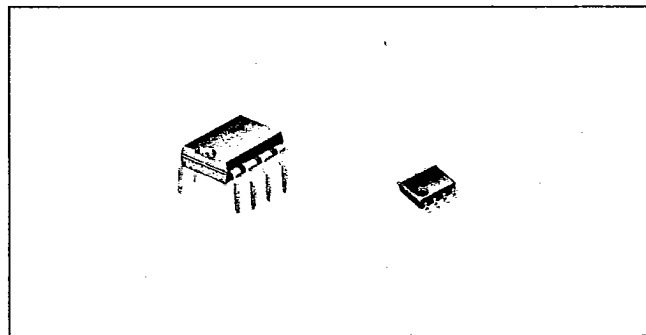


Dual Comparators

BA6993 BA6993F



The BA6993 and BA6993F are monolithic dual comparators. With open-collector outputs, the device allows wired OR output connections. They feature a wide supply voltage range: 2 to 36 V for single power supply, and ± 1 to ± 18 V for dual power supply.

Features

1. Wide supply voltage range: 2 to 36 V for single power supply; ± 1 to ± 18 V for dual power supply.
2. Small current requirement (0.4 mA typ. at $V_{CC}=5$ V).
3. Small input offset current (± 5.0 nA typ. at $V_{CC}=5$ V) and small input offset voltage (± 1.0 mV typ. at $V_{CC}=5$ V).
4. Wide common-mode input voltage range (-0.3 to 36 V).
5. Open collector output.
6. Comes in 8-pin DIP (BA6993) or 8-pin MF package (BA6993F).

Block Diagram

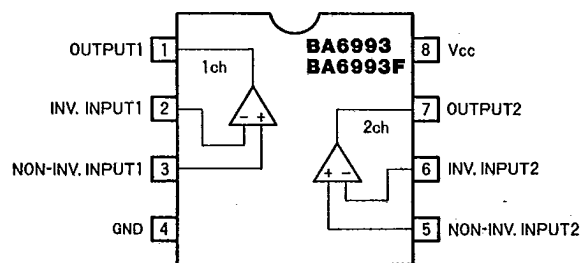


Fig. 3

Dimensions (Unit: mm)

BA6993

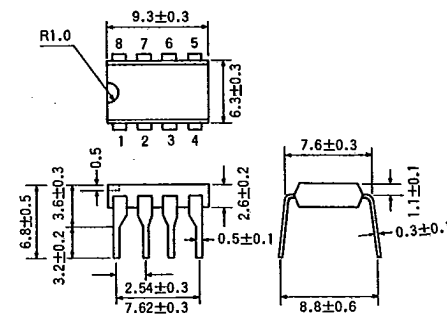


Fig. 1

BA6993F

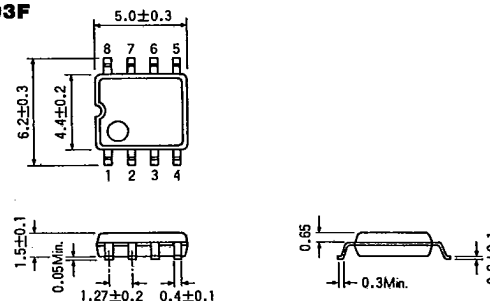


Fig. 2

Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)

Parameter	Symbol	Limits	Unit
Supply voltage	V_{CC}	36(± 18)	V
Power dissipation	P_d	500 ^{*1}	mW
Differential input voltage	V_{ID}	36	V
Common-mode input voltage	V_{ICM}	$-0.3 \sim 36$	V
Operating temperature range	T_{opr}	$-20 \sim 75$ ^{*2}	$^\circ\text{C}$
Storage temperature range	T_{stg}	$-55 \sim 125$	$^\circ\text{C}$

^{*1} Derating is done at 5mW/ $^\circ\text{C}$ for operation above $T_a=25^\circ\text{C}$.

^{*2} For an extended operating temperature range, consult your local ROHM representative.

Electrical Characteristics ($T_a=25^\circ\text{C}$, $V_{CC}=5\text{V}$)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Input offset voltage	V_{IO}	—	± 1.0	± 5.0	mV
Input offset current	I_{IO}	—	± 5.0	± 50	nA
Input bias current	I_B	—	25	250	nA
Voltage gain	G_V	50	200	—	V/mV
Common-mode input voltage range	V_{ICM}	0	—	$V_{CC}-1.5$	V
Response time	t_r	—	1.3	—	μs
Output current (SINK)	I_{osink}	10	16	—	mA
Output saturation voltage	V_{osat}	—	250	400	mV
Output leakage current	I_{leak}	—	0.1	—	nA
Quiescent current	I_Q	—	0.4	1.0	mA