

AN5020

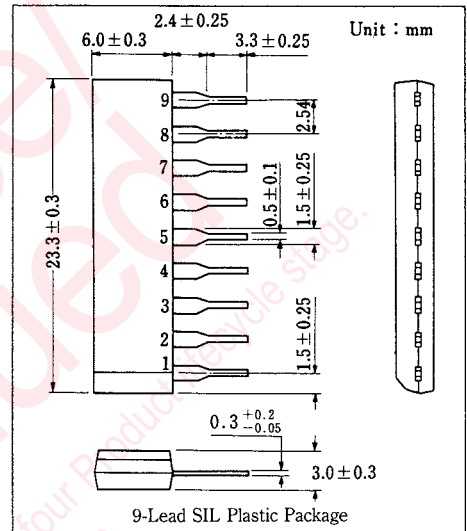
Pre-Amplifier Circuit for Remote Control Signal Receivers

■ Outline

The AN5020 is an integrated circuit for infrared remote control signal receivers. It has features of high sensitivity, high gain and low noise as well as is suitable to various types of remote control circuits.

■ Features

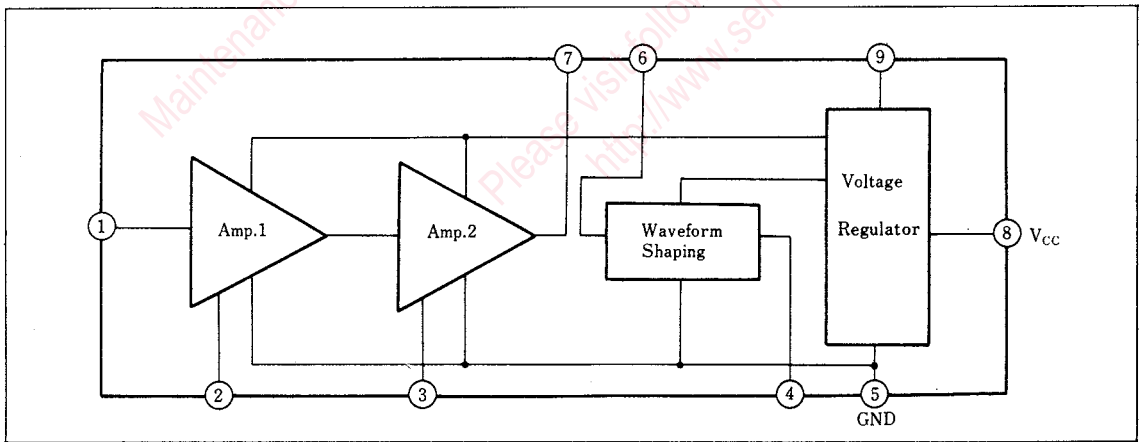
- High sensitivity, High gain, Low noise
- Waveform shaping circuit
- Voltage regulator circuit



■ Pin

Pin No.	Pin Name
1	Input
2	Gain Adj.1
3	Gain Adj.2
4	Pulse Output
5	GND
6	Pulse Input
7	Amp. Output
8	V _{CC}
9	V _{REF} Monitor

■ Block Diagram



■ Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Rating	Unit
Supply voltage	V _{CC}	15.6	V
Supply Current	I _{CC}	25	mA
Power Dissipation	P _D	400	mW
Operating Ambient Temperature	T _{opr}	-20~+75	°C
Storage Temperature	T _{stg}	-55~+150	°C

■ Electrical Characteristics (Ta=25°C)

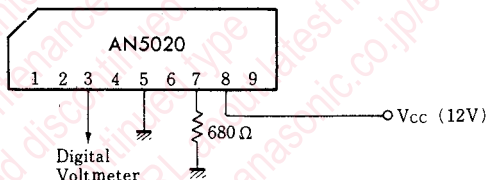
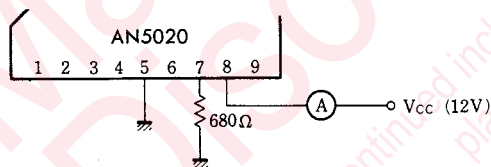
Item	Symbol	Test Circuit	Condition	min.	typ.	max.	Unit
Operating Supply Voltage Range	V _{CC}			9.6	12	14.4	V
Supply Current	I _{CC}	1	V _{CC} =12V, Input Open	5	8	10	mA
Bias Voltage	V ₃₋₅	2	V _{CC} =12V, Input Open	1.65	2.4	3.3	V
Amp. Output Voltage (1)	V ₇₍₁₎	3	V _i =5V _{P-P} Sine Wave, f _i =42kHz, Att:0dB	2.5	3.2		V _{P-P}
Amp. Output Voltage (2)	V ₇₍₂₎	4	V _i =5V _{P-P} Sine Wave, f _i =42kHz, Att:80dB	0.8	2.3		V _{P-P}
Pulse Output High Level	V _{4-5(H)}	5	V _{CC} =12V, V _D =1.3V~4.0V	3.5	4.4	5.0	V
Pulse Output Low Level	V _{4-5(L)}	6	V _{CC} =12V, V _D =0V~0.5V		0.55	0.8	V

