

**DESCRIPTION**

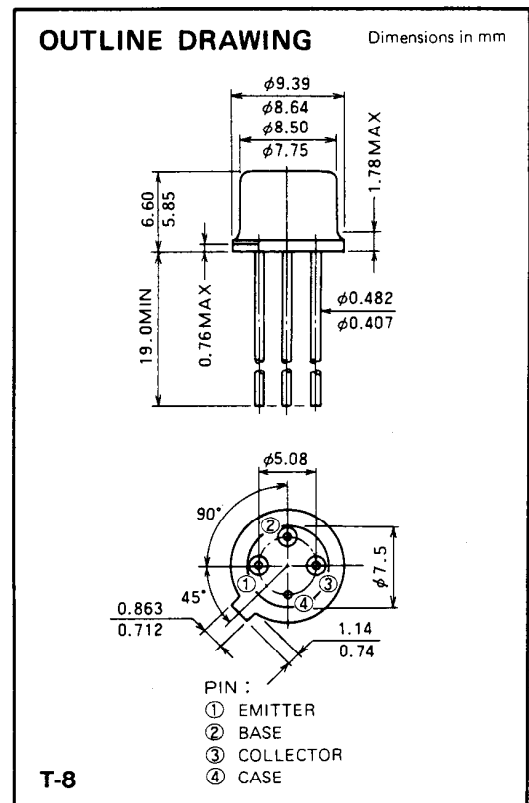
2SC1324 is a silicon NPN epitaxial planar type transistor designed for industrial use RF broadband amplifiers from VHF to UHF band.

**FEATURES**

- High power gain:  $G_{pe} \geq 9\text{dB}$   
@  $V_{CC} = 15\text{V}$ ,  $I_C = 30\text{mA}$ ,  $f = 770\text{MHz}$
- TO-12 metal sealed package with case grounded pin for high reliability and good performances.
- All electrodes excepted ground pin are isolated from the case.

**APPLICATION**

Broadband amplifiers from VHF to UHF band.



**ABSOLUTE MAXIMUM RATINGS** ( $T_C = 25^\circ\text{C}$  unless otherwise specified)

Symbol	Parameter	Conditions	Ratings	Unit
$V_{CBO}$	Collector to base voltage		35	V
$V_{EBO}$	Emitter to base voltage		4	V
$V_{CEO}$	Collector to emitter voltage	$R_{BE} = \infty$	25	V
$I_C$	Collector current		150	mA
$P_C$	Collector dissipation	$T_a = 25^\circ\text{C}$	0.8	W
		$T_C = 25^\circ\text{C}$	3	W
$T_j$	Junction temperature		175	$^\circ\text{C}$
$T_{stg}$	Storage temperature		-65 to 175	$^\circ\text{C}$
$R_{th-a}$	Thermal resistance	Junction to ambient	187.5	$^\circ\text{C}/\text{W}$
		Junction to case	50	$^\circ\text{C}/\text{W}$

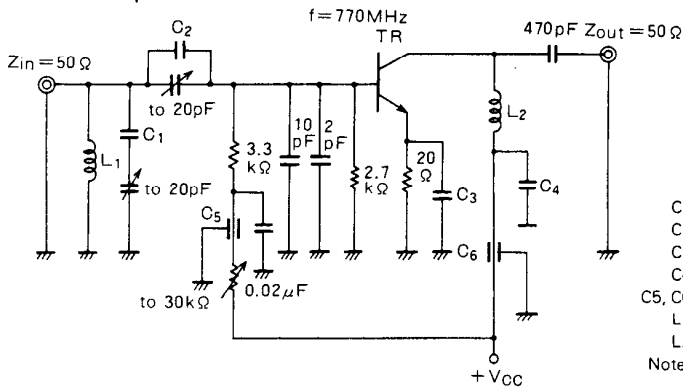
Note. Above parameters are guaranteed independently.

