"Miniwatt" 6AN7A

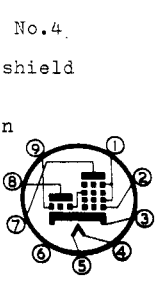
TRIODE-HEXODE FREQUENCY CONVERTER

GENERAL DATA

Cathode	Coated unipotential
Base	Small-button Noval 9-pin
Bulb	T6½
Mounting position	Any

Basing Connections

Pin 1 - Hexode grids No.2, No.4
Pin 2 - Hexode grid No.1
Pin 3 - Cathode, internal shield
Pin 4 - Heater
Pin 5 - Heater
Pin 6 - Internal connection
Pin 7 - Hexode plate
Pin 8 - Triode plate
Pin 9 - Triode grid No.1, hexode grid No.3



GENERAL ELECTRICAL DATA

Heater voltage		6.3	volts
Heater current		0.3	amp

Direct Interelectrode Capacitances

Hexode grid No.1 to all other electrodes		3.8	µµF
Hexode plate to all other electrodes		9.2	µµF
Hexode grid No.1 to hexode plate	max.	0.1	µµF
Hexode grid No.1 to heater	max.	0.15	µµF
Cathode to triode grid, hexode grid No.3		5.6	µµF
Cathode to triode plate		2.4	µµF
Triode plate to triode grid, hexode grid No.3		1.4	µµF
Hexode grid No.1 to triode grid, hexode grid No.3	max.	0.35	µµF
Hexode plate to triode grid, hexode grid No.3	max.	0.2	µµF

MAXIMUM RATINGS (Design-Centre Values)

Hexode Section

Plate voltage (without current)	550	volts
Plate voltage	300	volts
Plate dissipation	1.5	watts
Grid No.2, No.4 voltage (without current)	550	volts
Grid No.2, No.4 voltage (plate current less than 1 mA)	300	volts
Grid No.2, No.4 voltage (plate current=3 mA)	125	volts
Grid No.2, No.4 dissipation	0.3	watts
Grid No.1 voltage at grid No.1 current = +0.3 µA	-1.3	volts

Cathode current	10	mA
External grid No.1 resistance	3	megohms
External grid No.3 resistance	3	megohms
External heater-cathode resistance	20,000	ohms
Heater-cathode voltage	100	volts

Triode Section

Plate voltage(without current)	550	volts
Plate voltage	175	volts
Plate dissipation	0.8	watts
Grid No.1 voltage at grid No.1 current = + 0.3 µA	-1.3	volts
Cathode current	6	mA
External grid resistance	3	megohms
External heater-cathode resistance	20,000	ohms
Heater-cathode voltage	100	volts

TYPICAL CHARACTERISTICS

Triode Section

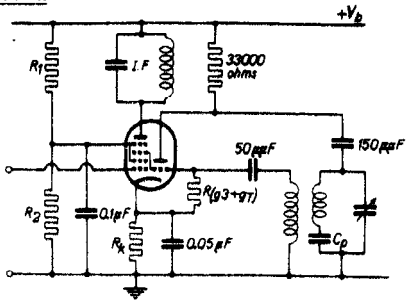
Plate voltage	100	volts
Grid voltage	0	volts
Plate current	10	mA
Mutual conductance	2800	µmhos
Amplification factor	22	

TYPICAL OPERATING CONDITIONS

Triode Section as Oscillator

Supply voltage	250	250	volts
Plate resistor	33,000	33,000	ohms
Grid resistor	47,000	22,000	ohms
Grid current	200	350	µA
Plate current	4.8	5.1	mA
R.M.S. oscillator voltage	8.0	8.0	volts
Effective mutual conductance	550	600	µmhos

Hexode Section



Hexode plate and supply voltage	250	volts
R_1 (see circuit diagram)	27,000	ohms
R_2 (see circuit diagram)	27,000	ohms
Cathode resistor	180	ohms
Grid No.3, triode grid resistor	22,000	ohms
Grid No.3, triode grid current (see note 1)	350	µA
Grid No.1 voltage	-2	volts
Grid No.2, No.4 voltage	85	volts
Plate current	3.0	mA
Grid No.2, No.4 current	3.0	mA
Conversion conductance	750	µmhos
Plate resistance	min. 1.0	megohm
Equivalent noise resistance	100,000	ohms
Grid No.1 voltage for C.01 of nominal conversion conductance with grid No.2, No.4 voltage = 124 V	-29	volts

NOTES

1. With an alternative value of grid No.3, triode grid resistor of 47,000 ohms, the grid current should be adjusted to 200 µA.