* : In Test Circuit 7, input a pulse waveform of 100 Hz repetitive frequency to observe an output waveform.

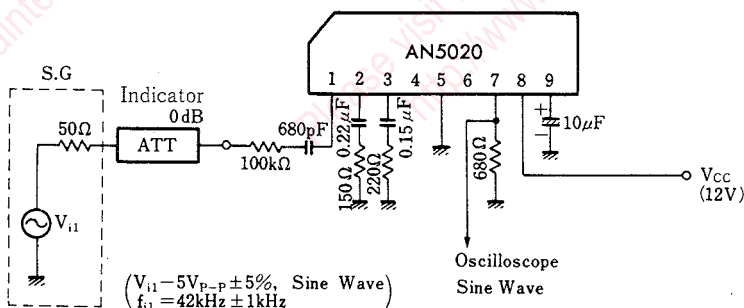
Test Circuit 1 (I_{CC})

Test Circuit 2 (V₃₋₅)

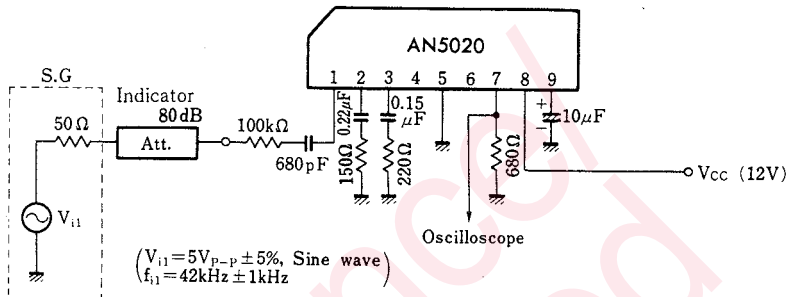
■ Block Diagram



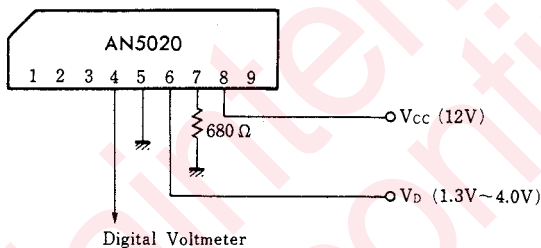
Test Circuit 3 (V₇₍₁₎)



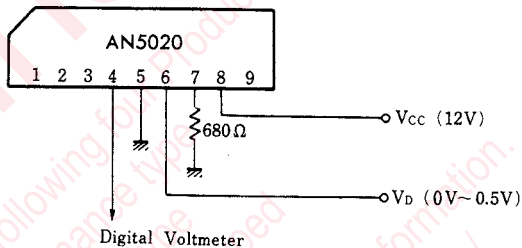
Test Circuit 4 ($V_{7(2)}$)



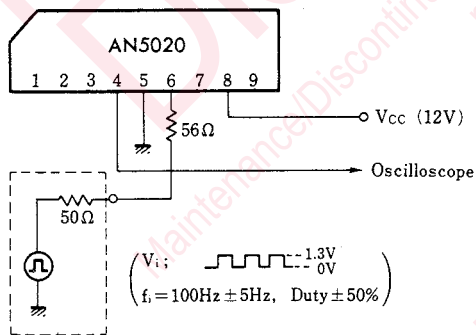
Test Circuit 5 ($V_{4-5(H)}$)



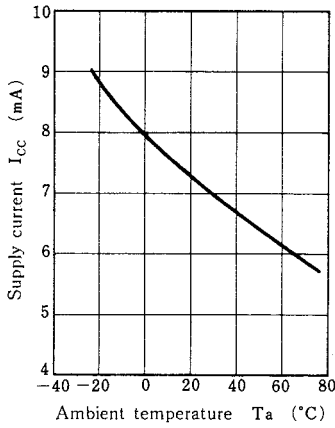
Test Circuit 6 ($V_{4-5(L)}$)



