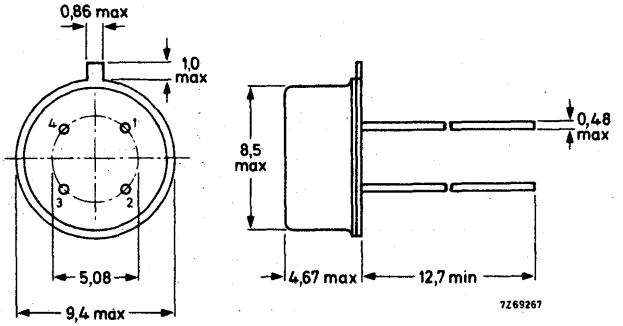
MICROPHONE AMPLIFIER

The TCA980 is a monolithic integrated microphone amplifier. It is primarily intended for use with low-impedance microphones in telephone systems.
The output of the amplifier is 22 mV/μbar when used with a microphone having an impedance of 200 Ω and a sensitivity of 100 μV/μbar.
A capsule assembly containing the TCA980, a low-impedance microphone and a 0,22 μF capacitor can directly replace a carbon microphone.
The d.c. supply to the device may be of either polarity.

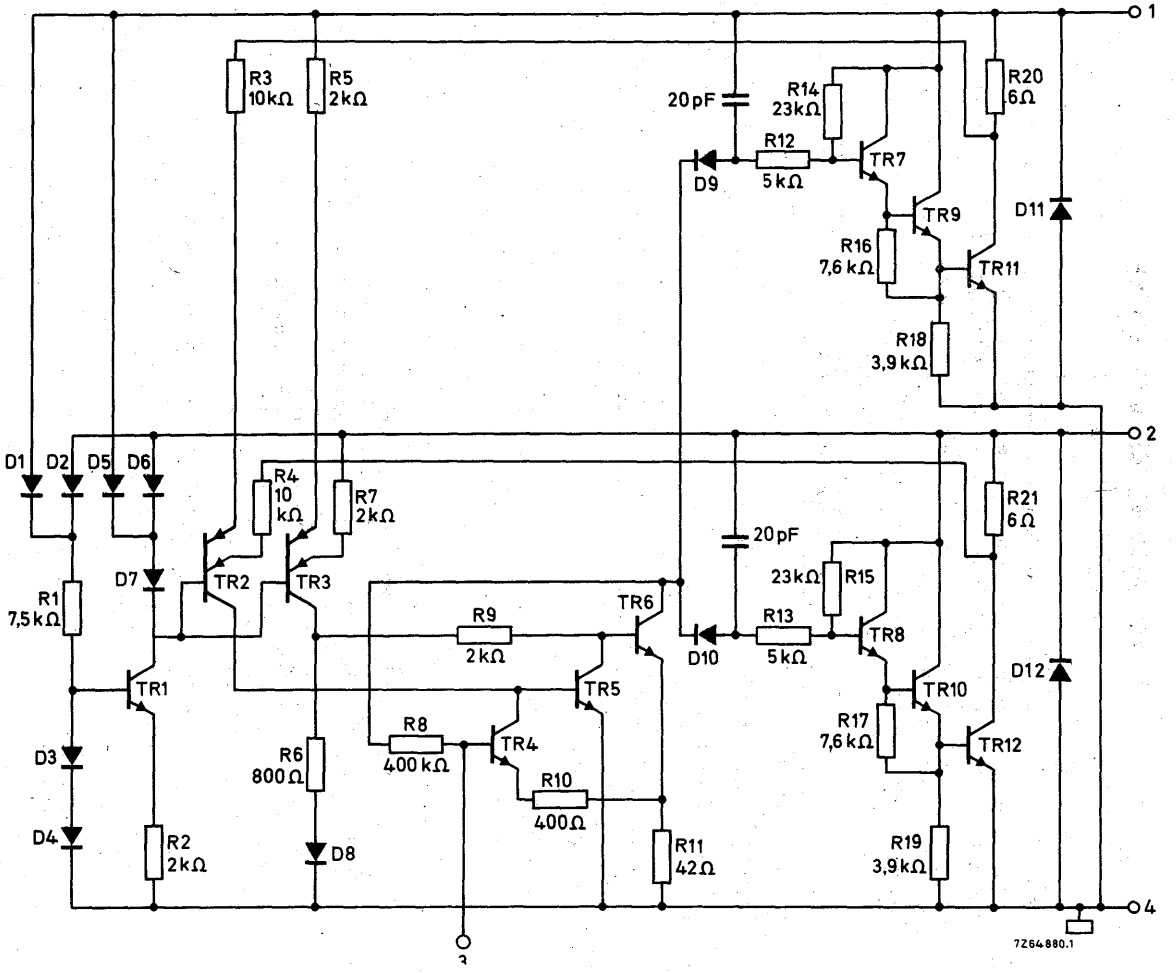
QUICK REFERENCE DATA				
Supply current	$\pm I_2$	10 to 100		mA
Supply voltage drop at $\pm I_2$ = 10 mA	$\pm V_{1-2}$	typ.	4,5	V
Voltage gain at $\pm I_2$ = 30 mA	G_v	typ.	220	
at $\pm I_2$ = 10 mA	G_v	<	260	
Output impedance at $\pm I_2$ = 30 mA	$\lvert Z_o \rvert$	typ.	150	Ω

