

TA7283AP

T-74-05-01

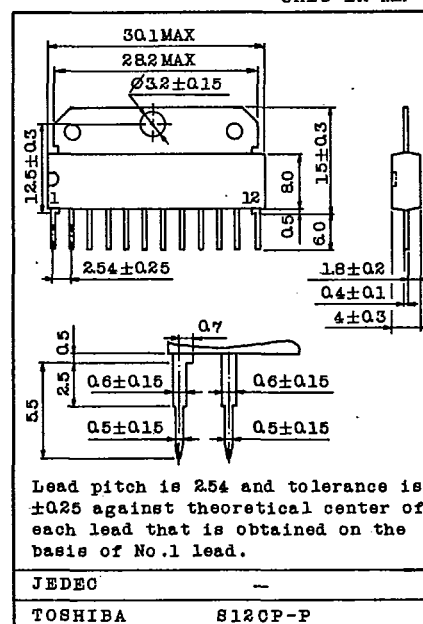
LOW FREQUENCY POWER AMPLIFIER

TA7283AP is an audio power IC with built-in two channels developed for portable radio cassette type recorder.

Because of the parts reduction and SIP (Single In line Package), space merit is remarkable. Thermal shut down protection circuit is built in.

- High Power : $P_{OUT(1)}=2.5W/CH$ (Typ.)
($V_{CC}=9V$, $R_L=4\Omega$, $f=1kHz$, $THD=10\%$)
: $P_{OUT(2)}=4.6W/CH$ (Typ.)
($V_{CC}=12V$, $R_L=4\Omega$, $f=1kHz$, $THD=10\%$)
- Low Popping Noise at Power ON
- Small Quiescent Current
: $I_{CCQ}=19mA$ (Typ.) ($V_{CC}=9V$, $V_{IN}=0$)
- Soft Clip
- Built-in Thermal Shut Down Protection Circuit
- Best for Supply Voltage 9V, 12V
- Operation Supply Voltage Range : $V_{CC}=6\sim 15V$

Unit in mm



Weight : 3.2g (Typ.)

MAXIMUM RATINGS ($T_a=25^\circ C$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	16	V
Output Current (Peak/CH)	$I_{O(peak)}$	2.5	A
Power Dissipation	P_d	12.5	W
Operating Temperature	T_{opr}	$-20\sim 75$	$^\circ C$
Storage Temperature	T_{stg}	$-55\sim 150$	$^\circ C$

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ELECTRICAL CHARACTERISTICS

(Unless otherwise specified, $V_{CC}=9V$, $R_L=4\Omega$, $R_g=600\Omega$, $f=1kHz$, $T_a=25^\circ C$)

CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current	I_{CCQ}	-	$V_{in}=0$	-	19	45	mA
Output Power	$P_{OUT(1)}$	-	THD=10%	2.0	2.5	-	W
	$P_{OUT(2)}$	-	THD=10%, $V_{CC}=12V$	-	4.6	-	
Total Harmonic Distortion	THD	-	$P_{OUT}=1W/CH.$	-	0.2	1.0	%
Voltage Gain	$G_v(1)$	-	$R_f=82\Omega$ $V_{OUT}=0.775V_{rms}$	43	45	47	dB
	$G_v(2)$	-	$R_f=0$, $V_{OUT}=0.775V_{rms}$	-	56	-	
Input Resistance	R_{IN}	-	-	-	30	-	$k\Omega$
Output Noise Voltage	V_{NO}	-	$R_g=10k\Omega$ $BW=20Hz\sim 20kHz$	-	0.3	1.0	mVrms
Ripple Rejection Ratio	R.R.	-	$R_g=600\Omega$ $f_{ripple}=100Hz$	-	54	-	dB
Cross Talk	C.T.	-	$R_g=10k\Omega$, $Amp1 \leftrightarrow 2$ $V_{OUT}=0dBm$, $f=1kHz$	-	60	-	dB
Input Offset Voltage	$V_{5,V7}$	-	-	-	20	60	mV

TYPICAL DC VOLTAGE OF EACH TERMINAL ($V_{CC}=9V$, $T_a=25^\circ C$)