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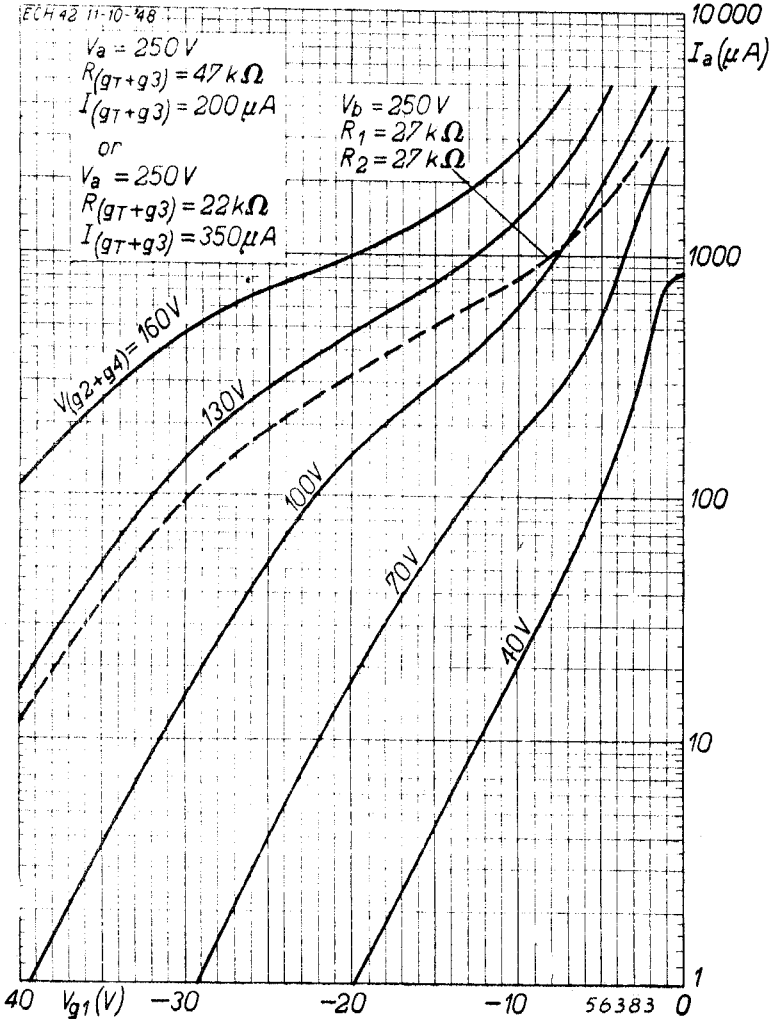

