μPC251 / 1458

General Purpose Dual Operational Amplifiers

GENERAL DESCRIPTION

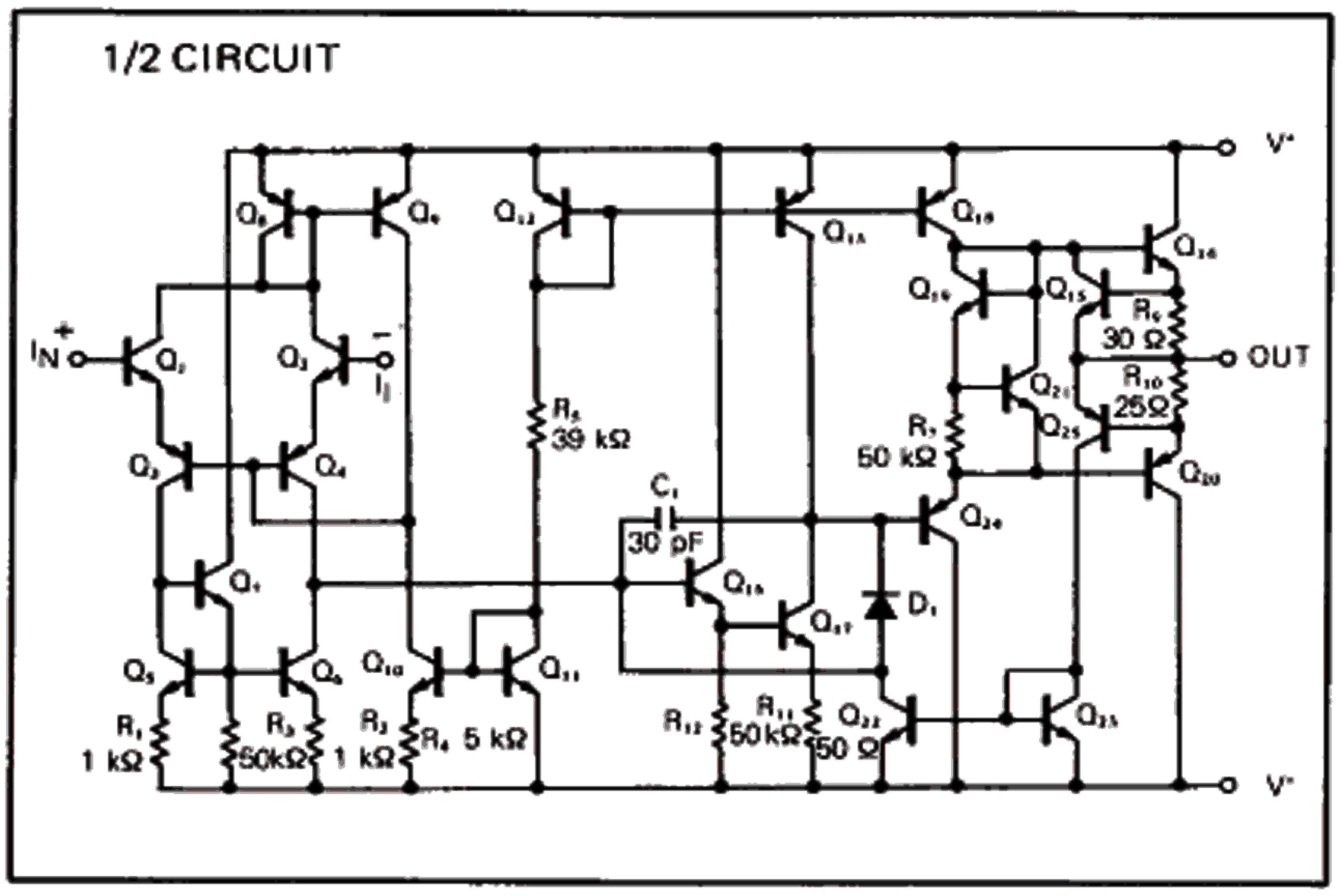
The μPC251 and 1458 are dual general purpose operational amplifiers having internal frequency compensating circuits. It is intended for a wide range of analog applications. High common mode voltage range and no latch up tendencies make this amplifier ideal for use as a voltage follower.

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

FEATURES

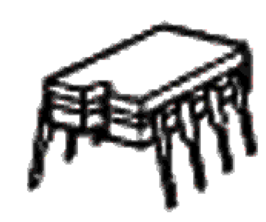
- Dual μPC151/741 Internally Frequency Compensated Operational Amplifier
- Short Circuit Protection
- Large Common Mode and Differential Input Voltage
- No Latch Up
- MC1458 Direct Replacement

EQUIVALENT CIRCUIT



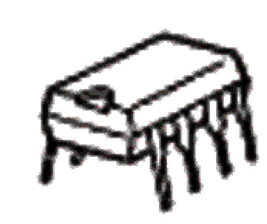
ORDERING INFORMATION

μPC251D



8 pin Ceramic DIP (Dual In-Line Package)

