

Precision Voltage Comparators

GENERAL DESCRIPTION

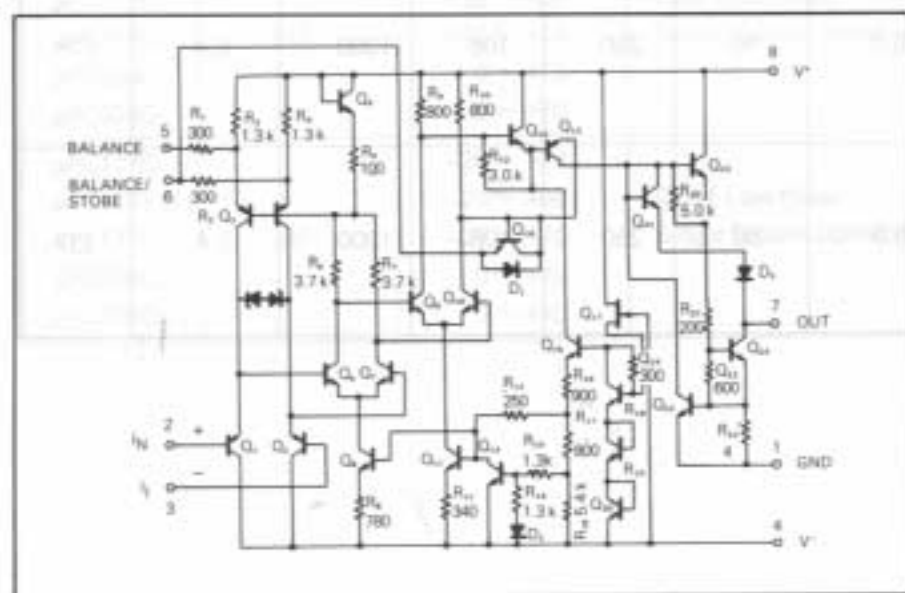
The μ PC271/311 are voltage comparators that have input currents more than a hundred times lower than device like conventional standard type of 710. It is also designed to operate over a wide range of supply voltages; from ± 15 V op amp supplies down to the single 5 V supply used for IC logic. Its output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

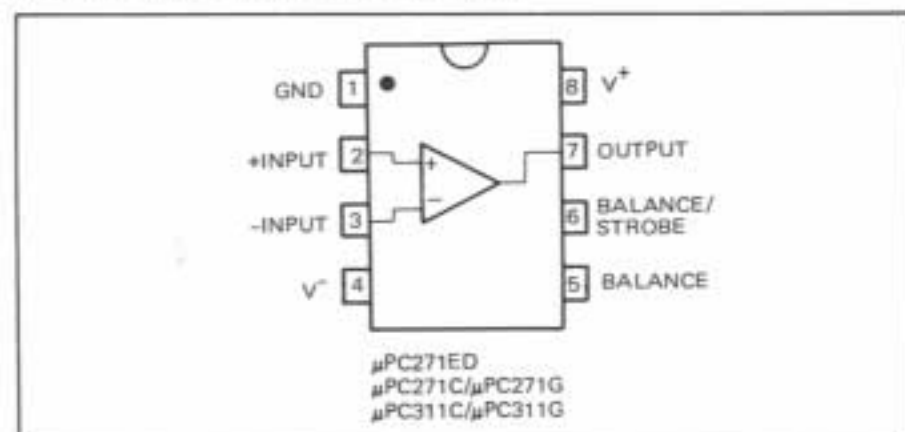
FEATURES

- 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 ($T_a = 25^\circ\text{C}$)

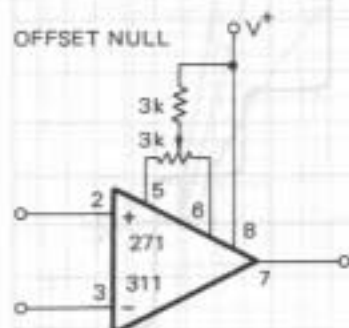
PARAMETER			μ PC271	μ PC311	UNIT
Voltage between V^+ and V^-			36	36	V
Output to Negative Supply Voltage			40	40	V
Ground to Negative Supply Voltage			30	30	V
Differential Input Voltage			± 30	± 30	V
Input Voltage (Note 1)			± 15	± 15	V
Power Dissipation*	D	Package	500	—	mW
	C	Package	350	350	
	G	Package	440	440	
Output Short Circuit Duration			10	10	s
Operating Temperature Range	D	Package	-20 to $+80$	—	$^\circ\text{C}$
	C or G	Package	-20 to $+70$	0 to 70	
Storage Temperature Range	D	Package	-55 to $+150$	—	$^\circ\text{C}$
	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.

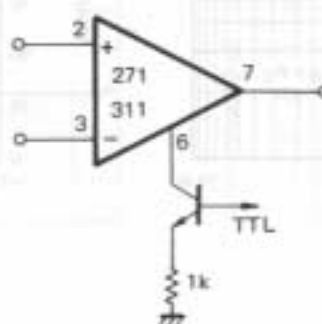
* See thermal information in chapter 11.

ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$, $V^\pm = \pm 15$ V)

CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	CONDITIONS
Input Offset Voltage		2.0	7.5	mV	$V^+ - V^- = 5\text{ V} \sim 30\text{ V}$, $R_s \leq 50\text{ k}\Omega$
Input Offset Current		6.0	50	nA	"
Input Bias Current		100	250	nA	"
Voltage Gain		200		V/mV	$R_L = 1.0\text{ k}\Omega$
Response Time		200		ns	Input step 100 mV, Overdrive 5 mV
Saturation Voltage		0.75	1.5	V	$V_{IN} \geq 10\text{ mV}$, $I_o = 50\text{ mA}$
Strobe ON Current		3.0		mA	
Output Leakage Current		0.2	50	nA	$V_{IN} \geq 10\text{ mV}$, $V_o = 35\text{ V}$
Positive Supply Current		5.1	7.5	mA	
Negative Supply Current		4.1	5.0	mA	
Input Offset Voltage			10	mV	$V^+ - V^- = 5 \sim 30\text{ V}$, $R_s \leq 50\text{ k}\Omega$, $T_A = 0 \sim 70^\circ\text{C}$
Input Offset Current			70	nA	"
Input Bias Current			300	nA	"
Input Voltage Range		± 14		V	
Saturation Voltage		0.23	0.4	V	$V^+ \geq 4.5\text{ V}$, $V^- = 0\text{ V}$, $V_{IN} \leq -10\text{ mV}$, $I_o = 8\text{ mA}$



STROBING



INCREASING INPUT STAGE CURRENT