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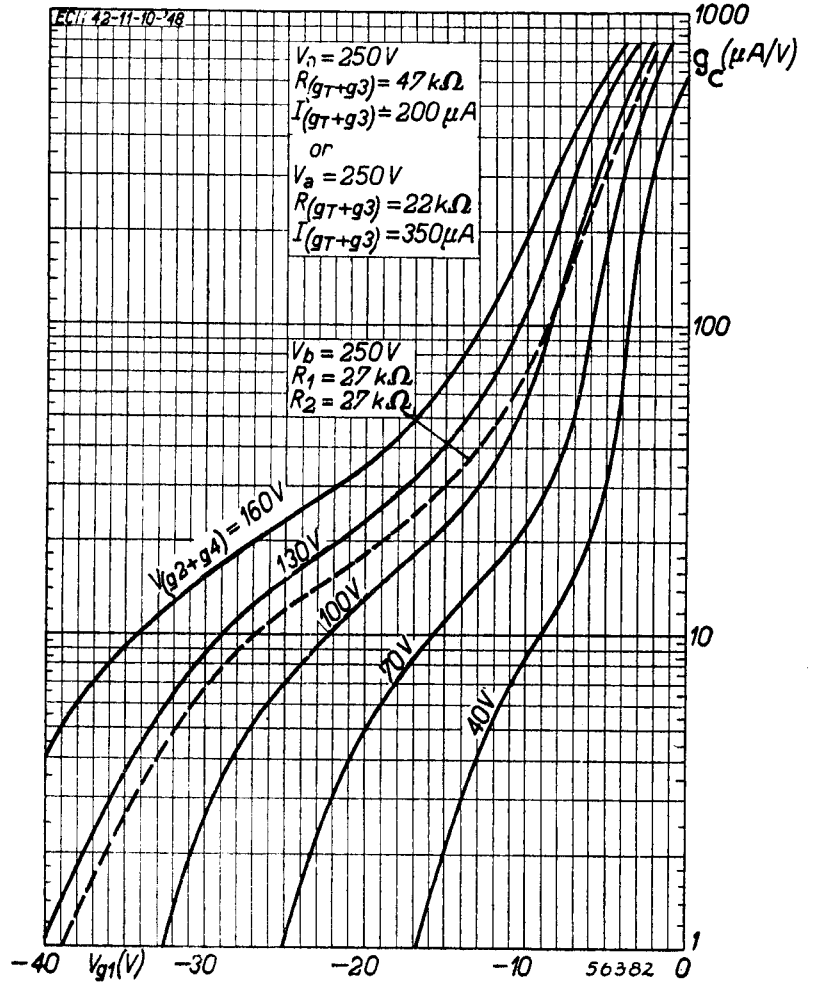

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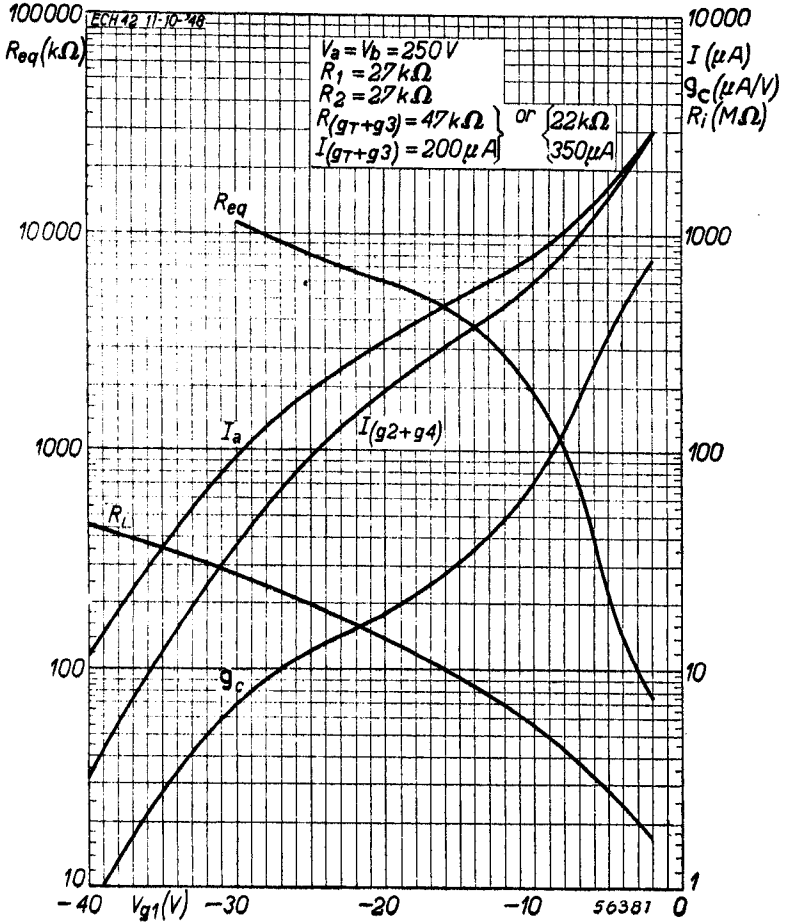