μPC251C/μPC1458C

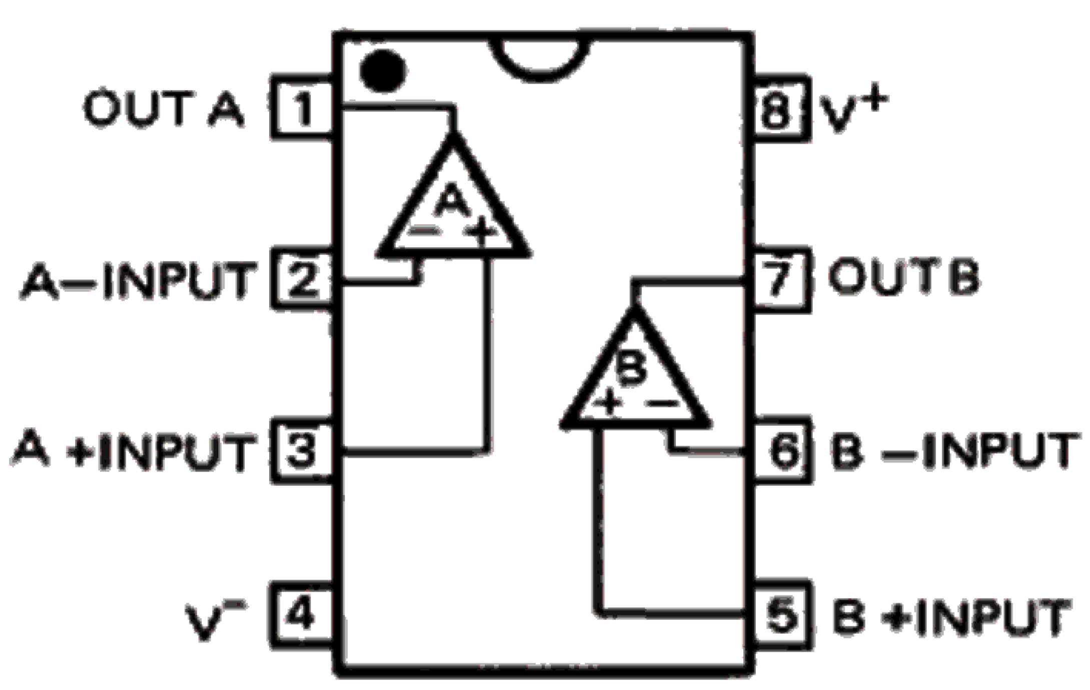


8 pin Plastic Molded DIP (Dual In-Line Package)

μPC251G/μPC1458G

8 pin Plastic Molded Flat Package (MINI FLAT IC)

CONNECTION DIAGRAM (Top View)



μPC251D
μPC251C/μPC251G
μPC1458C/μPC1458G

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.

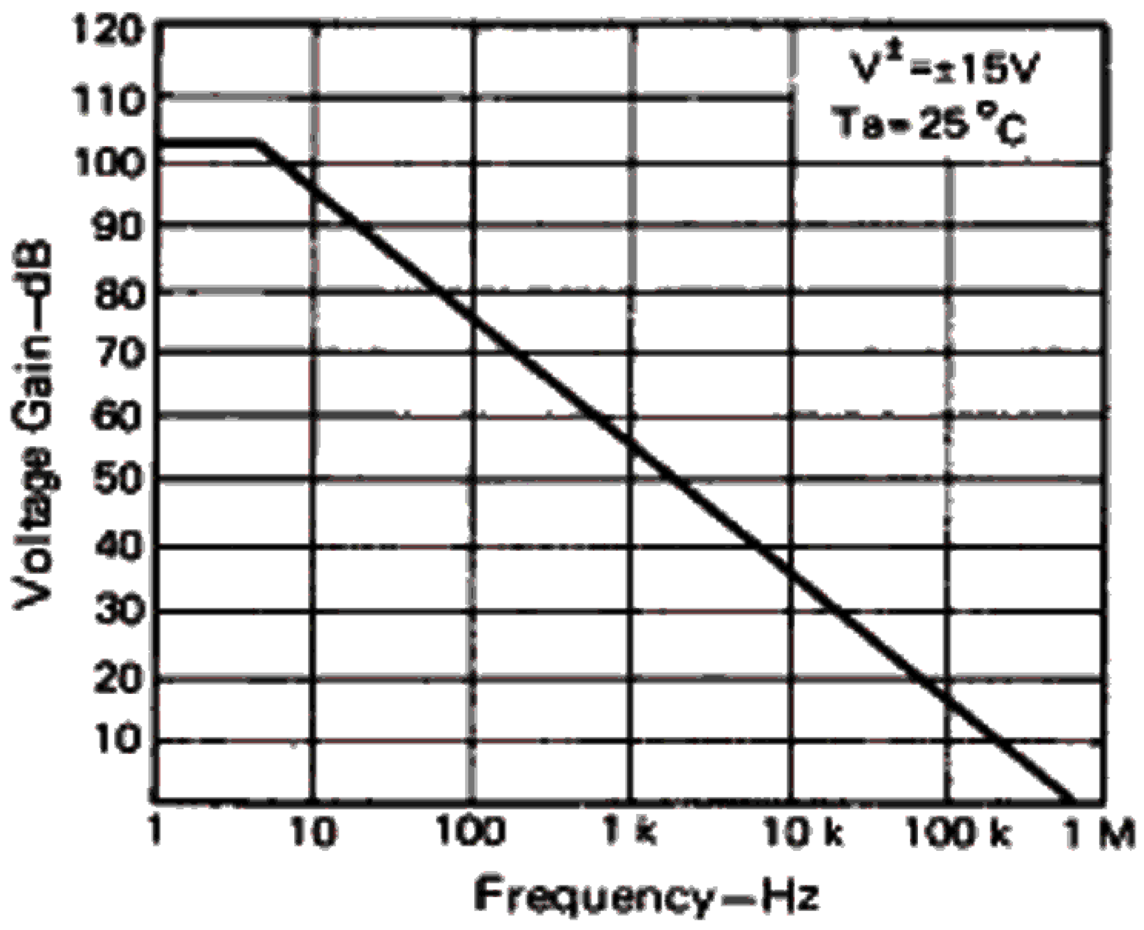
* See thermal information in chapter 11.

ELECTRICAL CHARACTERISTICS ($V^{\pm}$ = ±15 V, Ta = 25°C)

