AN2373

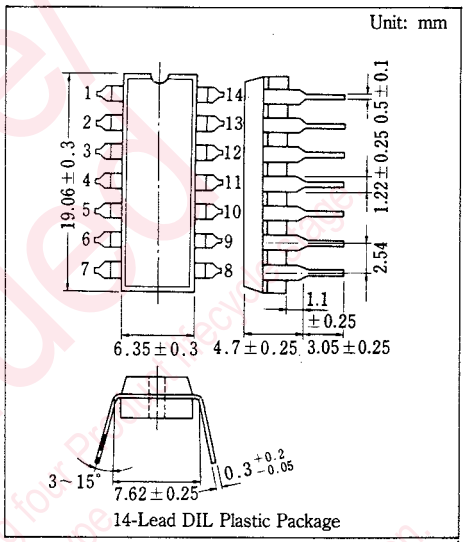
Differential Video Amplifier Circuit

■ Outline

The AN2373 is a wide band amplifier for differential I/O. It provides 10-fold, 100-fold and 400-fold gain without an external resistor. With the external resistor added, it also provides any gain ranging from 10 folds to 400 folds.

■ Features

- 80 MHz bandwidth
- Adjustable gain from 10 to 400 m times

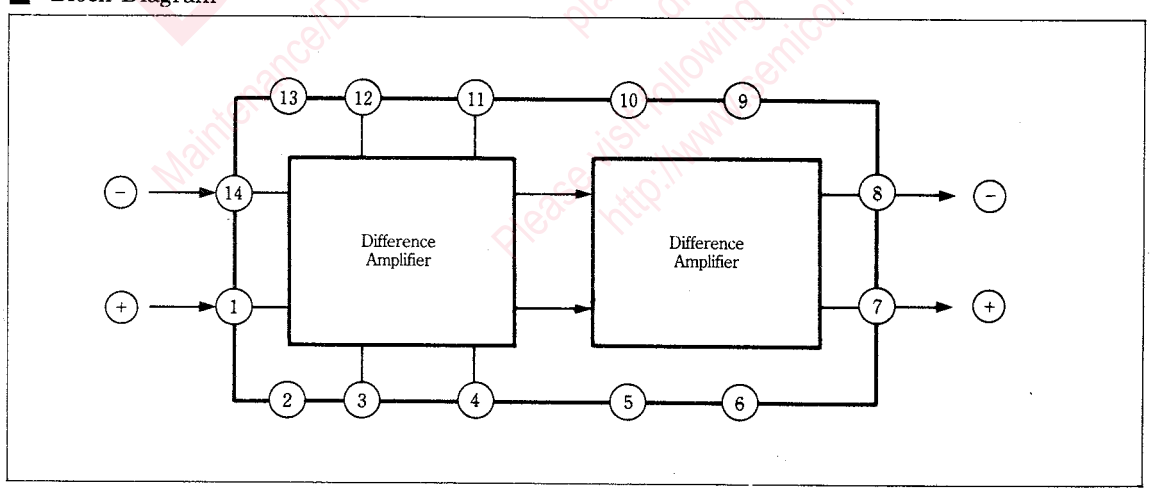


14-Lead DIL Plastic Package

■ Pin

Pin No.	Pin Name	Pin No.	Pin Name
1	Input (1)	8	Output (2)
2	NC	9	NC
3	Gain Select G2A	10	V_{CC}
4	Gain Select G1A	11	Gain Select G1B
5	V_{EE}	12	Gain Select G2B
6	NC	13	NC
7	Output (1)	14	Input (2)

■ Block Diagram



■ Absolute Maximum Ratings (Ta=25℃)

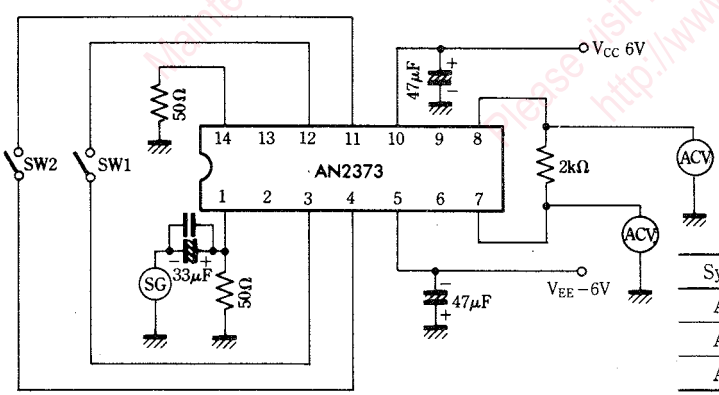
Item	Symbol	Rating	Unit
Supply Voltage	V_{CC}	+8	V
	V_{EE}	−8	V
Supply Current	I_{CC}	24	mA
Power Dissipation	P_D	390	mW
Operating Ambient Temperature	T_{opr}	−20~75	℃
Storage Temperature	T_{stg}	−55~150	℃

■ Electrical Characteristics (Ta=25℃)

Item	Symbol	Test Circuit	Condition	min.	typ.	max.	Unit
Supply Current	I_{CC}		V_{CC}=6V, V_{EE}=−6V	12	16	20	mA
Input Bias Current	I_{Bias}		V_{CC}=6V, V_{EE}=−6V	10	25	32	μA
Input Offset Current	I_{IO}		V_{CC}=6V, V_{EE}=−6V	−5	0	5	μA
Output Offset Voltage	$V_{O(offset)}$		V_{CC}=6V, V_{EE}=−6V	0	0.35	1.0	V
Max. Output Voltage	$V_{O(max.)}$		V_{CC}=6V, V_{EE}=−6V	3	4	5	V
Voltage Amplification Degree (1)	A_{VD1}	1	V_{CC}=6V, V_{EE}=−6V	125	200	250	times
Voltage Amplification Degree (2)	A_{VD2}	1	V_{CC}=6V, V_{EE}=−6V	40	50	60	times
Voltage Amplification Degree (3)	A_{VD3}	1	V_{CC}=6V, V_{EE}=−6V	4	5	6	times
Frequency Band	BW		V_{CC}=6V, V_{EE}=−6V Pin③, ④, ⑪, ⑫		80		MHz
Input Capacity	C_I		V_{CC}=6V, V_{EE}=−6V Pin③, ⑫		2		pF
Input Resistor (1)	R_{i1}		V_{CC}=6V, V_{EE}=−6V Pin④, ⑪		4		kΩ
Input Resistor (2)	R_{i2}		V_{CC}=6V, V_{EE}=−6V Pin③, ⑫		24		kΩ
Input Resistor (3)	R_{i3}		V_{CC}=6V, V_{EE}=−6V Pin③, ④, ⑪, ⑫		250		kΩ
Output Resistor	R_O		V_{CC}=6V, V_{EE}=−6V Pin③, ④, ⑪, ⑫		20		Ω
Output Suction Current	I_{SINK}		V_{CC}=6V, V_{EE}=−6V Pin③, ④, ⑪, ⑫		3.6		mA
Power Fluctuation Elimination Ratio	$\Delta V_{CC}/\Delta V_O$		V_{CC}=6V, V_{EE}=−6V Pin③, ⑫		70		dB

Note) Operating Supply Voltage Range : V_{CC}=3~7.2V, V_{EE}=−3~−7.2V

Test Circuit 1 (A_{VD1}, A_{VD2}, A_{VD3})



Symbol	Input Amplitude	SW1	SW2
A_{VD1}	10mV_{P-P}	OFF	ON
A_{VD2}	40mV_{P-P}	ON	OFF
A_{VD3}	400mV_{P-P}	OFF	OFF

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