

# UTC MC34072 LINEAR INTEGRATED CIRCUIT

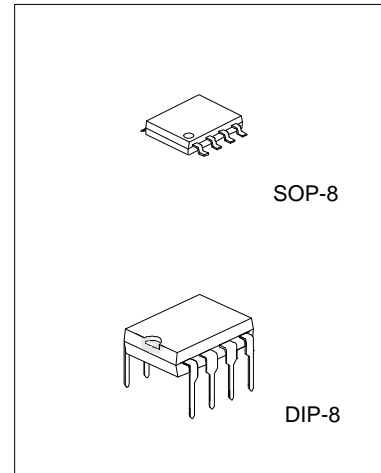
## HIGH SLEW RATE, WIDE BANDWIDTH, SINGLE SUPPLY OPERATIONAL AMPLIFIERS

### DESCRIPTION

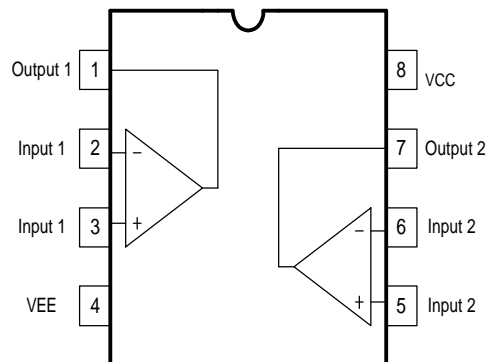
The UTC MC34072 offer 4.5MHz of gain bandwidth product, 13V/ $\mu$ s slew rate and fast setting time without the use of JFET device technology. Although it can be operated from split supplies, it is particularly suited for single supply operation, since the common mode input voltage range includes ground potential (VEE). With A Darlington input stage, it exhibits high input resistance, low input offset voltage and high gain. The all NPN output stage, characterized by no deadband crossover distortion and large output voltage swing, provides high capacitance drive capability, excellent phase and gain margins, low open loop high frequency output impedance and symmetrical source/sink AC frequency response.

### FEATURES

- \*Wide bandwidth: 4.5 MHz
- \*High slew rate: 13V/ $\mu$ s
- \*Fast settling time: 1.1 $\mu$ s to 0.1%
- \*Wide single supply operation: 3.0V to 44V
- \*Wide input common mode voltage range:  
Includes Ground (VEE)
- \*Low input offset voltage: 3.0mV maximum
- \*Large output voltage swing: -14.7V to +14V  
(with  $\pm$ 15V supplies)
- \*Large Capacitance Drive Capability: 0 pF to 10,000 pF
- \*Low total harmonic distortion: 0.02%
- \*Excellent phase margin: 60°
- \*Excellent gain margin: 12dB
- \*Output short circuit protection
- \*ESD Diodes/Clamps provide input protection

