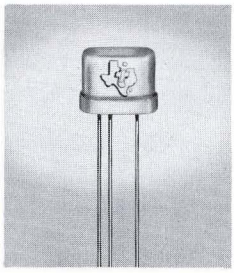
TYPE 2N1107
P-N-P GROWN-DIFFUSED GERMANIUM TRANSISTOR

RF AMPLIFIER FOR BROADCAST-BAND RECEIVERS



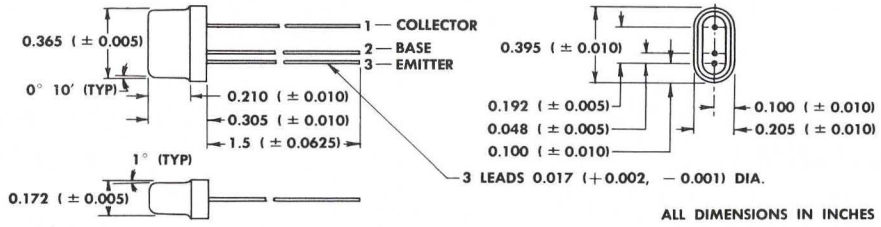
ACTUAL SIZE

qualification testing

To assure maximum reliability, stability and long life, all units are heat cycled from −55°C and room humidity to +75°C and 95% relative humidity for four complete cycles over an eight-hour period. All transistors are thoroughly tested for rigid adherence to specified design characteristics.

mechanical data

Metal case with glass-to-metal hermetic seal between case and leads. Unit weight is 1 gram.



ALL DIMENSIONS IN INCHES

ALL CONNECTIONS INSULATED FROM CASE

absolute maximum ratings at 25°C case temperature (unless otherwise noted)

Collector-to-Base Voltage	16 v
Collector Current	5 ma
Total Dissipation	30 mw
Collector Junction Temperature	+85°C
Storage Temperature Range	−55°C to +85°C

typical design characteristics at 25°C

				typical	max.	unit
I_{CBO}	Collector Reverse Current	$I_E = 0$	$V_{CB} = -12$ v	−5	−10	μa
h_{fe}	Forward Current Transfer Ratio (455 kc)	$I_C = -0.5$ ma	$V_{CB} = -6$ v	34	—	db
$f_{\alpha b}$	Current Transfer Ratio Cutoff Frequency	$I_C = -1$ ma	$V_{CB} = -5$ v	40	—	mc
C_{ob}	Output Capacitance	$I_C = -1$ ma	$V_{CB} = -6$ v	1.5	—	μμf

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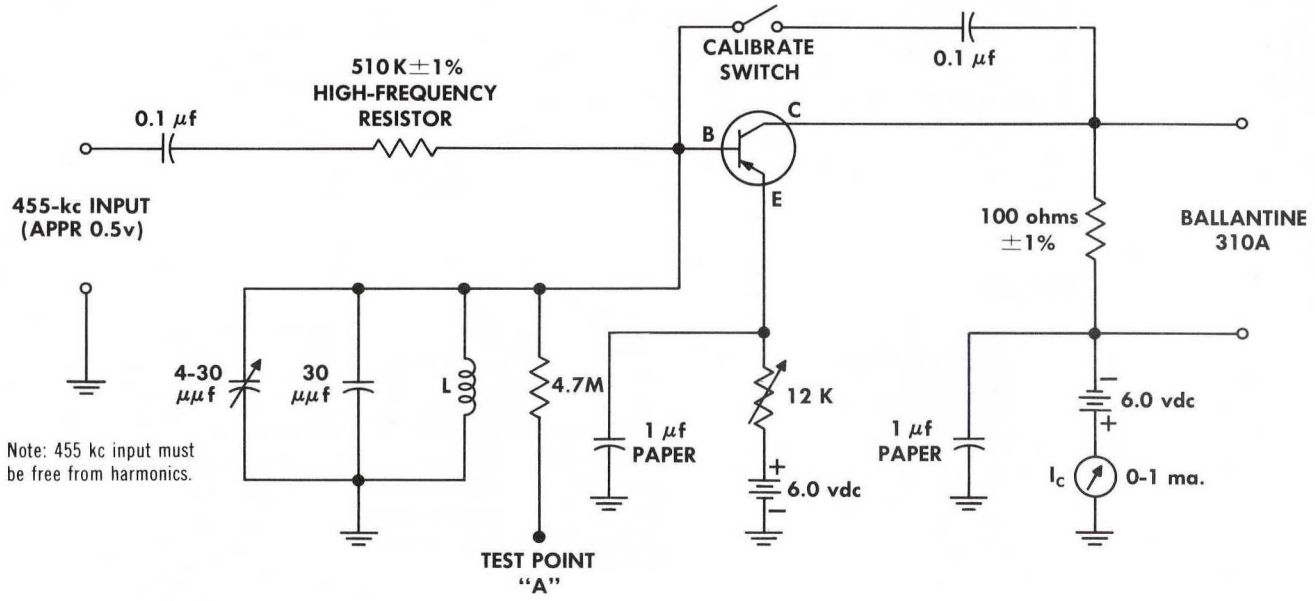
TYPE 2N1107

