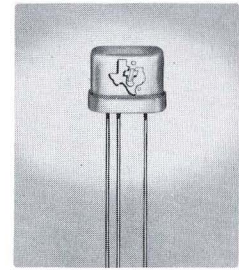




**455-kc CONVERTER
FOR
BROADCAST-BAND RECEIVERS**



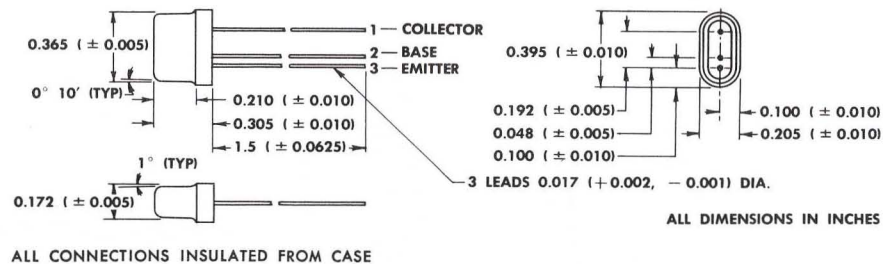
ACTUAL SIZE

qualification testing

To assure maximum reliability, stability and long life, all units are heat cycled from -55°C and room humidity to $+75^{\circ}\text{C}$ 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.



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

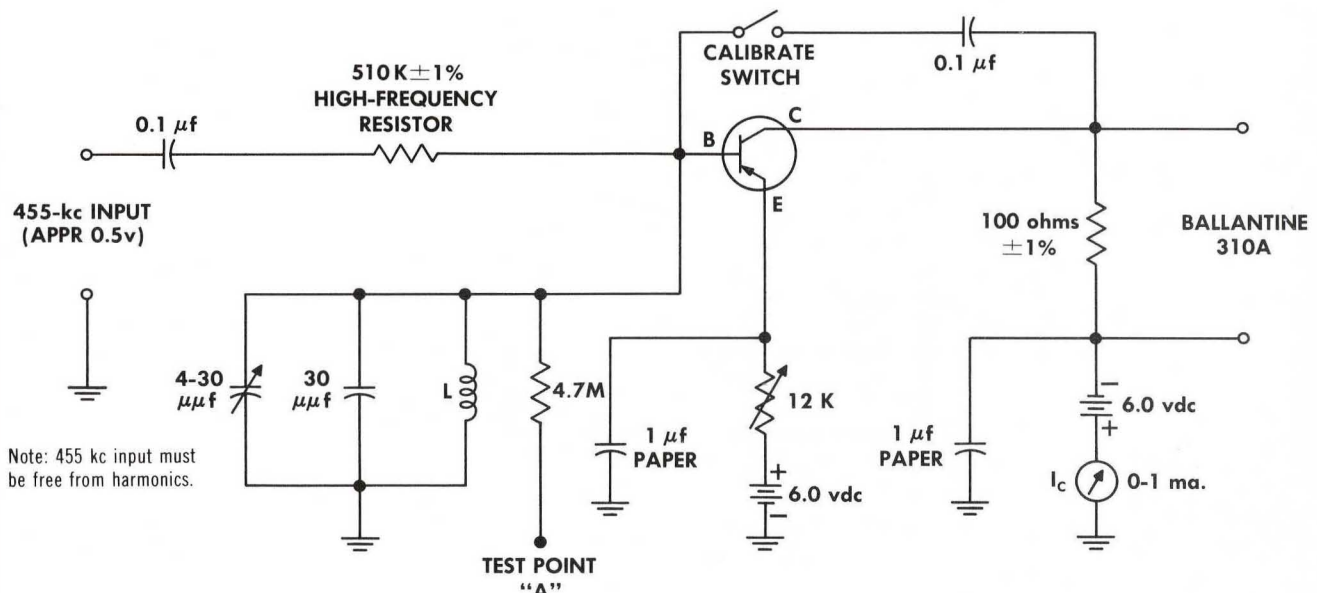
typical design characteristics at 25°C

			typical	max.	unit
I_{CB0}	Collector Reverse Current	$I_E = 0$	-5	-10	μa
h_{fe}	Forward Current Transfer Ratio (455 kc)	$I_C = -0.5 \text{ ma}$	33	—	db
$f_{\alpha b}$	Current Transfer Ratio Cutoff Frequency	$I_C = -1 \text{ ma}$	35	—	mc
C_{ob}	Output Capacitance	$I_C = -1 \text{ ma}$	1.5	—	μf

TYPE 2N1108

TEST CIRCUIT

455 - kc h_{fe} TEST SET



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).