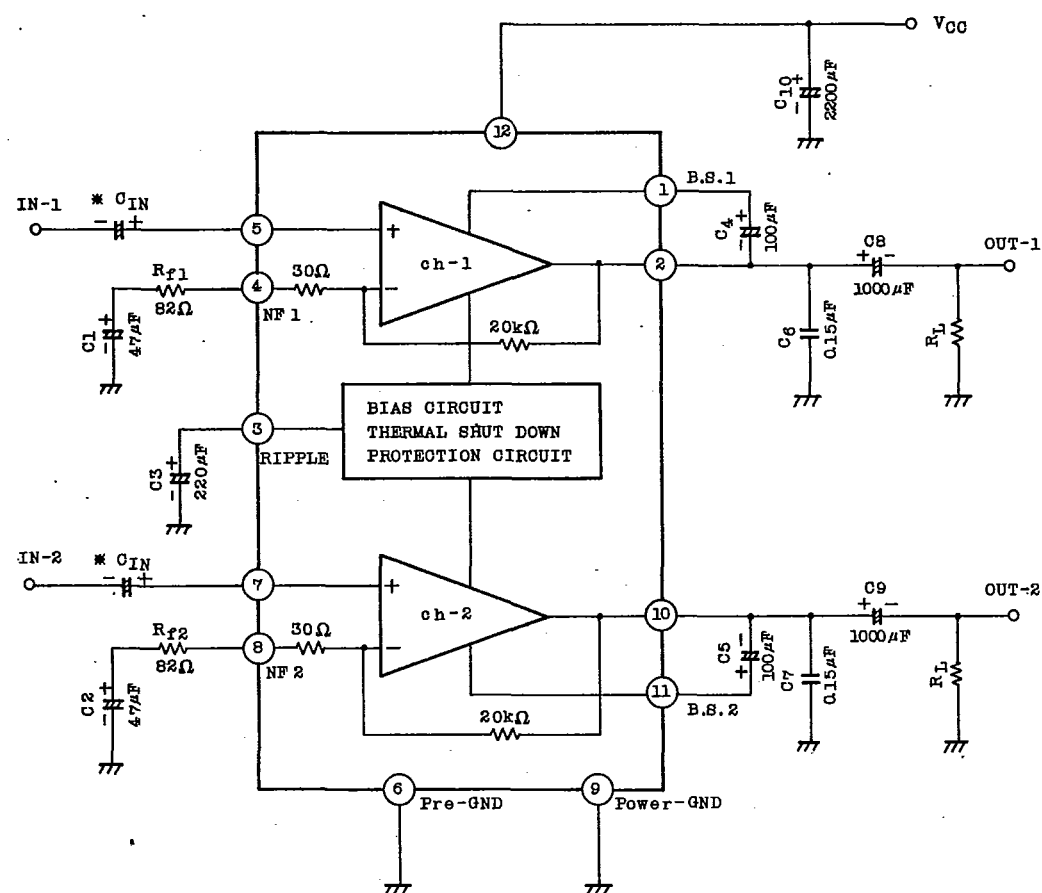
TERMINAL No.	1	2	3	4	5	6	7	8	9	10	11	12
DC Voltage (V)	8.2	4.5	8.9	0.6	0.01	GND	0.01	0.6	GND	4.5	8.2	V_{CC}

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BLOCK DIAGRAM/TEST CIRCUIT



* This IC can be used without coupling capacitor (C_{in}). If volume slide noise occurred by input offset voltage is undesirable, it needs to use the capacitor (C_{in}).

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Fig. 1

Fig. 2

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Application after checking volume slide noise is recommended.

For cutting the volume slide noise, insert the input capacitor: C_{in} in series to interrupt the DC component.

4. OSCILLATION PREVENTIVE MEASURES

For oscillation preventive capacitor C_6 and C_7 between the output terminal and GND, it is recommended to use polyester film capacitor having good characteristics for temperature and for high frequency.

Since the characteristics of the capacitor is liable to be influenced by the temperature, use this capacitor after the temperature test to check the oscillation allowance.

In addition, as the position of the electrolytic capacitor has a remarkable influence on the oscillation, connect C_{10} to V_{CC} at the nearest possible position from power GND.

At using this application with the voltage gain reduced, oscillation is liable to be produced. Apply the capacitor after checking enough for its capacity, type and mounting position.