TEST CIRCUIT

455 – kc h_{fe} TEST SET



Note: 455 kc input must be free from harmonics.

Coil Data

L = 2.5 mh
Q = 150 minimum at 455 kc
260 turns of #32 wire random wound on general ceramics #F624-2 steatite Q_1 toroid core with one layer of insulated tape on bare core.

455-kc h_{fe} Test Set Operating Instructions

1. Connect a VTVM to test point "A" and adjust the 455-kc tuned circuit for resonance.
2. Close calibrate switch and adjust 455-kc input to give 0.1 mv reading on Ballantine 310A or equivalent.
3. Open calibrate switch, insert transistor, and set $I_c = 0.5$ ma.
4. Read h_{fe} value directly in db (0 db = 0.1 mv reference level).

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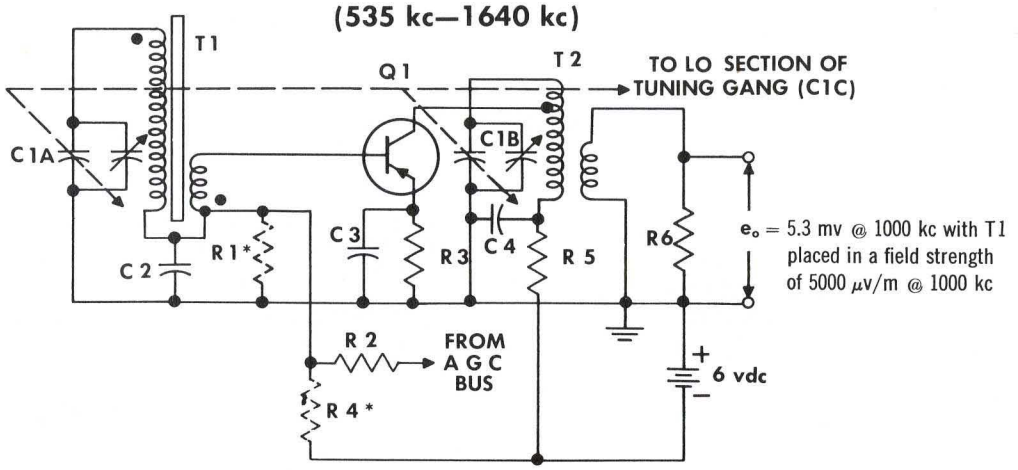
TYPICAL TUNED RF AMPLIFIER
(535 kc—1640 kc)

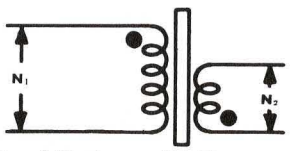


PARTS LIST:

* R1 = 1.8 K ohms	C 1A, B = 22-242 μμf
R2 = 1.0 K ohms	C 2 = 0.01 μf
R3 = 1.8 K ohms	C 3, 4 = 0.05 μf
* R4 = 18 K ohms	Q 1 = 2N1107
R5 = 470 ohms	
R6 = 5.0 K ohms	