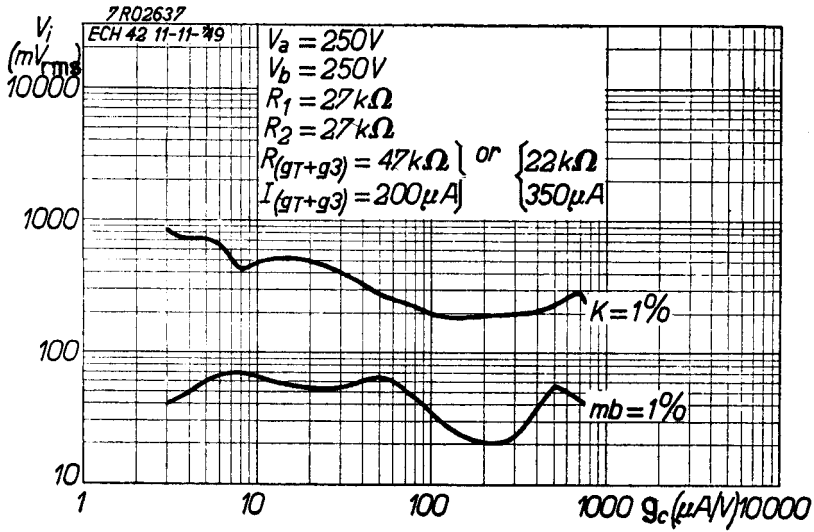
7R02637
ECH 42 11-11-49
V_i (mV_{rms})
10000
1000
100
10
1
10
100
1000
g_c ($\mu A/V$) 10000
$V_a = 250V$
$V_b = 250V$
$R_1 = 27k\Omega$
$R_2 = 27k\Omega$
$R_{(gT+g3)} = 47k\Omega$ or $22k\Omega$
$I_{(gT+g3)} = 200\mu A$ $350\mu A$
K = 1%
mb = 1%

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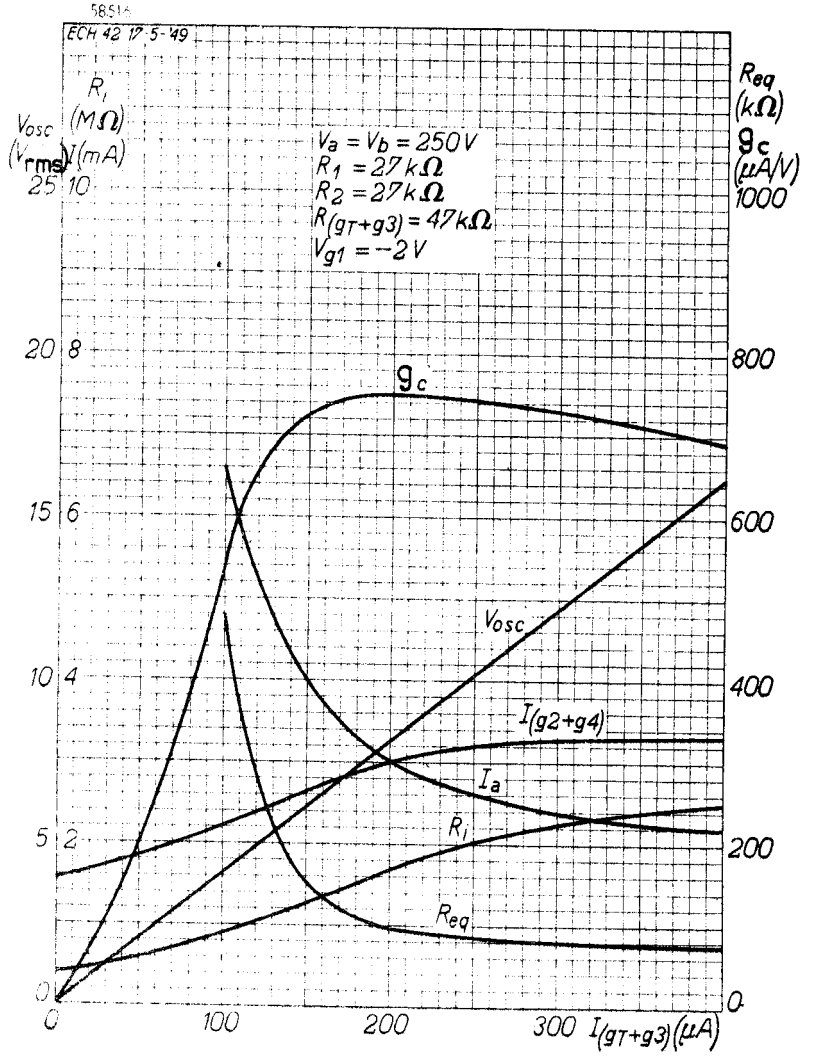