As the oscillation allowance varies according to the printed pattern layout, the standard printed board of TOSHIBA is recommended to be referred to for design it.

5. INPUT VOLTAGE

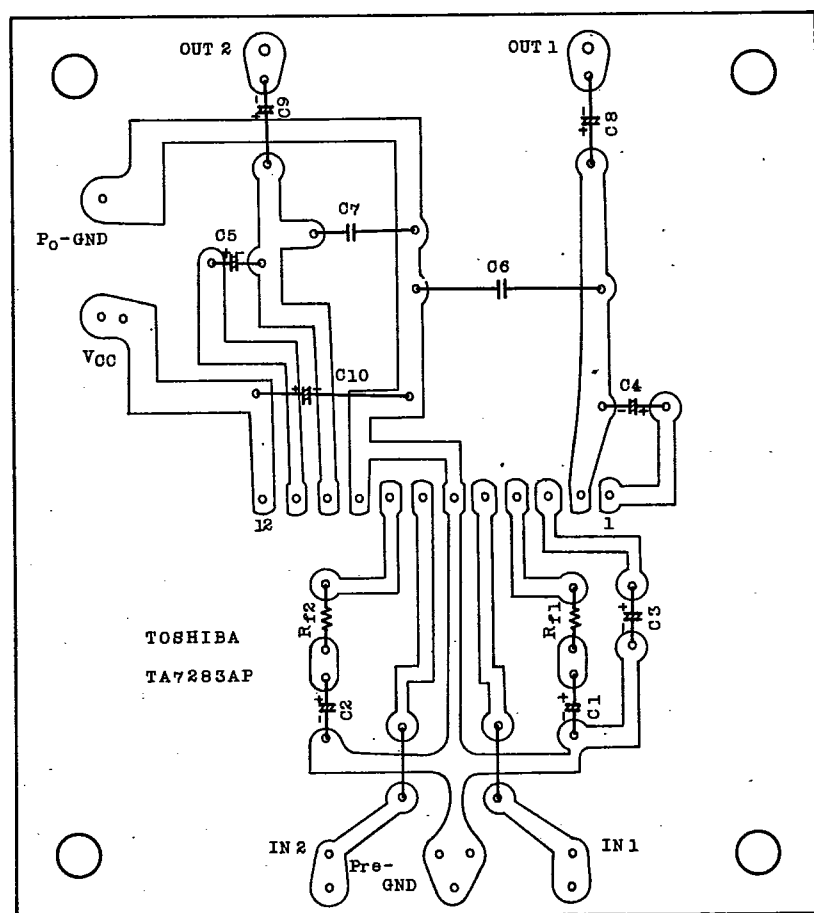
When the excessive signal is input, turning-up is produced in the clip waveform. The turning-up point is $V_{in}=300mV_{rms}(Typ.):V_{CC}=9V, R_L=4\Omega, f=1kHz$: Enough care must be taken for this phenomenon.