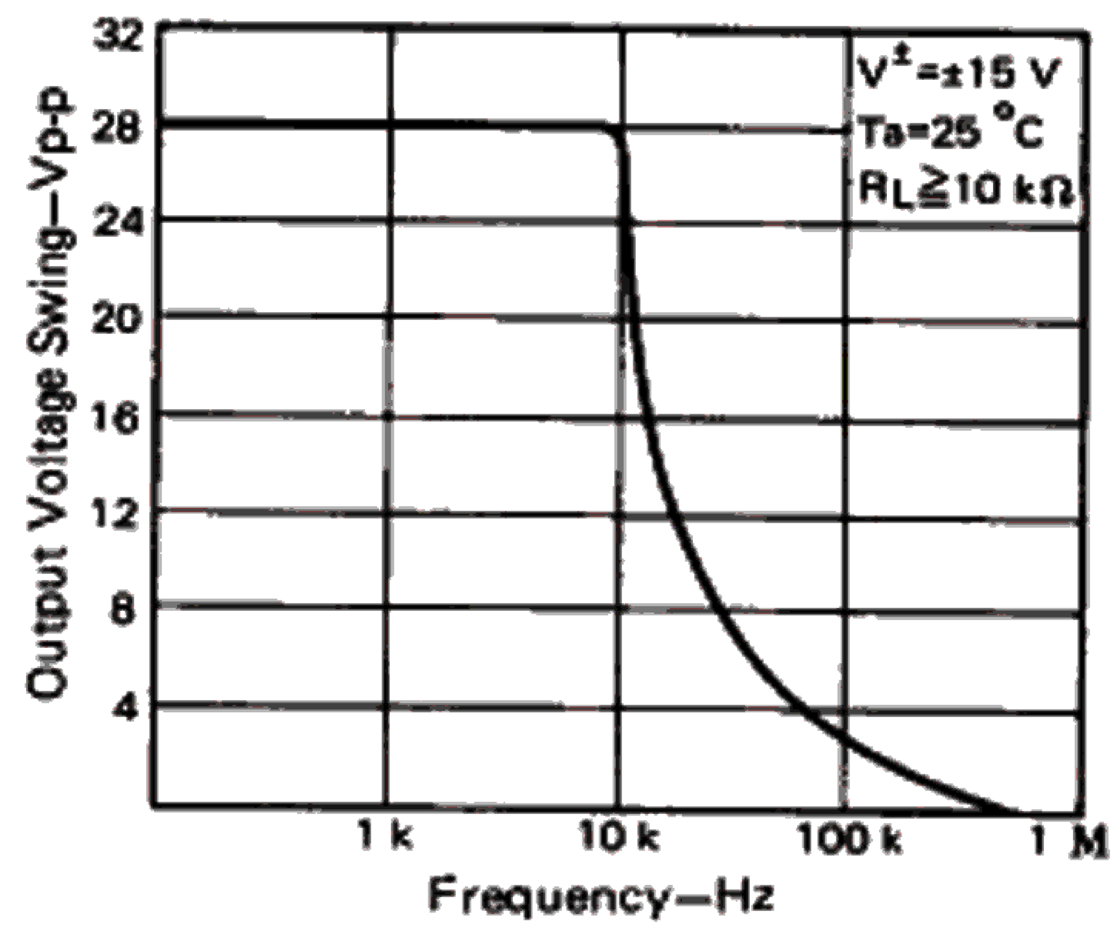
CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	CONDITIONS
Input Offset Voltage		1.0	6.0	mV	Rs ≤ 10 kΩ
Average Input Offset Voltage Drift		3		μV/°C	Rs ≤ 10 kΩ
Input Offset Current		20	200	nA	
Input Bias Current		80	500	nA	
Large Signal Voltage Gain	20,000	160,000			R_L ≥ 2 kΩ, Vo = ±10 V
Channel Separation		120		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	Rs ≤ 10 kΩ
Supply Voltage Rejection Ratio		30	150	μV/V	Rs ≤ 10 kΩ
Output Voltage Swing	±12	±14		V	R_L ≥ 10 kΩ
Output Voltage Swing	±10	±13		V	R_L ≥ 2 kΩ
Input Impedance	0.3	1.0		MΩ	

TYPICAL PERFORMANCE CHARACTERISTICS (Ta=25 °C)