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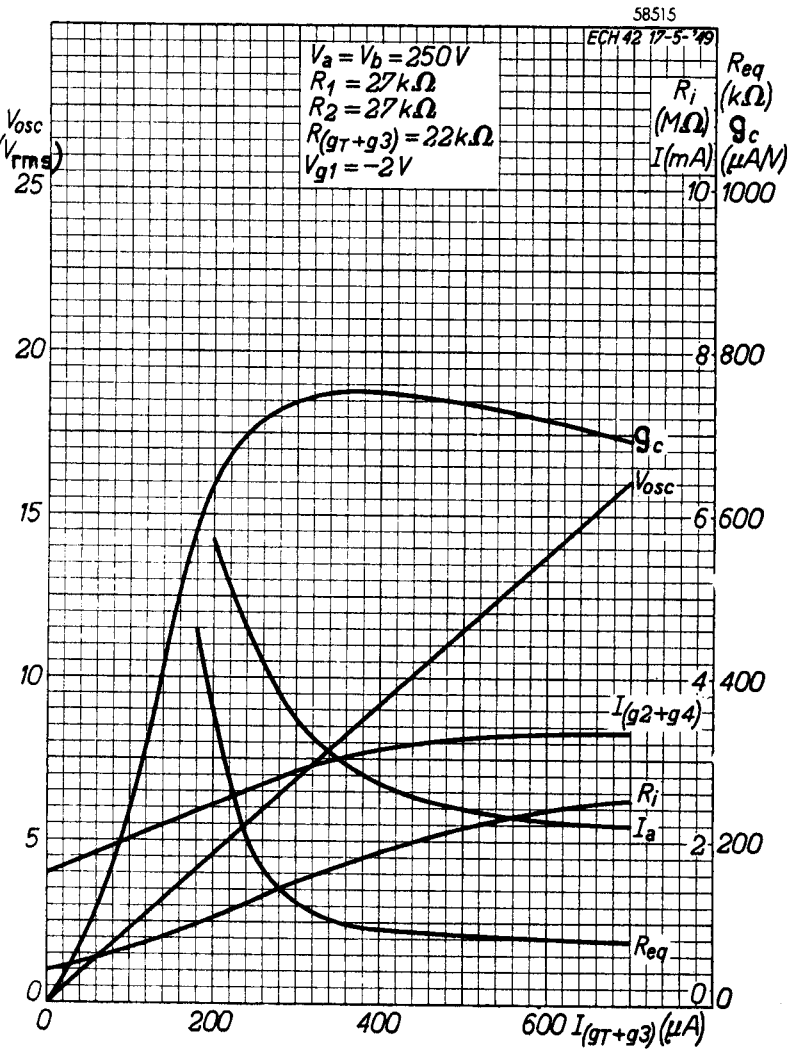