* To Be Used When AGC Is Not Desired

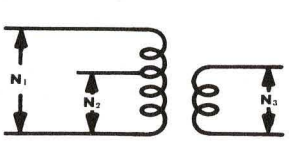
T1



L = 0.39 mh
Q_U = 270
Q_L = 50
N_1/N_2 = 4.63
K = 0.68

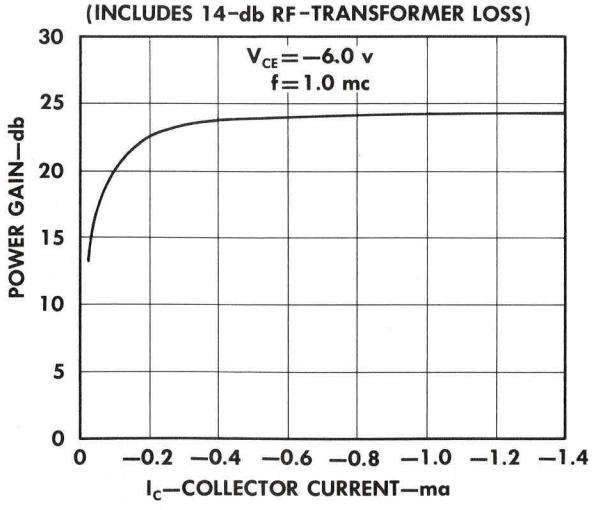
Bar Size:
4⅝" x ¾" x ⅛"
Material: Ferrite
$C_{dist.}$ = 4.0 μμf

T2

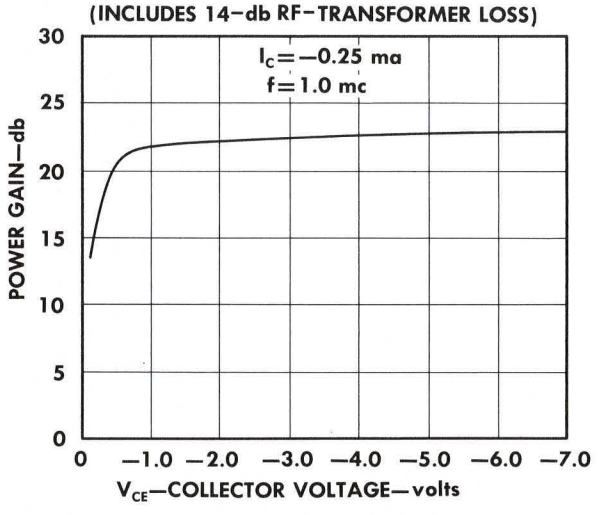


L = 0.39 mh
Q_U = 80
Q_L = 50
N_1/N_2 = 6.2
N_1/N_3 = 8.6
Ins. Loss = 8.5 db

TYPICAL POWER GAIN VS COLLECTOR CURRENT
(INCLUDES 14-db RF-TRANSFORMER LOSS)



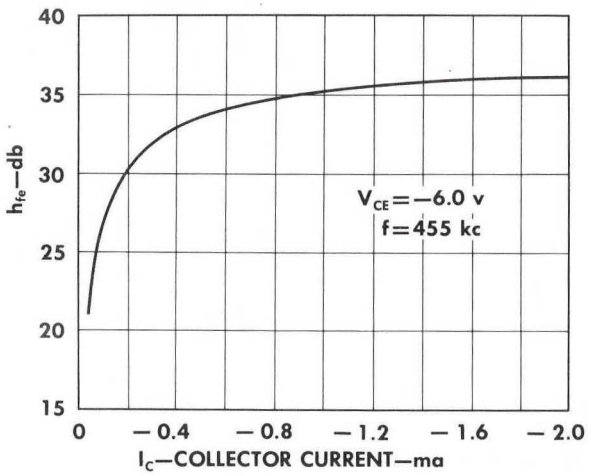
TYPICAL POWER GAIN VS COLLECTOR VOLTAGE
(INCLUDES 14-db RF-TRANSFORMER LOSS)