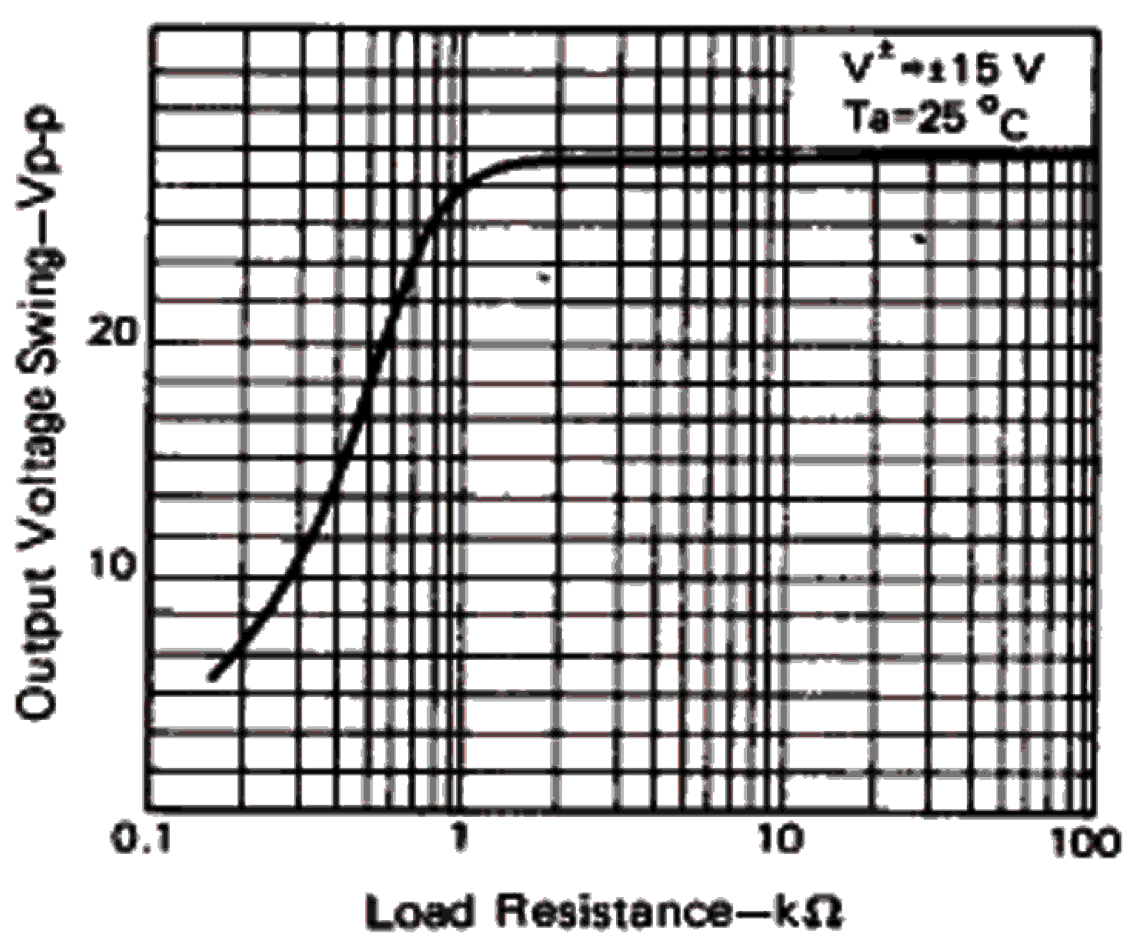
OPEN LOOP FREQUENCY RESPONSE



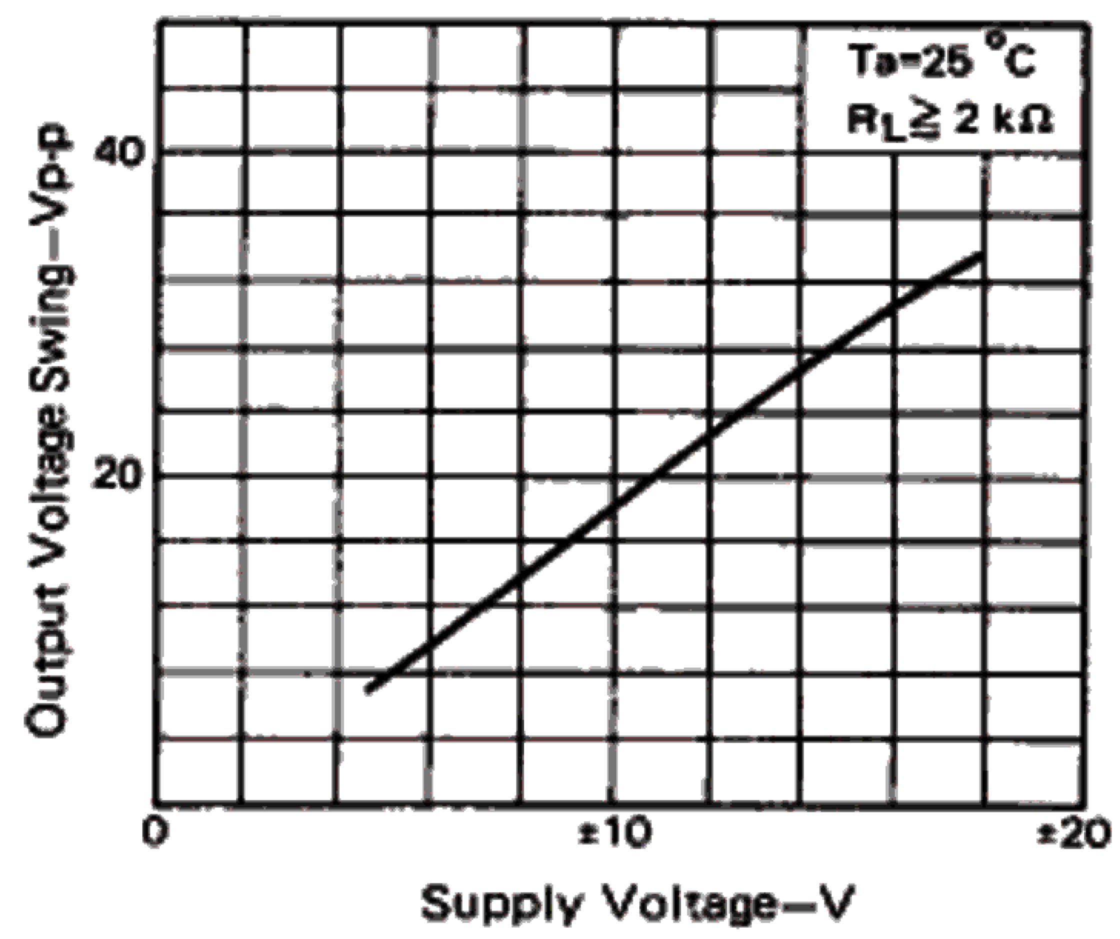
LARGE SIGNAL FREQUENCY RESPONSE



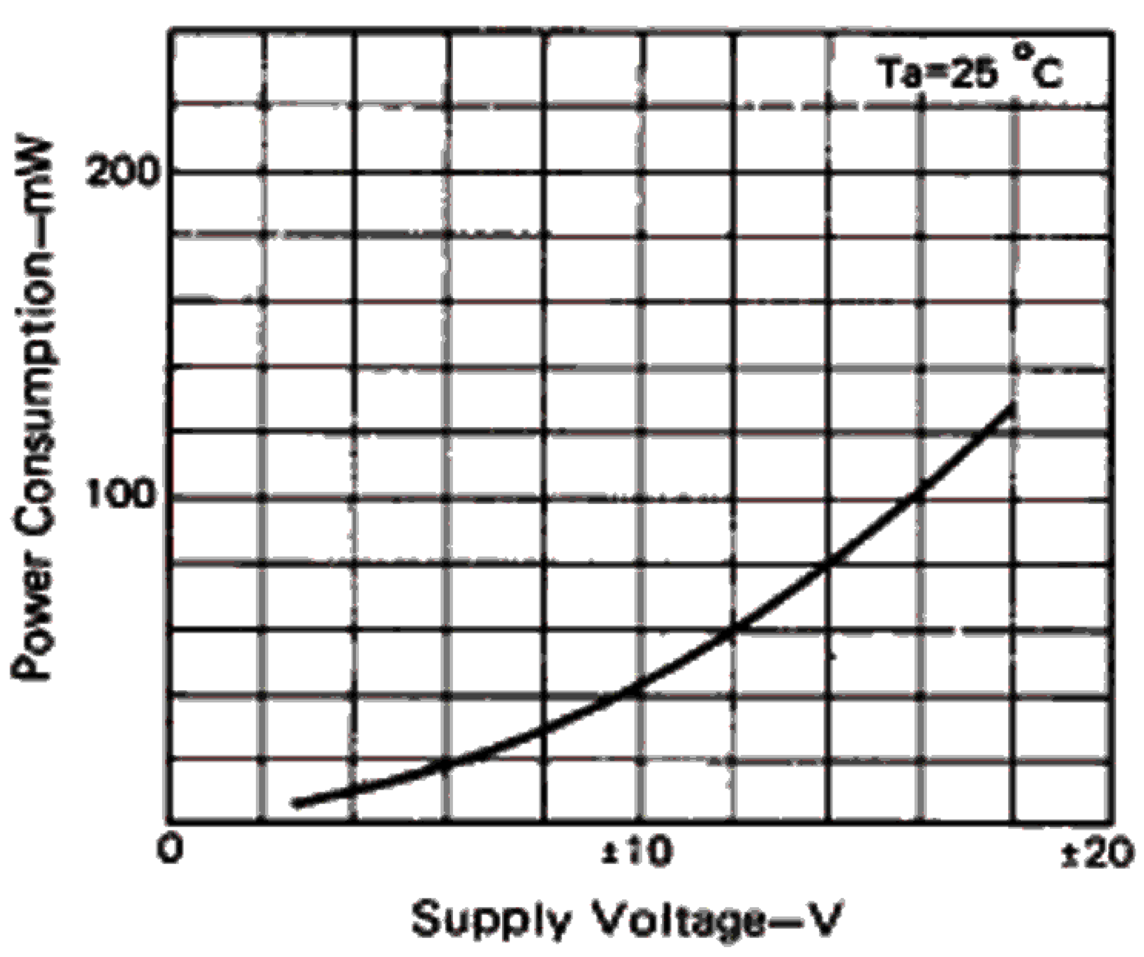
OUTPUT VOLTAGE SWING