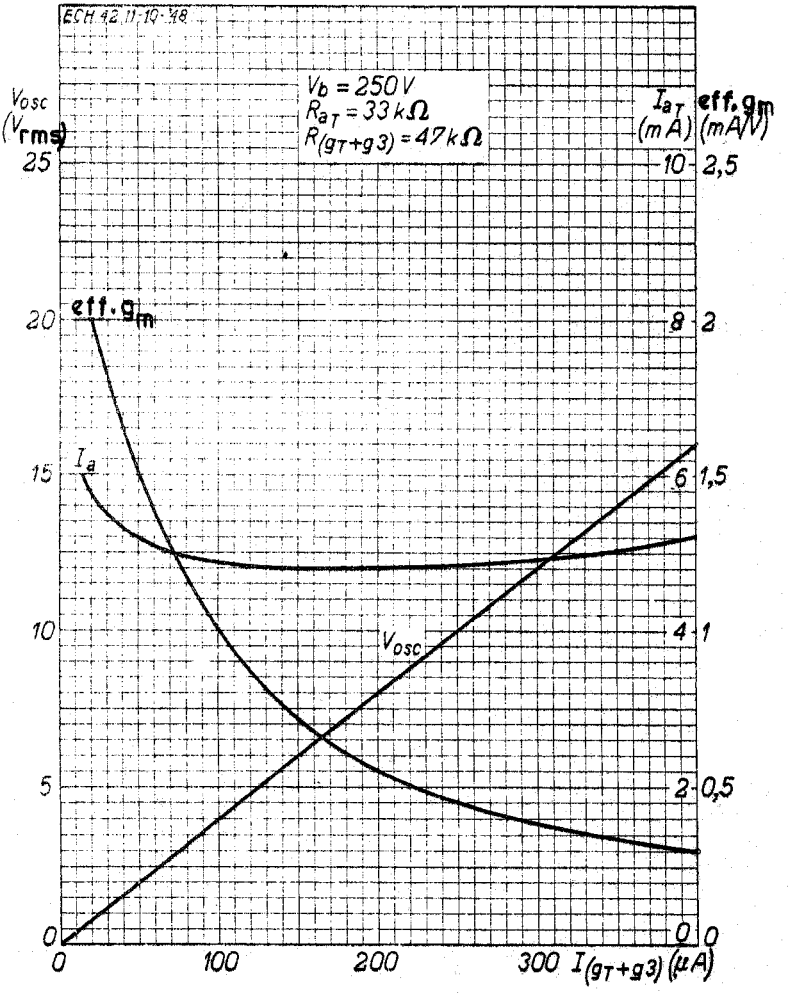
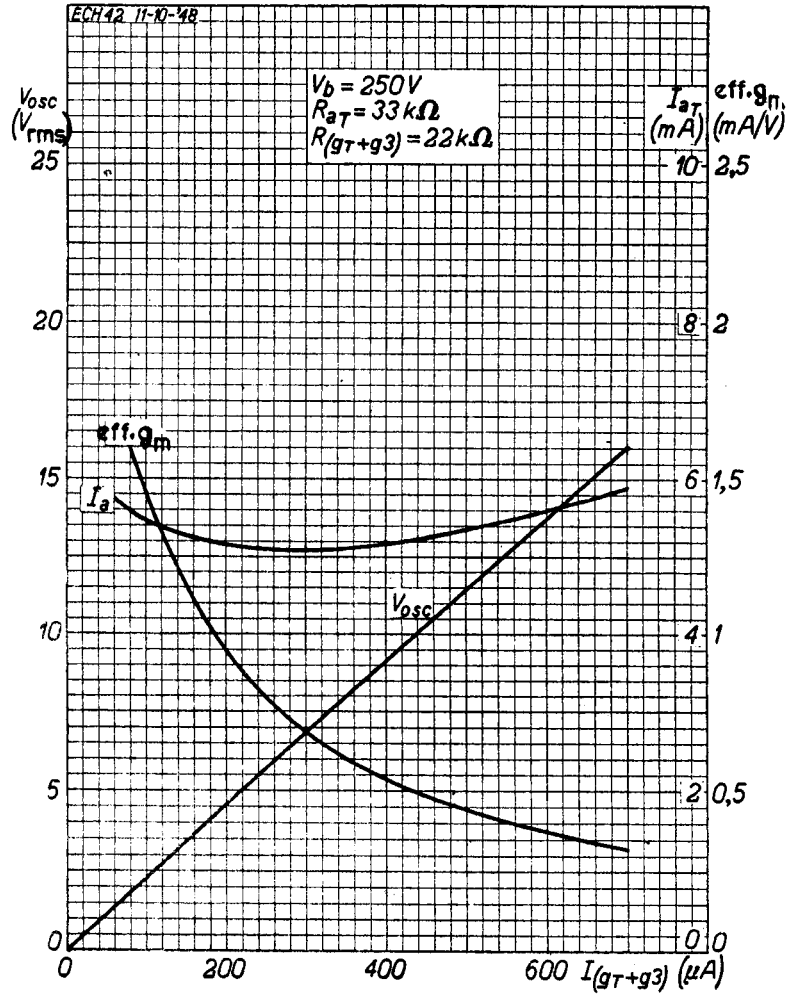