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STANDARD PRINT PATTERN

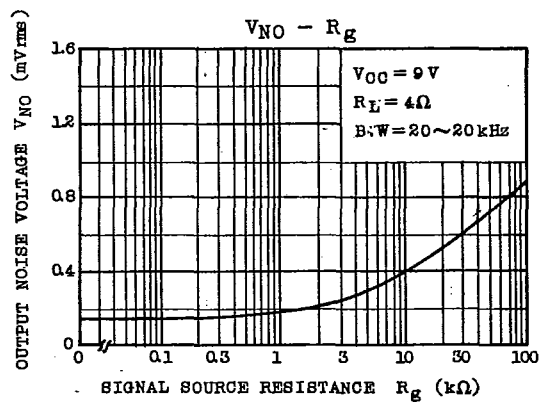
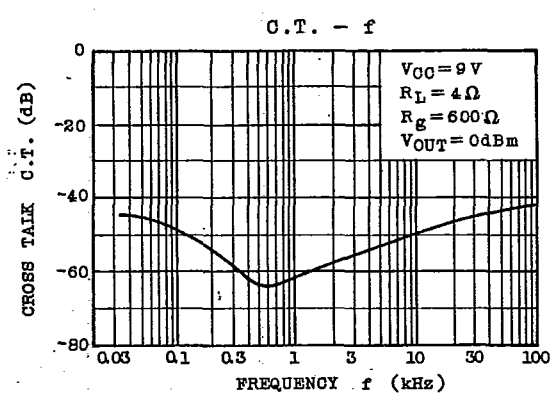
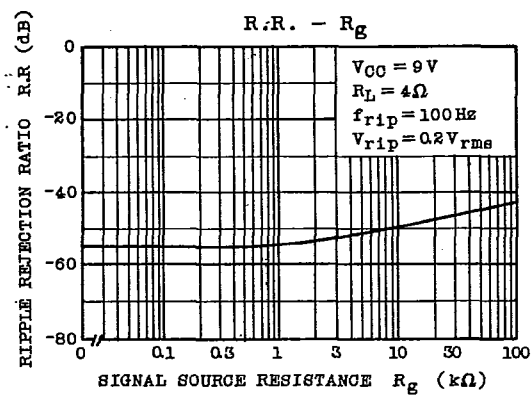
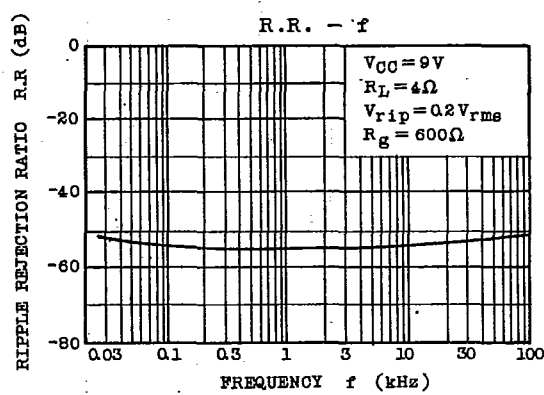
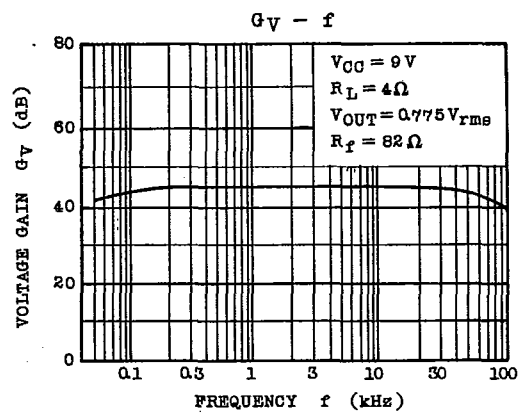
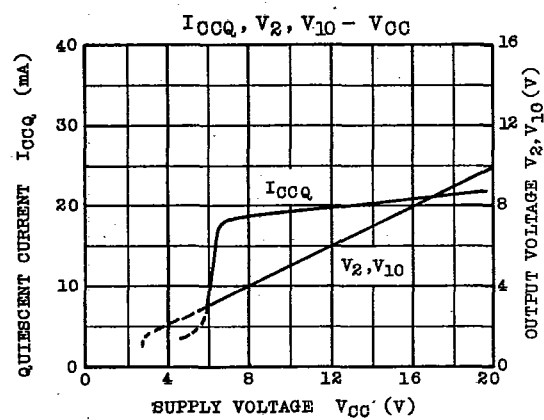