PACKAGE OUTLINE Dimensions in mm

TO-12 (reduced height)



CIRCUIT DIAGRAM



RATINGS Limiting values in accordance with the Absolute Maximum System (IEC 134)

Currents

Supply current (d.c.)	$\pm I_2$	max.	100	mA
Non-repetitive peak current	100 mA (a.c.) superimposed on 100 mA (d.c.)			
Current into pin 3 (d.c.)	$+I_3$	max.	100	μA

Power dissipation

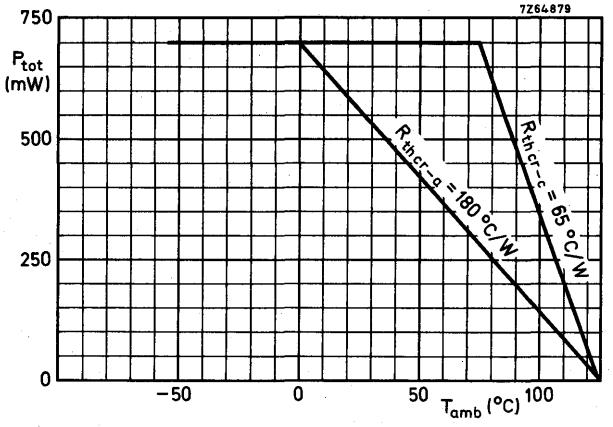
Total power dissipation	See derating curve below

Temperatures

Storage temperature	T_{stg}	−55 to + 125		°C
Ambient temperature	T_{amb}	−55 to + 125		°C
Crystal temperature	T_{cr}	max.	125	°C

THERMAL RESISTANCE

From crystal to case	$R_{th\ cr\text{-}c}$	=	65	°C/W
From crystal to ambient	$R_{th\ cr\text{-}a}$	=	180	°C/W



D.C. CHARACTERISTICS [1]) at T_{case} = 25 °C; measured in circuit below)

Supply voltage drop

$\pm I_2$ = 10 mA	$\pm V_{1-2}$	3,50 to 5,75		V
$\pm I_2$ = 30 mA	$\pm V_{1-2}$	4,45 to 6,75		V
$\pm I_2$ = 60 mA	$\pm V_{1-2}$	5,00 to 7,80		V

A.C. CHARACTERISTICS

Voltage gain (measured in circuit below)

f = 2 kHz; $\pm I_2$ = 30 mA	G_v	typ.	220	
		190 to 260		
f = 2 kHz; $\pm I_2$ = 10 mA	G_v	160 to 260		

Change of voltage gain

when changing T_{amb} from −20 to +55 °C	ΔG_v	<	10	%

Gain reduction

between f = 0,3 and 2 kHz	ΔG_v	typ.	1	dB
		<	3	dB

Output voltage at f = 2 kHz; d_{tot} < 5% (r.m.s. value)

$\pm I_2$ = 10 mA	$V_{o(rms)}$	>	1	V
$\pm I_2$ = 30 mA	$V_{o(rms)}$	>	1,35	V
$\pm I_2$ = 60 mA	$V_{o(rms)}$	>	1	V
		typ.	1,5	V

Noise output voltage

B = 0,3 kHz to 4 kHz (r.m.s. value)	$V_{n(rms)}$	<	1,3	mV

Output impedance

f = 2 kHz; $\pm I_2$ = 30 mA	$\lvert Z_o \rvert$	typ.	150	Ω