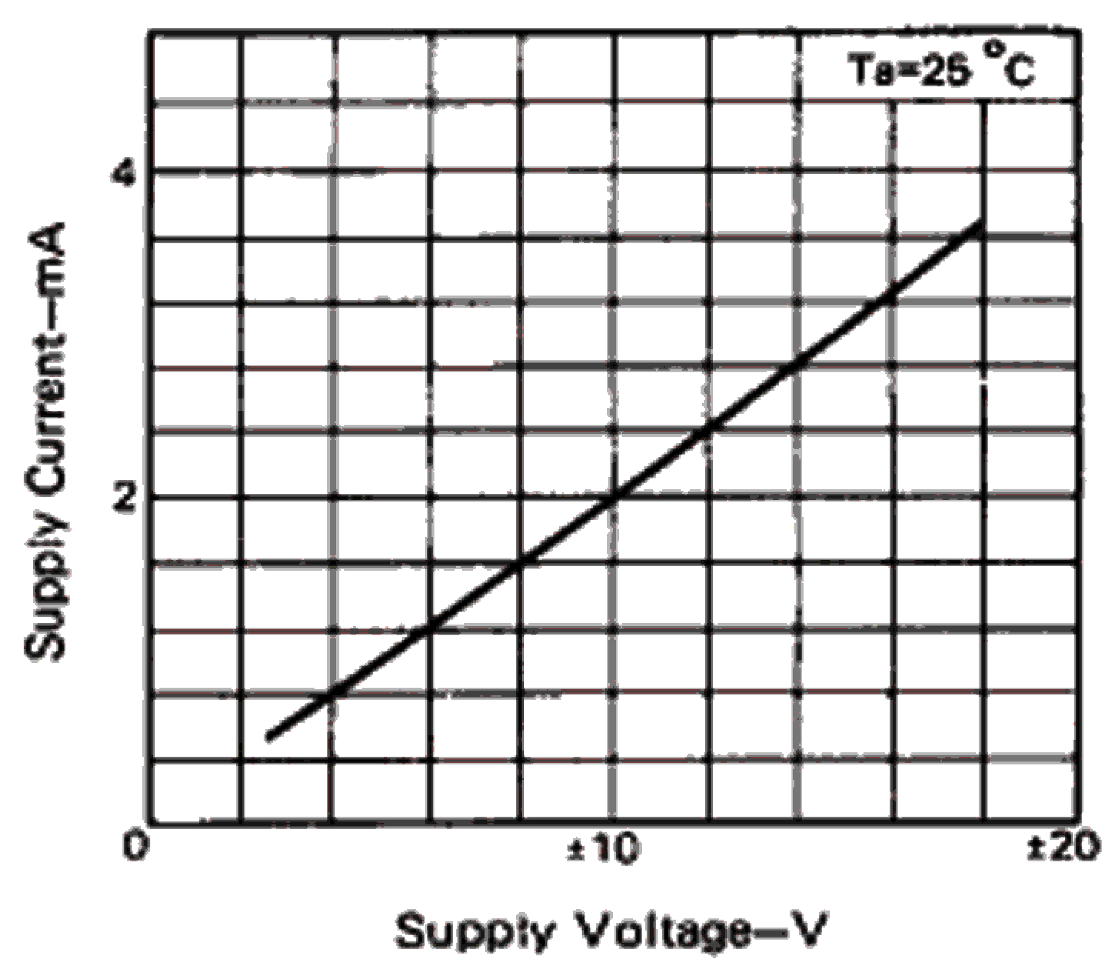
OUTPUT VOLTAGE SWING

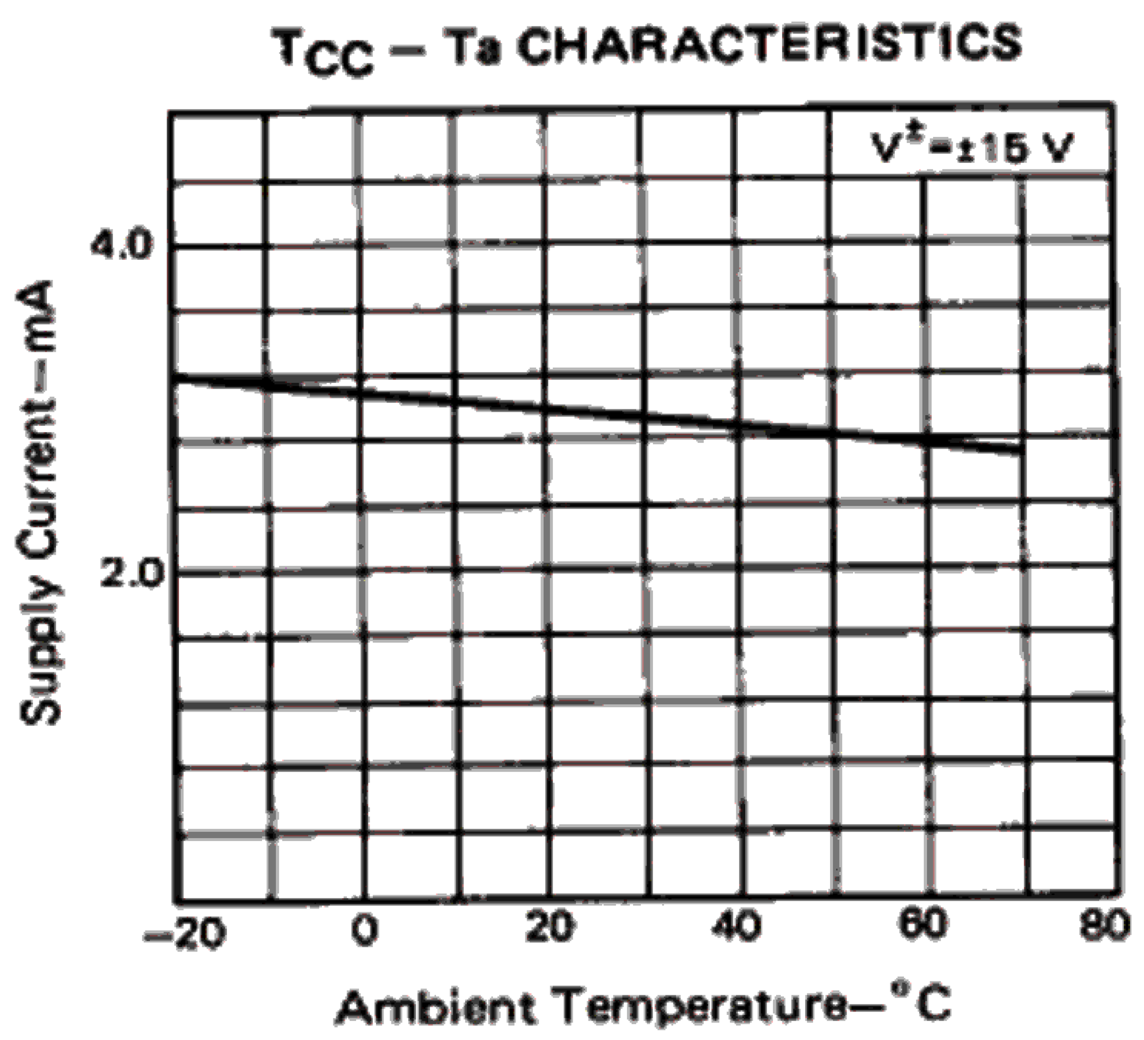


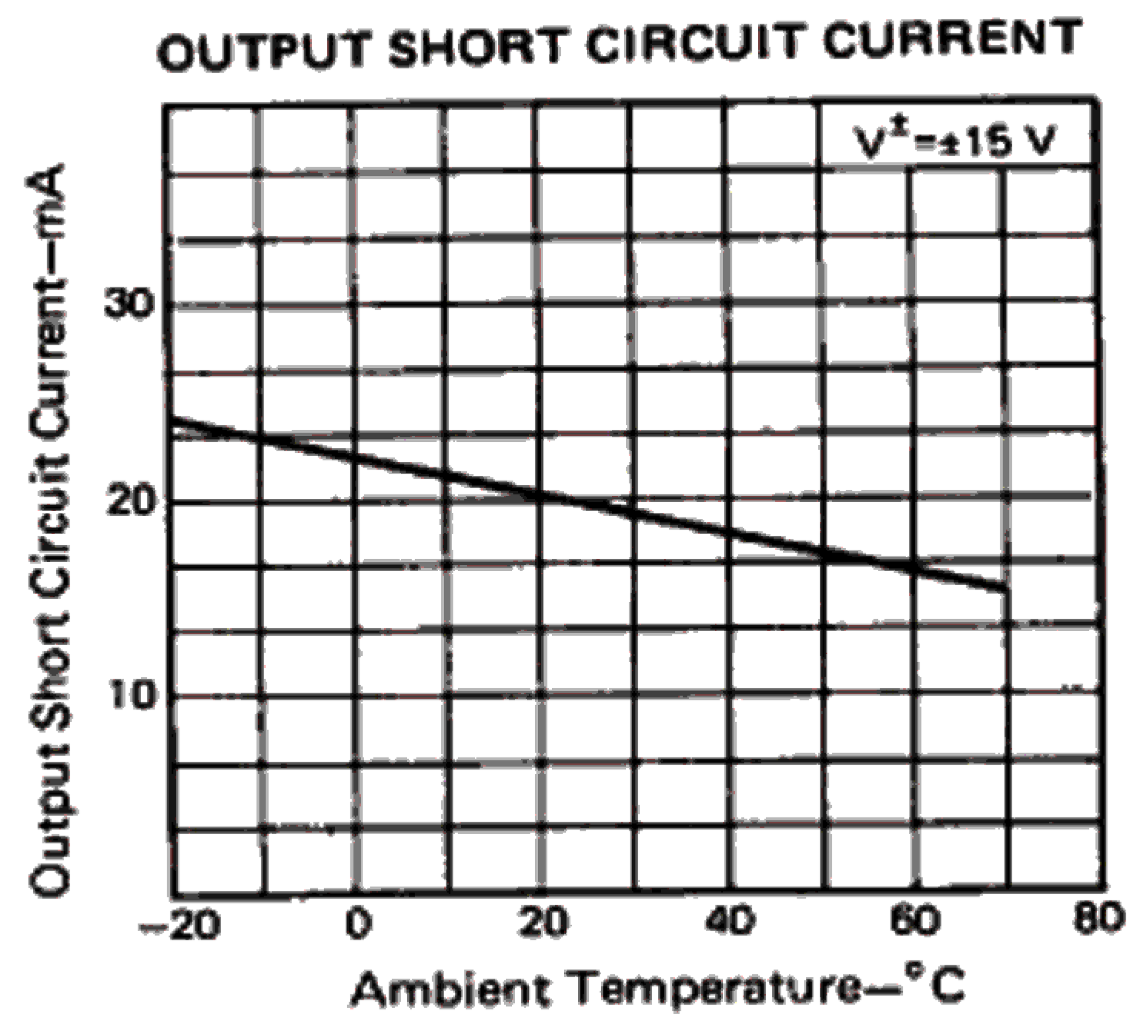
POWER CONSUMPTION

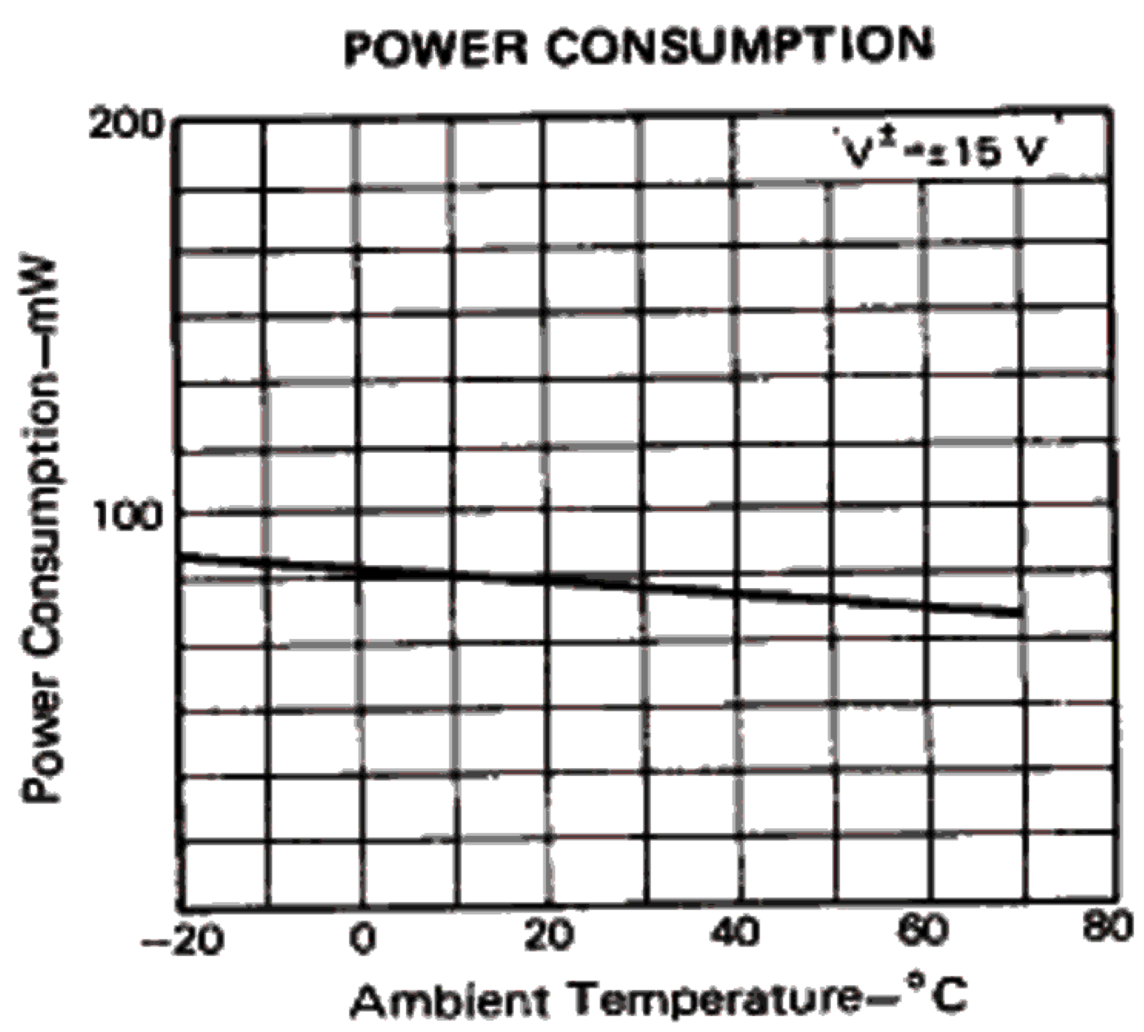


