μPC251 / 1458

Dual General Purpose Operational Amplifiers

GENERAL DESCRIPTION

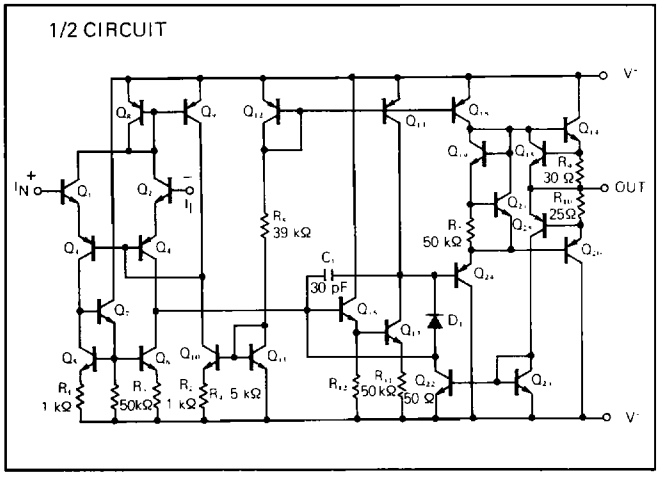
The μPC251 and 1458 are dual general purpose operational amplifiers having internal frequency compensating circuits. It is intended for a wide range of analog applications. High common mode voltage range and no latch up tendencies make this amplifier ideal for use as a voltage follower.

Two kinds of ICs are available according to reliability, the μPC251 for industry, the μPC1458 for commercial.

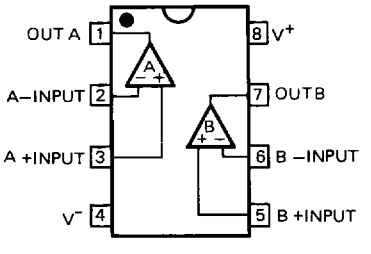
FEATURES

- Dual μPC151/741 Internally Frequency Compensated Operational Amplifier
- Short Circuit Protection
- Large Common Mode and Differential Input Voltage
- No Latch Up
- MC1458 Direct Replacement

EQUIVALENT CIRCUIT



CONNECTION DIAGRAM (Top View)



μPC251D
μPC251C/μPC251G
μPC1458C/μPC1458G

ORDERING INFORMATION

μPC251D

8 pin Ceramic DIP
(Dual In-Line Package)

μPC251C/μPC1458C

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

μPC251G/μPC1458G

8 pin Plastic Molded Flat
Package (MINI FLAT IC)

ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

PARAMETER		μPC251	μPC1458	UNIT
Voltage between V^+ and V^-		36	36	V
Power Dissipation*	D Package	500	–	mW
	C Package	350	350	
	G Package	440	440	
Differential Input Voltage		±30	±30	V
Input Voltage (Note 1)		±15	±15	V
Output Short Circuit Duration		Indefinite	Indefinite	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 ($V^{\pm}$ = ±15 V, Ta = 25°C)

CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	CONDITIONS
Input Offset Voltage		1.0	6.0	mV	$R_S \leq 10\ k\Omega$
Average Input Offset Voltage Drift		3		μV/°C	$R_S \leq 10\ k\Omega$
Input Offset Current		20	200	nA	
Input Bias Current		80	500	nA	
Large Signal Voltage Gain	20,000	160,000			$R_L \geq 2\ k\Omega$, Vo = ±10 V
Channel Separation		120		dB	f = 10 Hz, R_L = 2 kΩ
Supply Current		3.0	5.6	mA	
Power Consumption		90	170	mW	
Common Mode Rejection Ratio	70	90		dB	$R_S \leq 10\ k\Omega$
Supply Voltage Rejection Ratio		30	150	μV/V	$R_S \leq 10\ k\Omega$
Output Voltage Swing	±12	±14		V	$R_L \geq 10\ k\Omega$
Output Voltage Swing	±10	±13		V	$R_L \geq 2\ k\Omega$
Input Impedance	0.3	1.0		MΩ	

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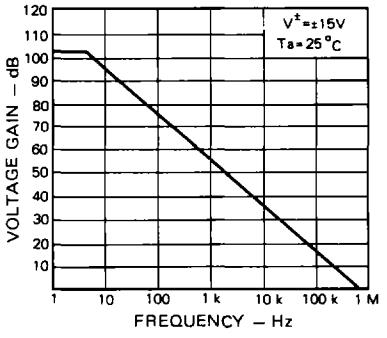
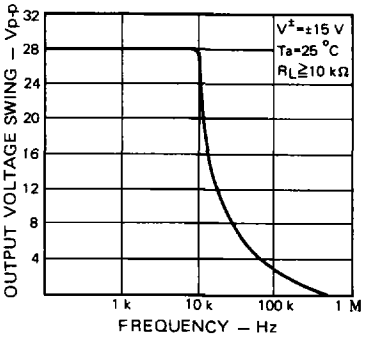
TYPICAL PERFORMANCE CHARACTERISTICS (Ta=25 °C)