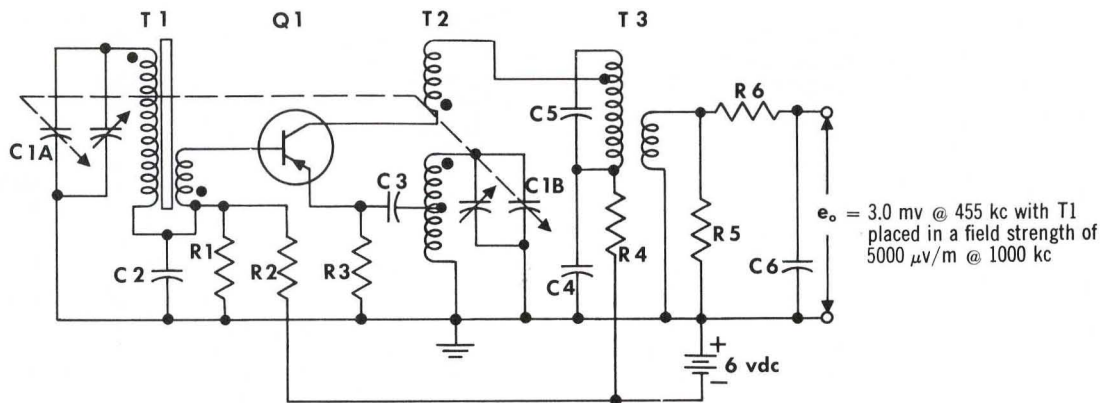
TEXAS INSTRUMENTS
INCORPORATED

SEMICONDUCTOR COMPONENTS DIVISION
POST OFFICE BOX 312 • 13500 N. CENTRAL EXPRESSWAY
DALLAS, TEXAS

IN ORDER TO SUPPLY THE BEST PRODUCTS POSSIBLE, TEXAS INSTRUMENTS RESERVES THE RIGHT TO MAKE CHANGES AT ANY TIME.

PRINTED IN U.S.A.

TYPICAL AUTODYNE CONVERTER (535 kc—1640 kc) TO 455 kc

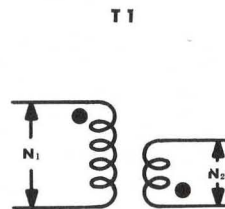


PARTS LIST:

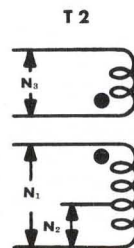
R 1 = 2.2 K ohms
 R 2 = 12 K ohms
 R 3 = 2.7 K ohms
 R 4 = 470 ohms
 †R 5 = 4.7 K ohms
 *R 6 = 4.7 K ohms

C 1 A = 12-138 $\mu\mu\text{f}$
 C 1 B = 16.5-83 $\mu\mu\text{f}$
 C 2 = 0.01 μf
 C 3 = 0.005 μf
 C 4 = 0.05 μf
 C 5 = 190 $\mu\mu\text{f}$
 *C 6 = 100 $\mu\mu\text{f}$
 Q 1 = 2N1108

* Used for measurement of e_o only.
 † R 5 = 2.7 K for true loading

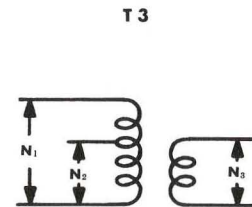


$L_1 = 0.69$ mh
 $Q_U = 360$
 $Q_L = 50$
 $N_1/N_2 = 5.0$
 Bar Size:
 $4\frac{5}{8}'' \times \frac{3}{4}'' \times \frac{1}{8}''$
 Material: Ferrite
 $K = 0.64$
 $C_{\text{dist.}} = 2.4 \mu\mu\text{f}$



$N_1 = 128$ T $L_1 = 0.3$ mh
 $N_2 = 6$ T Gears = 39/41
 $N_3 = 28$ T Cam = 0.093
 $Q_U = 70$ Wire: No. 40 Grip. -2