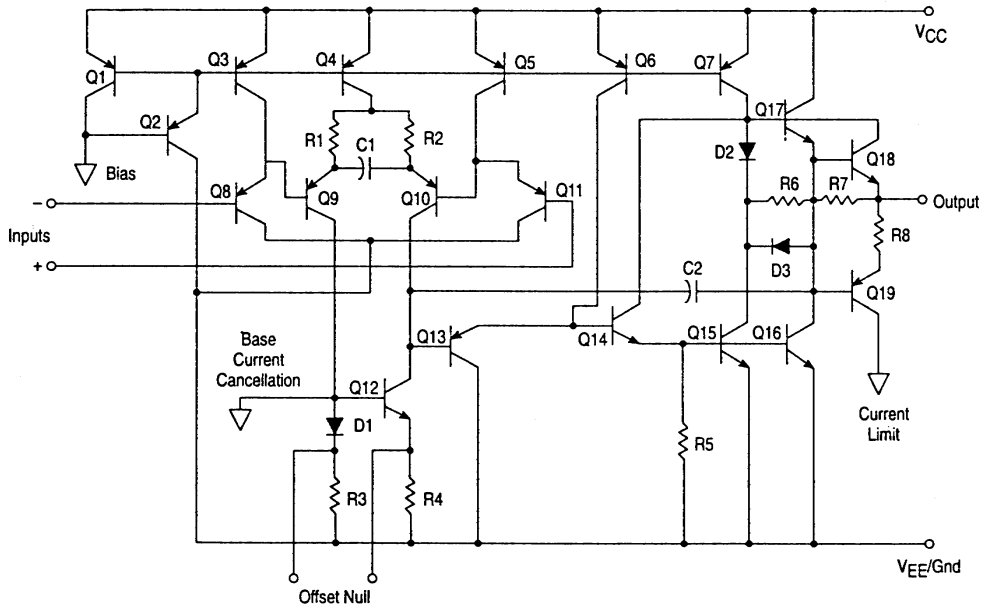


### PING CONFIGURATIONS



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## TEST CIRCUIT



### ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETER	SYMBOL	VALUE	UNIT
Supply Voltage (from VEE to VCC)	Vs	+44	V
Differential Input Voltage	VIDR	Note 1	V
Input Voltage	VIR	Note 1	V
Output Short Circuit Duration (Note 2)	tSC	Indefinite	sec
Operating Junction Temperature	Tj	+150	°C
Storage Temperature Range	Tstg	-60 to 150	°C

Notes: 1. Either or both input voltages should not exceed the magnitude of VCC or VEE.

2. Power dissipation must be considered to ensure maximum junction temperature (Tj) is not exceeded.

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ELECTRICAL CHARACTERISTICS (VCC=+15V, VEE=-15V, RL=connected to ground, unless otherwise noted.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Offset Voltage (RS=100Ω, VCM=0V, VO=0V)	VIO	VCC=+15V, VEE=-15V, TA=+25°C		0.5	3.0	mV
		VCC=+5V, VEE=0V, TA=+25°C		0.5	3.0	mV
		VCC=+15V, VEE=-15V, TA=0°C to 70°C			5.0	mV
Average Temperature Coefficient of Input Offset Voltage	ΔVIO/ΔT	RS=10Ω, VCM=0V, VO=0V, TA=0°C to 70°C			10	μV/°C
Input Bias Current (VCM=0V, VO=0V)	IIB	TA=+25°C		100	500	nA
		TA=0°C to 70°C			700	nA
Input Offset Current (VCM=0V, VO=0V)	IIO	TA=+25°C		6.0	50	nA
		TA=0°C to 70°C			300	nA
Input Common Mode Voltage	VICR	TA=+25°C		VEE to (VCC -1.8)		V
		TA= TA=0°C to 70°C		VEE to (VCC -2.2)		V
Large Singal Voltage Gain (Vo=+-10V, RL=2.0kΩ)	AVOL	TA=+25°C	50	100		V/mV
		TA=0°C to 70°C	25			V/mV
Output Voltage Swing (VID=+-1.0V)	VOH	VCC=+5.0V, VEE=0V, RL=2.0kΩ, TA=+25°C	3.7	4.0		V
		VCC=+15.0V, VEE=-15V, RL=10kΩ, TA=+25°C	13.6	14		V
		VCC=+15.0V, VEE=-15V, RL=2.0kΩ, TA=0°C to 70°C	13.4			V
Output Voltage Swing (VID=+-1.0V)	VOL	VCC=+5.0V, VEE=0V, RL=2.0kΩ, TA=+25°C		0.1	0.3	V
		VCC=+15.0V, VEE=-15V, RL=10kΩ, TA=+25°C		-14.7	-14.3	V
		VCC=+15.0V, VEE=-15V, RL=2.0kΩ, TA=0°C to 70°C			-13.5	V
Output Short Circuit current	ISC	VID=1.0V, VO=0V, TA=25°C Source Sink	10	30		mA
			20	30		
Common Mode Rejection	CMR	RS<=10kΩ, VCM=VICR, TA=25°C	80	97		dB
Power Supply Rejection (RS=100Ω)	PSR	VCC/VEE=+16.5V/-16.5V TO +13.5/-13.5V, TA=25°C	80	97		dB
Power Supply Current (Per Amplifier, No Load)	ID	VCC=+5.0V, VEE=0V, VO=+2.5V, TA=+25°C		1.6	2.0	mA
		VCC=+15.0V, VEE=-15V, VO=0V, TA=+25°C		1.9	2.5	mA
		VCC=+15.0V, VEE=-15V, VO=0V, TA=0°C to 70°C			2.8	mA