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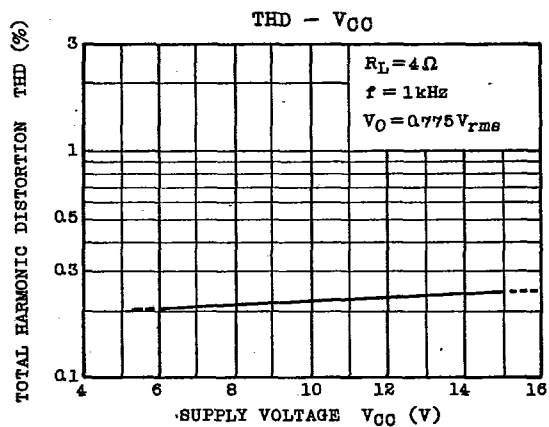
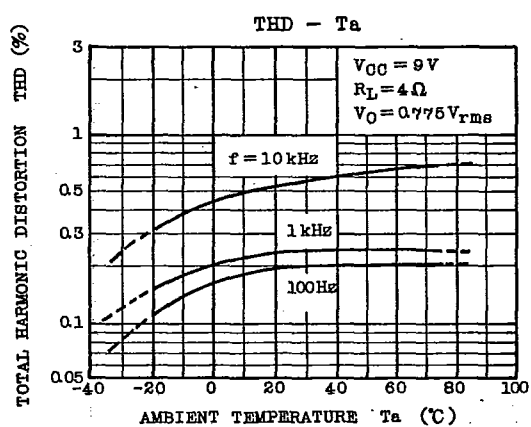
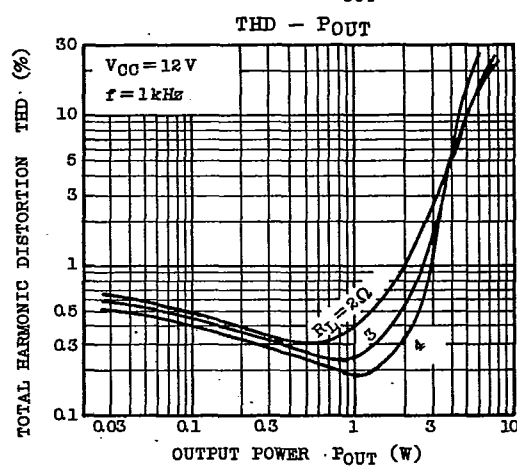
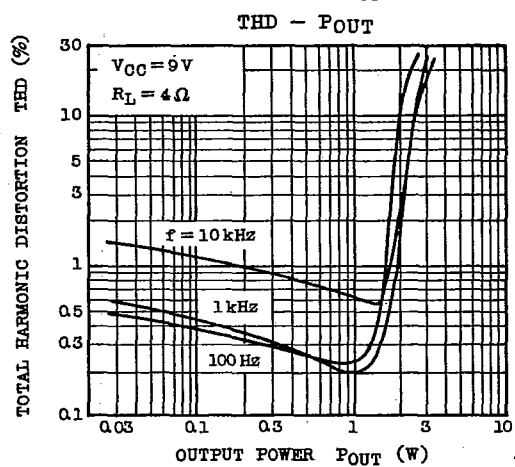
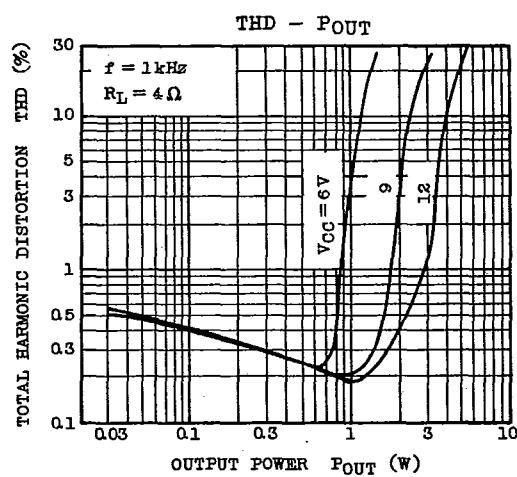
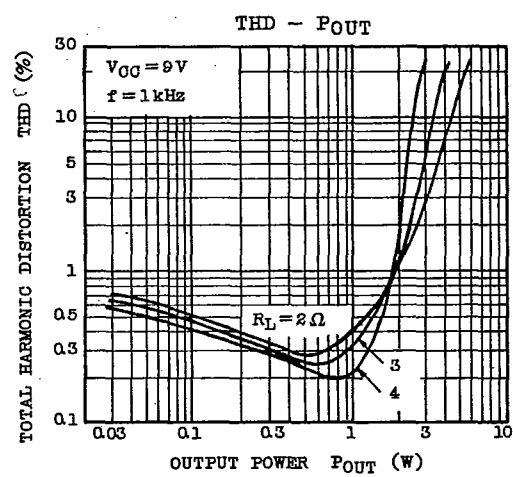