Coil Form—0.218" dia.
 Core Mat.: Ferrite
 Universal Winding (2 pi)
 Spacing between Windings = 0.093"



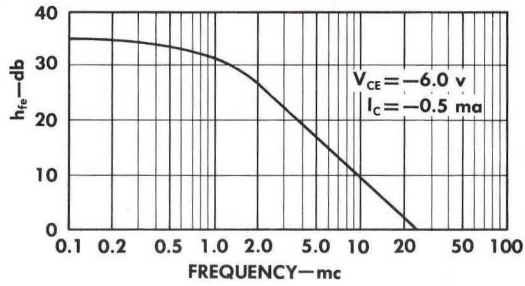
$Q_U = 65$
 $Q_L = 50$
 $N_1/N_2 = 3.1$
 $N_1/N_3 = 14.6$
 Ins. Loss = 13 db



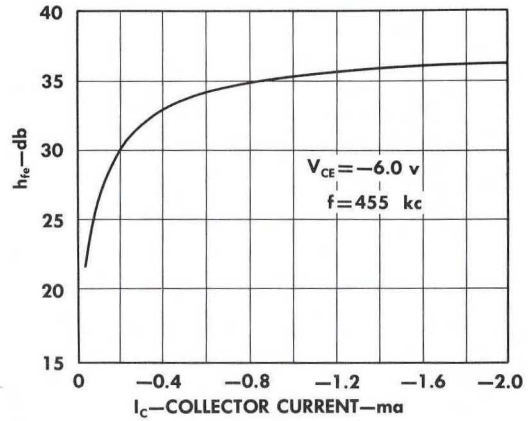
TYPE 2N1108

TYPICAL CHARACTERISTICS

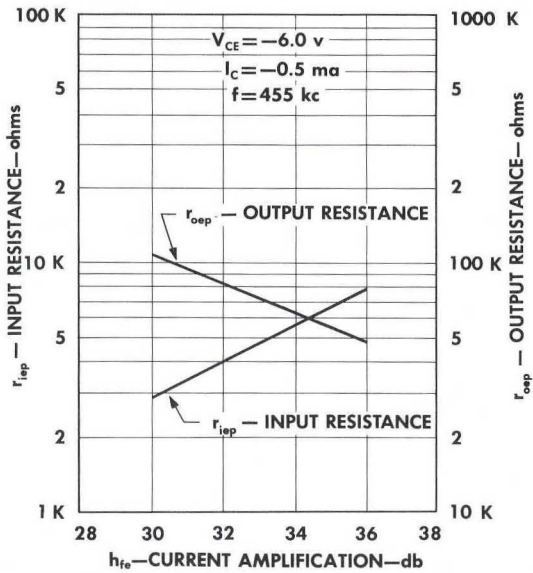
TYPICAL CURRENT AMPLIFICATION (h_{fe})
VS FREQUENCY



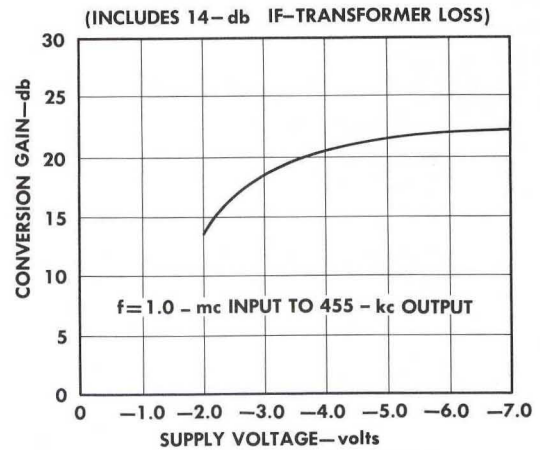
TYPICAL CURRENT AMPLIFICATION (h_{fe})
VS COLLECTOR CURRENT



TYPICAL INPUT AND OUTPUT
RESISTANCE VS h_{fe}



TYPICAL CONVERSION GAIN
VS SUPPLY VOLTAGE



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

TEXAS INSTRUMENTS
INCORPORATED

SEMICONDUCTOR COMPONENTS DIVISION
POST OFFICE BOX 312 • 13500 N. CENTRAL EXPRESSWAY
DALLAS, TEXAS