6AN7A "Miniwatt"




ECH42 11-10-48
$V_b = 250V$
$R_{aT} = 33 k\Omega$
$R_{(gT+g3)} = 22 k\Omega$
V_{osc} (V_{rms})
I_{aT} (mA)
eff.g_m (mA/V)
eff.g_m
I_a
V_{osc}
$I_{(gT+g3)}$ (µA)

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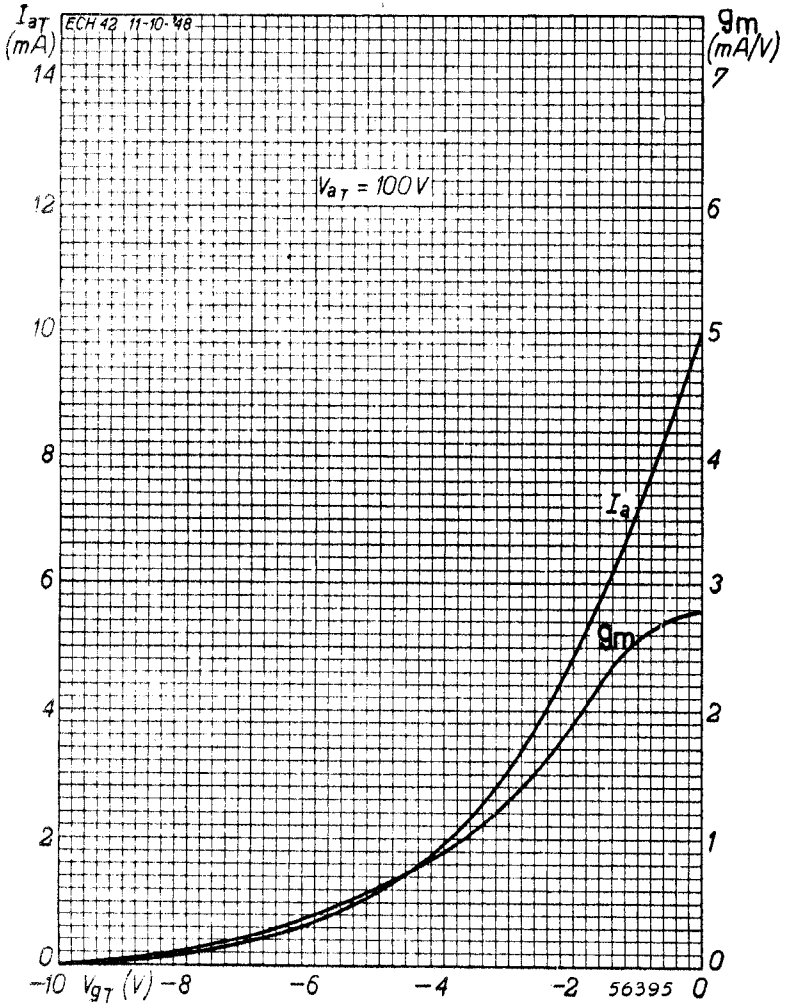

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