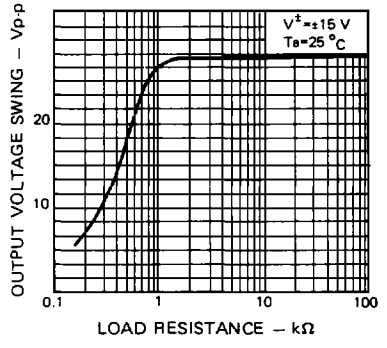
OPEN LOOP FREQUENCY RESPONSE



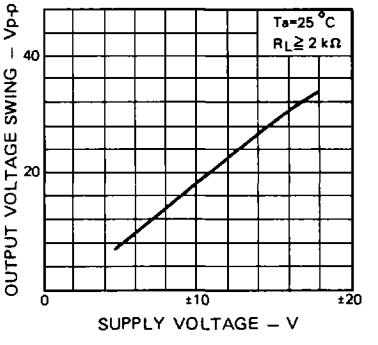
LARGE SIGNAL FREQUENCY RESPONSE



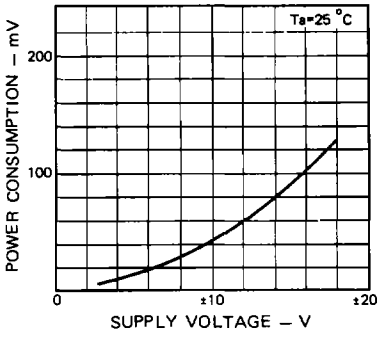
OUTPUT VOLTAGE SWING



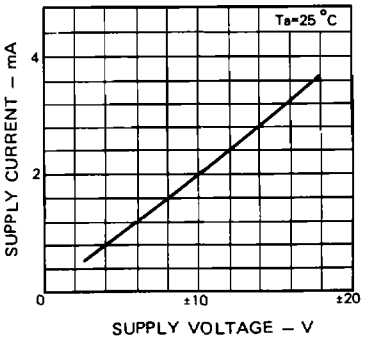
OUTPUT VOLTAGE SWING



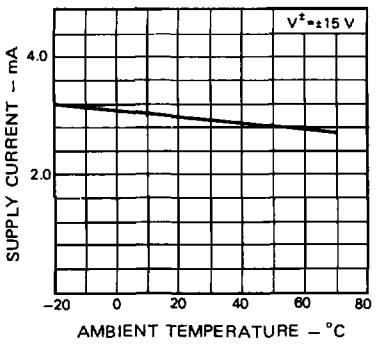
POWER CONSUMPTION



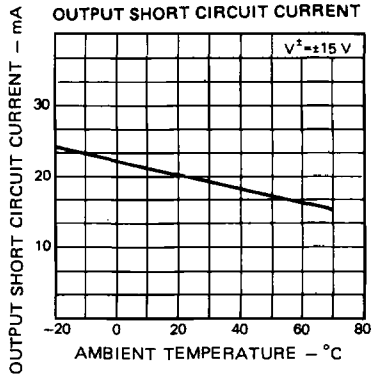
SUPPLY CURRENT



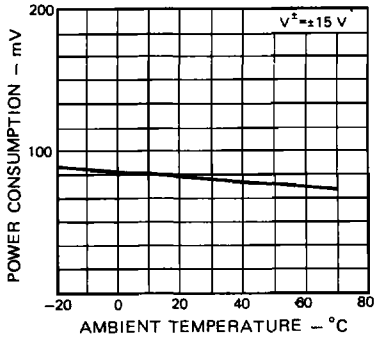
T_{CC} – Ta CHARACTERISTICS



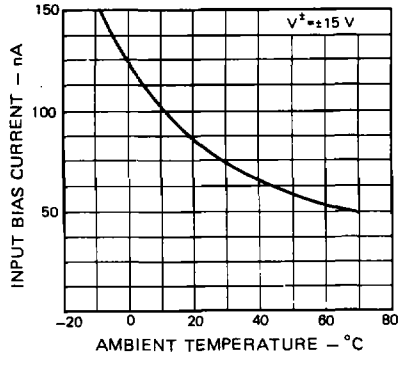
OUTPUT SHORT CIRCUIT CURRENT



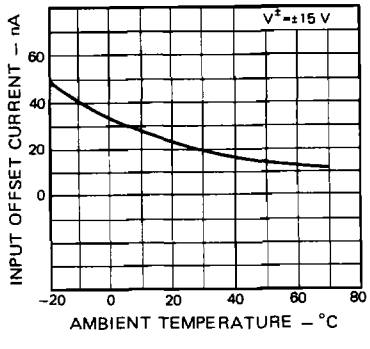
POWER CONSUMPTION



INPUT BIAS CURRENT



INPUT OFFSET CURRENT



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