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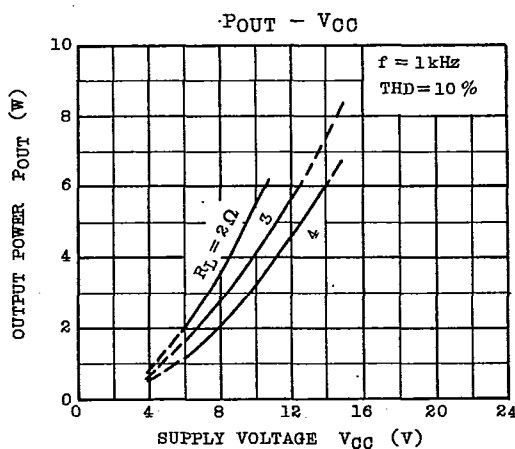
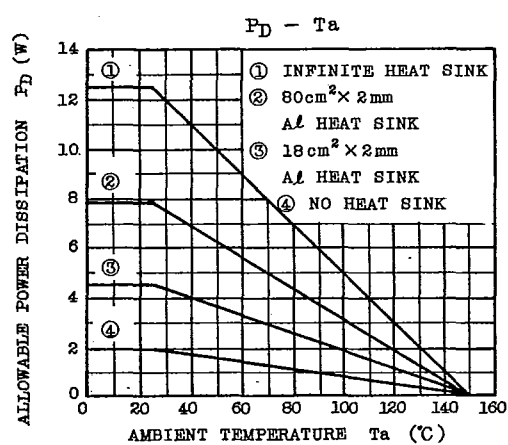
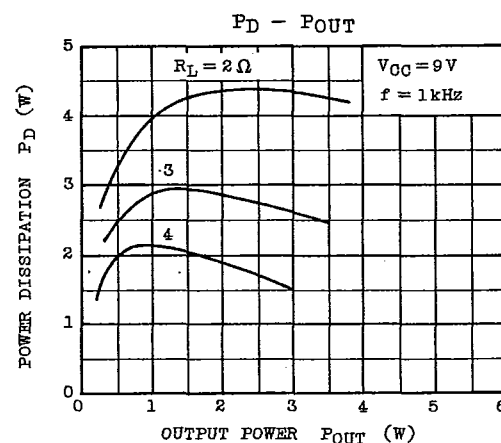
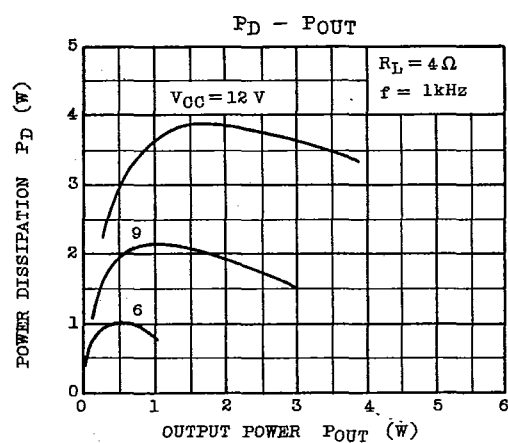
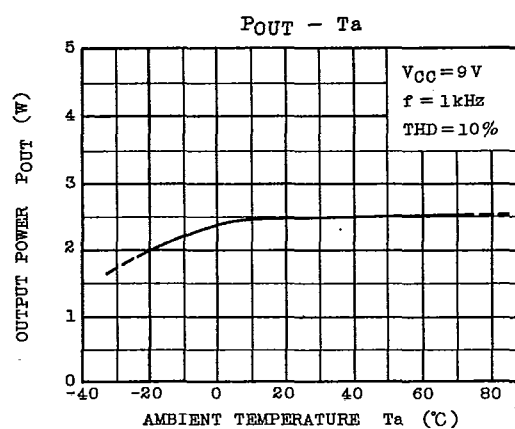
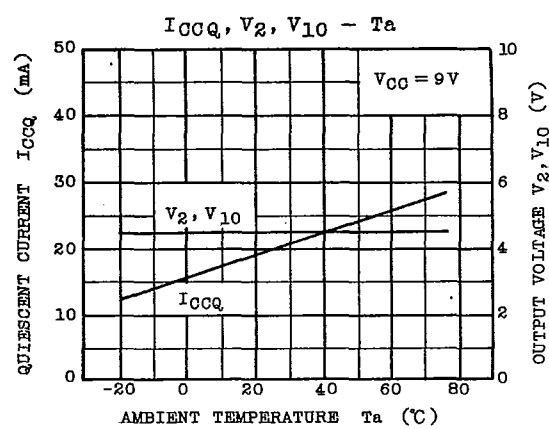
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