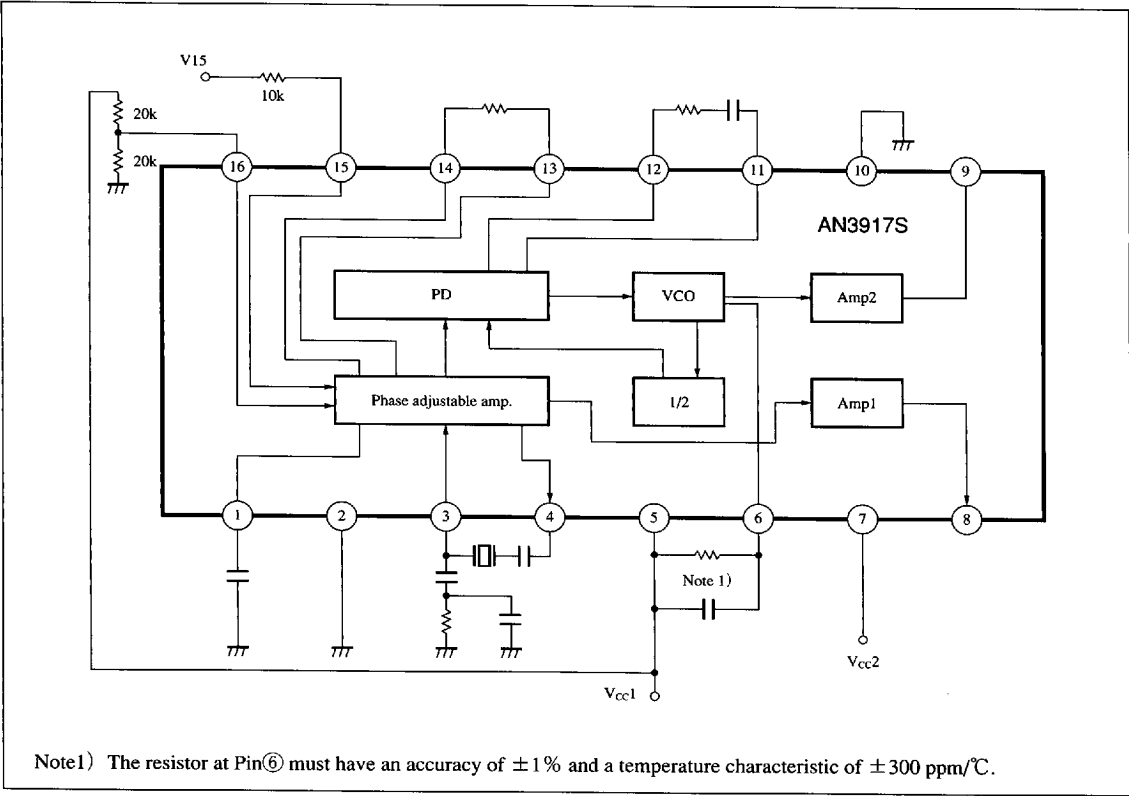
Parameter	Symbol	Condition	min	typ	max	Unit
Total circuit current	I _{tot}	V15=2.5V, f9=40.0092MHz	20	26	32	mA
Center frequency	Δf9	V15=2.5V, deviation from 40.0092MHz	−35	0	35	ppm
VCXO gain (ΔV=0.1V)	β	V15=2.5→2.4V, variation in f9	8	12	16	ppm
VCXO positive deviation	+Δf9	V15=4.5V, deviation from 40.0092MHz	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.

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■ Block Diagram

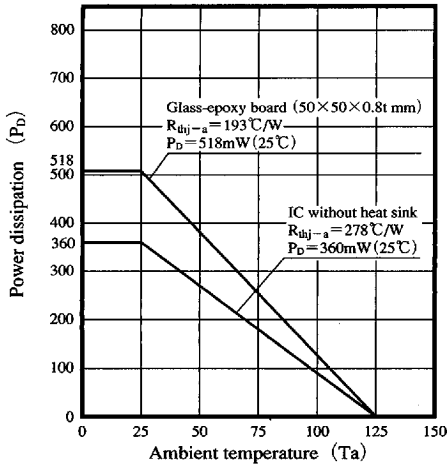


■ Pin Descriptions

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	Vcc1 (analog)	13	Conversion gain adjustment 1
6	VCO frequency adjustment	14	Conversion gain adjustment 2
7	Vcc2 (digital)	15	VCO input (+)
8	VCO output (fundamental frequency)	16	VCO input (-)

■ Characteristics Curve

Power dissipation for SO-16D package
 $P_D - T_a$



V15 vs. output frequency in test circuit 1

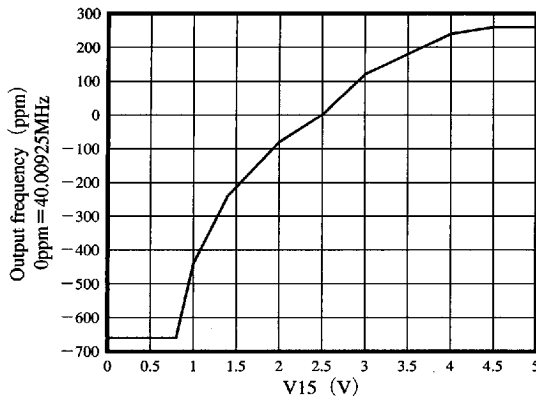


Fig.1 V15 vs. output frequency in test circuit 1