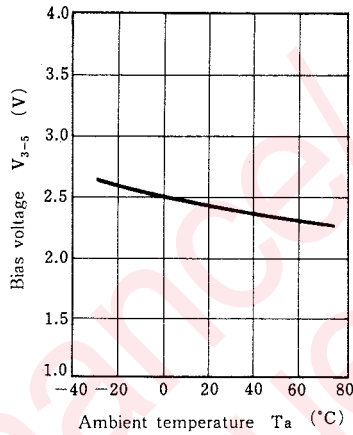
Test Circuit 7 ($V_{4-5(H)}$, $V_{4-5(L)}$)



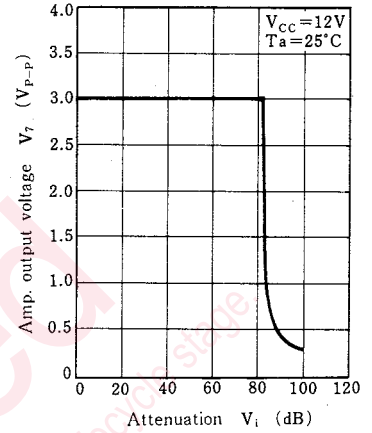
$I_{CC}-T_a$



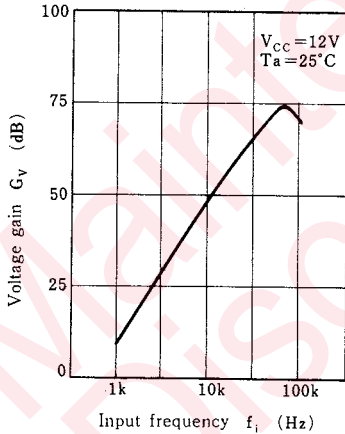
$V_{3-5}-T_a$



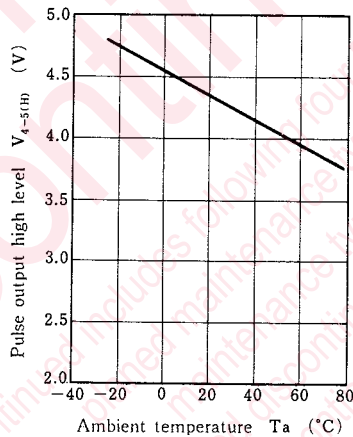
V_7-V_i



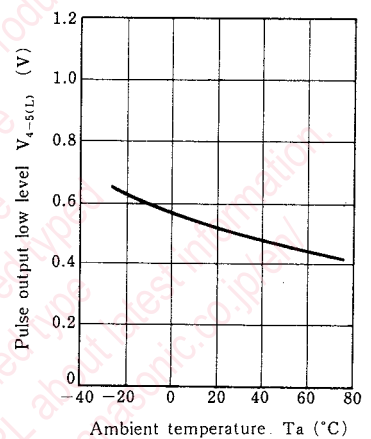
G_V-f_i



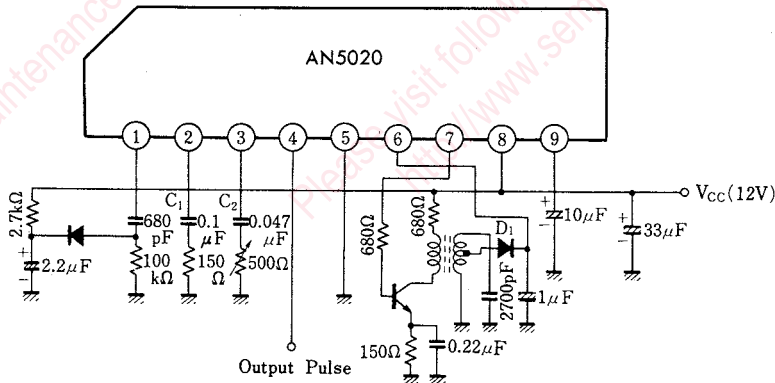
$V_{4.5(H)}-T_a$



$V_{4-5(L)}-T_a$



Application Circuit



Note 1: TLR69717 coil is used.
 Note 2: C_1 and C_2 are examples.

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