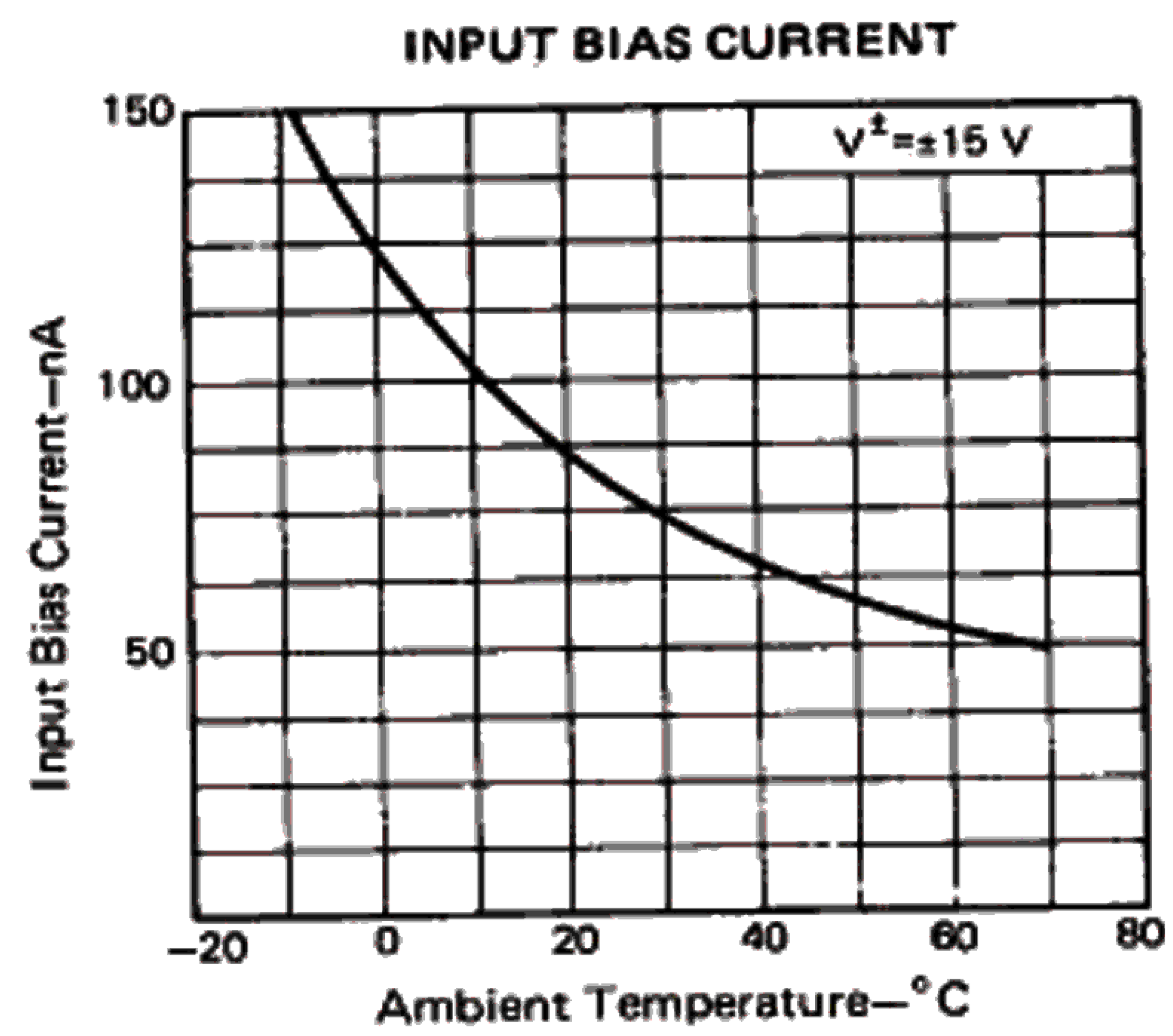
SUPPLY CURRENT

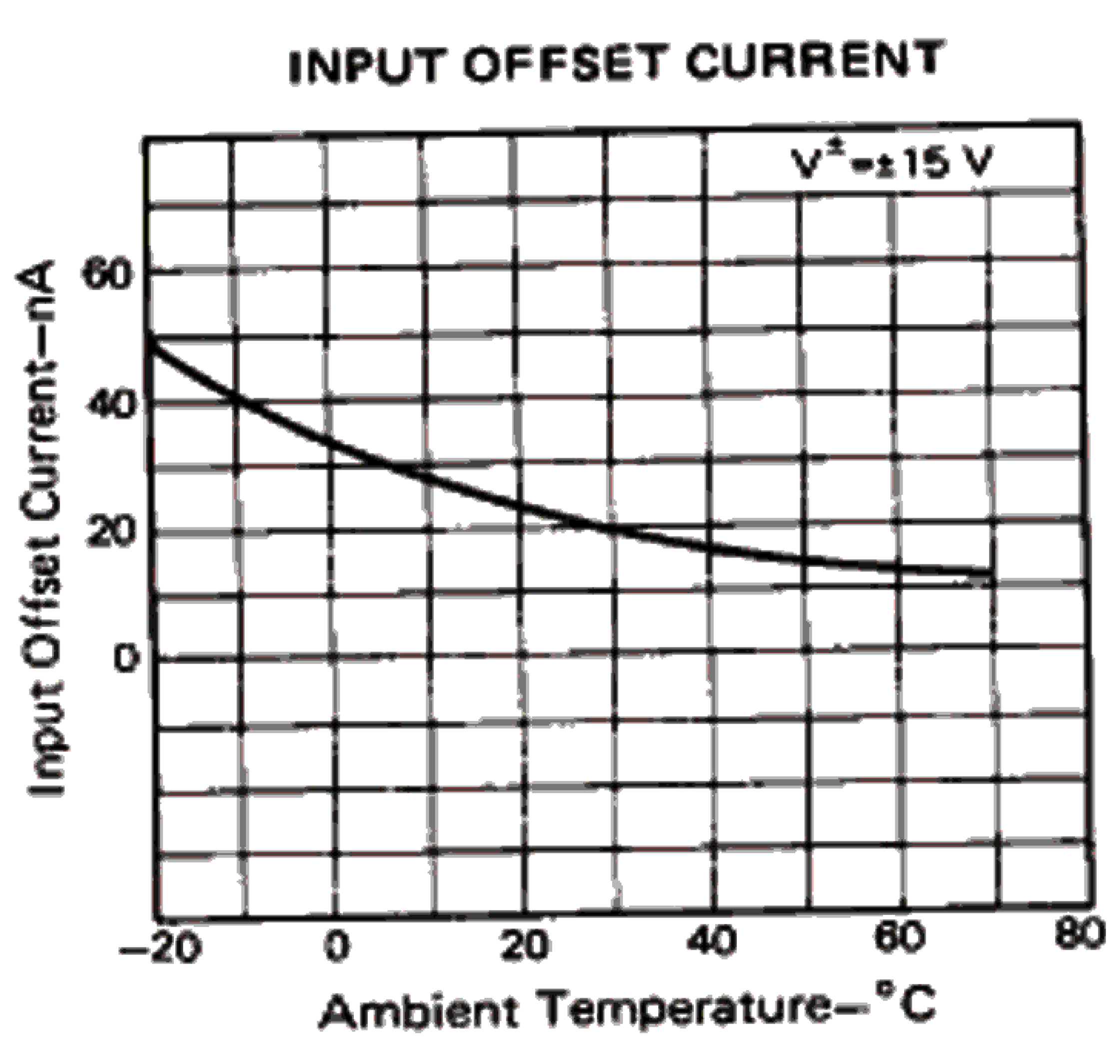



T_{CC} – Ta CHARACTERISTICS
V±=±15 V
Supply Current—mA
4.0
2.0
–20
0
20
40
60
80
Ambient Temperature—°C


OUTPUT SHORT CIRCUIT CURRENT
V±=±15 V
Output Short Circuit Current—mA
30
20
10
–20
0
20
40
60
80
Ambient Temperature—°C


POWER CONSUMPTION
V±=±15 V
Power Consumption—mW
200
100
–20
0
20
40
60
80
Ambient Temperature—°C


INPUT BIAS CURRENT
V±=±15 V
Input Bias Current—nA
150
100
50
–20
0
20
40
60
80
Ambient Temperature—°C


INPUT OFFSET CURRENT
V±=±15 V
Input Offset Current—nA
60
40
20
0
–20
0
20
40
60
80
Ambient Temperature—°C