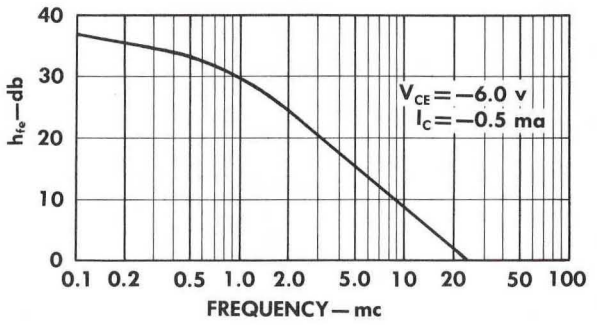
TYPE 2N1107

TYPICAL CHARACTERISTICS

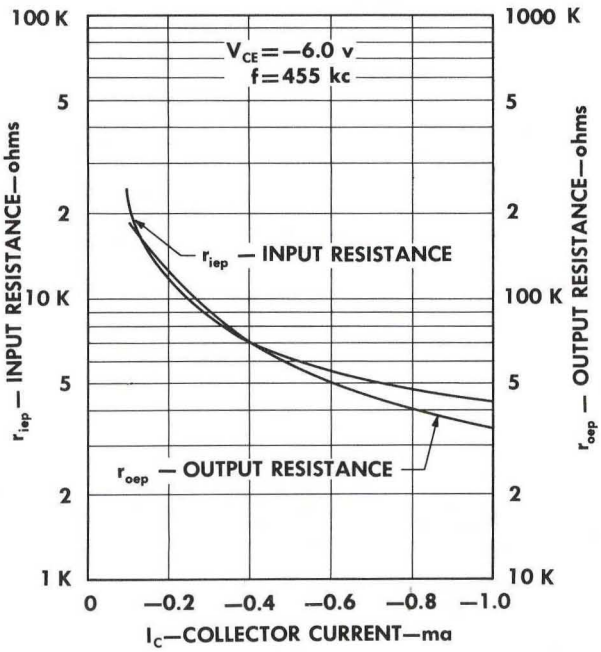
TYPICAL CURRENT AMPLIFICATION (h_{fe}) VS COLLECTOR CURRENT



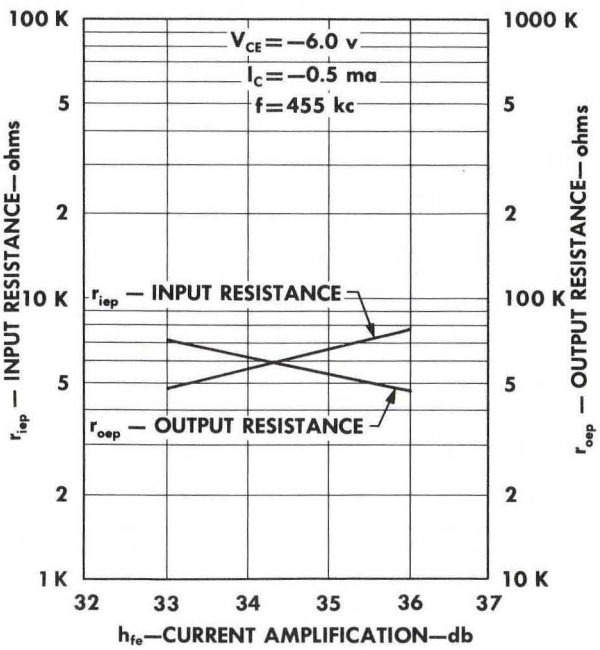
TYPICAL CURRENT AMPLIFICATION (h_{fe}) VS FREQUENCY



TYPICAL INPUT AND OUTPUT RESISTANCE VS I_C



TYPICAL INPUT AND OUTPUT RESISTANCE VS h_{fe}



r_{iep} = Common-emitter parallel input resistance with output shorted
r_{oep} = Common-emitter parallel output resistance with input shorted

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