

μ PC271 / 311

Precision Voltage Comparators

GENERAL DESCRIPTION

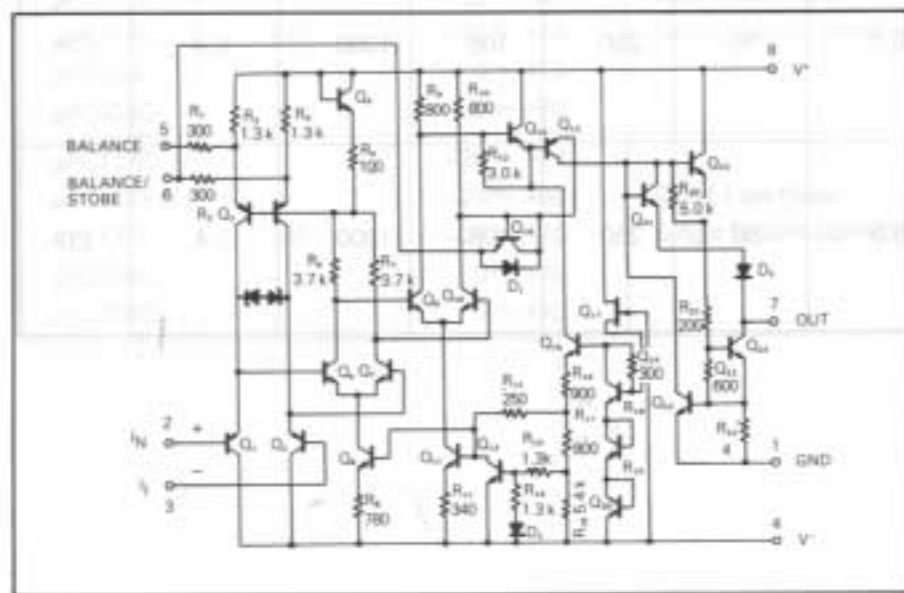
The μ PC271/311 are voltage comparators that have input currents more than a hundred times lower than device like conventional standard type of 710. It is also designed to operate over a wide range of supply voltages; from ± 15 V op amp supplies down to the single 5 V supply used for IC logic. Its output is compatible with HNIL, DTL and TTL as well as MOS circuits.

Two kinds of ICs are available according to reliability, the μ PC271 for industry, the μ PC311 for commercial.

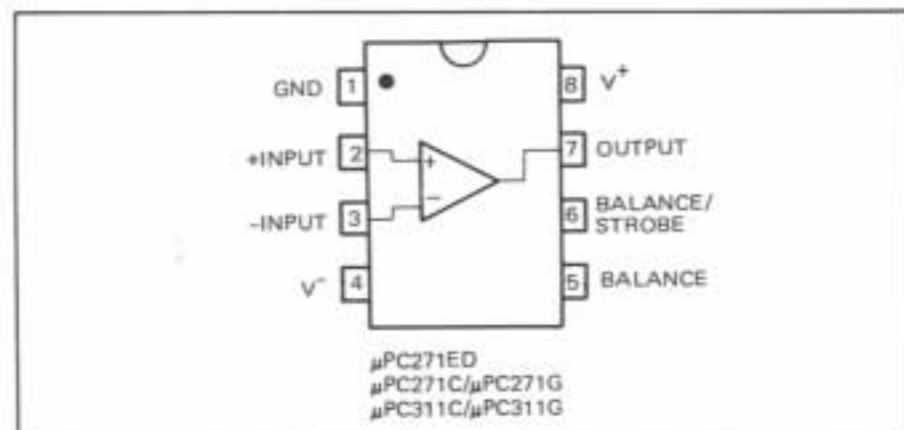
FEATURES

- Operate from single 5 V supply
- Maximum input current: 250 nA
- Maximum offset current: 50 nA
- Fast transient response: 200 ns TYP.
- LM311 Direct Replacement

EQUIVALENT CIRCUIT



CONNECTION DIAGRAM (Top View)



ORDERING INFORMATION

μ PC271ED



8 pin Ceramic DIP
(Dual In-Line Package)

μ PC271C/ μ PC311C



8 pin Plastic Molded DIP
(Dual In-Line Package)

μ PC271G/ μ PC311G



8 pin Plastic Molded Flat Package
(MINI FLAT IC)

ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

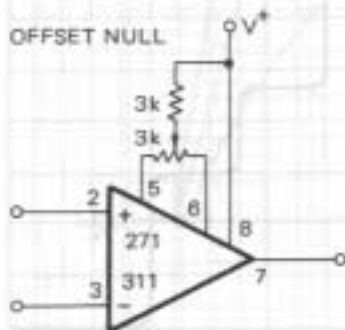
PARAMETER		μPC271	μPC311	UNIT
Voltage between V ⁺ and V ⁻		36	36	V
Output to Negative Supply Voltage		40	40	V
Ground to Negative Supply Voltage		30	30	V
Differential Input Voltage		±30	±30	V
Input Voltage (Note 1)		±15	±15	V
Power Dissipation*	D Package	500	—	mW
	C Package	350	350	
	G Package	440	440	
Output Short Circuit Duration		10	10	s
Operating Temperature Range	D Package	-20 to +80	—	°C
	C or G Package	-20 to +70	0 to 70	
Storage Temperature Range	D Package	-55 to +150	—	°C
	C or G Package	-55 to +125	-55 to +125	

Note 1. For supply voltages less than ±15 V, the absolute maximum input voltage is equal to the supply voltage.

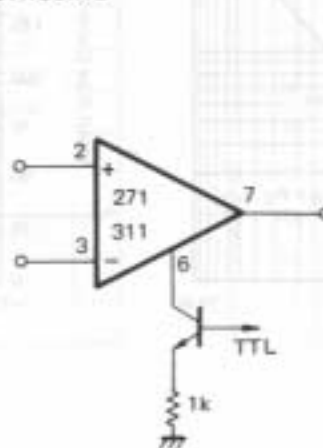
* See thermal information in chapter 11.

ELECTRICAL CHARACTERISTICS (Ta = 25°C, V[±] = ±15 V)

CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	CONDITIONS
Input Offset Voltage		2.0	7.5	mV	V ⁺ - V ⁻ = 5 V ~ 30 V, R _s ≤ 50 kΩ
Input Offset Current		6.0	50	nA	"
Input Bias Current		100	250	nA	"
Voltage Gain		200		V/mV	R _L = 1.0 kΩ
Response Time		200		ns	Input step 100 mV, Overdrive 5 mV
Saturation Voltage		0.75	1.5	V	V _{IN} ≥ 10 mV, I _o = 50 mA
Strobe ON Current		3.0		mA	
Output Leakage Current		0.2	50	nA	V _{IN} ≥ 10 mV, V _o = 35 V
Positive Supply Current		5.1	7.5	mA	
Negative Supply Current		4.1	5.0	mA	
Input Offset Voltage			10	mV	V ⁺ - V ⁻ = 5 ~ 30 V, R _s ≤ 50 kΩ, TA = 0 ~ 70°C
Input Offset Current			70	nA	"
Input Bias Current			300	nA	"
Input Voltage Range		±14		V	
Saturation Voltage		0.23	0.4	V	V ⁺ ≥ 4.5 V, V ⁻ = 0 V, V _{IN} ≤ -10 mV, I _o = 8 mA



STROBING



INCREASING INPUT STAGE CURRENT