**ELECTRICAL CHARACTERISTICS** ( $T_C = 25^\circ\text{C}$  unless otherwise specified)

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
$V_{(BR)EBO}$	Emitter to base breakdown voltage	$I_E = 1\text{mA}$ , $I_C = 0$	4			V
$V_{(BR)CBO}$	Collector to base breakdown voltage	$I_C = 1\text{mA}$ , $I_E = 0$	35			V
$V_{(BR)CEO}$	Collector to emitter breakdown voltage	$I_C = 10\text{mA}$ , $R_{BE} = \infty$	25			V
$I_{CBO}$	Collector cutoff current	$V_{CB} = 25\text{V}$ , $I_E = 0$			50	$\mu\text{A}$
$I_{EBO}$	Emitter cutoff current	$V_{EB} = 3\text{V}$ , $I_C = 0$			75	$\mu\text{A}$
$h_{FE}$	DC forward current gain *	$V_{CE} = 15\text{V}$ , $I_C = 30\text{mA}$	20	70	180	—
$G_{pe}$	Power gain	$V_{CC} = 15\text{V}$ , $f = 770\text{MHz}$ , $I_C = 30\text{mA}$	9	10		dB
$f_T$	Transition frequency	$V_{CE} = 15\text{V}$ , $I_C = 30\text{mA}$		1.7		GHz
NF	Noise figure	$V_{CC} = 15\text{V}$ , $I_C = 30\text{mA}$ , $f = 500\text{MHz}$ , $R_G = 50\Omega$		5		dB

Note. \* Pulse test.  $P_W = 150\mu\text{s}$ , duty=5%.  
Above parameters, ratings, limits and conditions are subject to change.

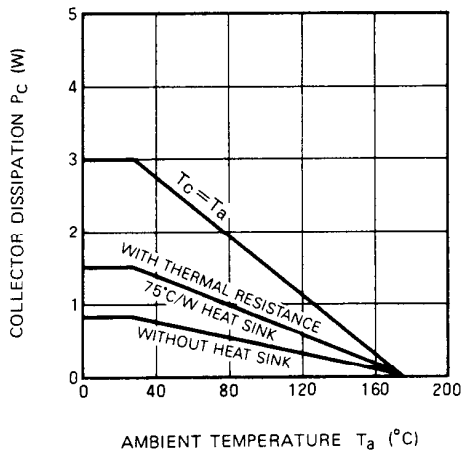
**TEST CIRCUIT**



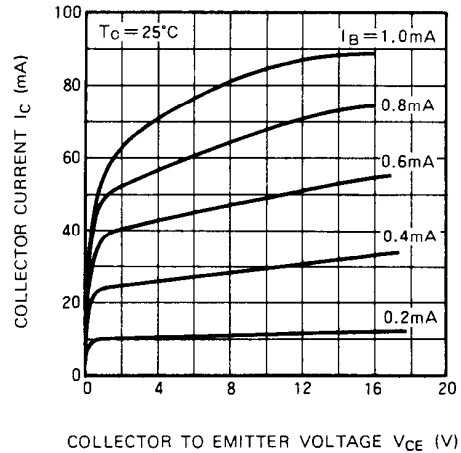
- C1: 2pF, 3pF in parallel
  - C2: 3pF, 4pF in parallel
  - C3: 500pF, 0.02μF in parallel
  - C4: 0.05μF, 0.03μF, 0.01μF in parallel
  - C5, C6: 1500pF
  - L1: 4mm core, 10T, enameled wire
  - L2: Width 2mm, length 20mm ribbon lead (silver plated copper plate)
- Notes: Coil dimensions in milli-meter  
 T: Turn number of coil

**TYPICAL PERFORMANCE DATA**

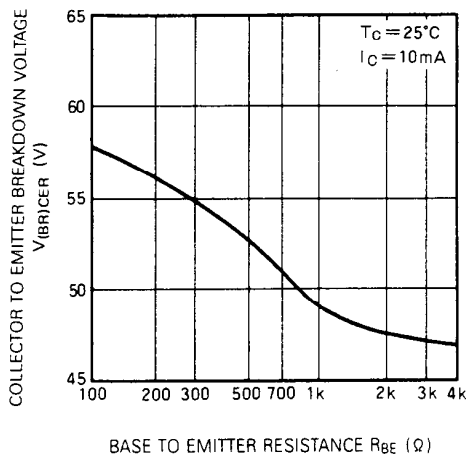
**COLLECTOR DISSIPATION VS. AMBIENT TEMPERATURE**



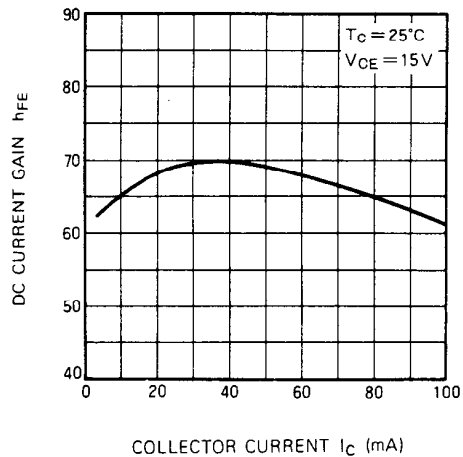
**COLLECTOR CURRENT VS. COLLECTOR TO EMITTER VOLTAGE**



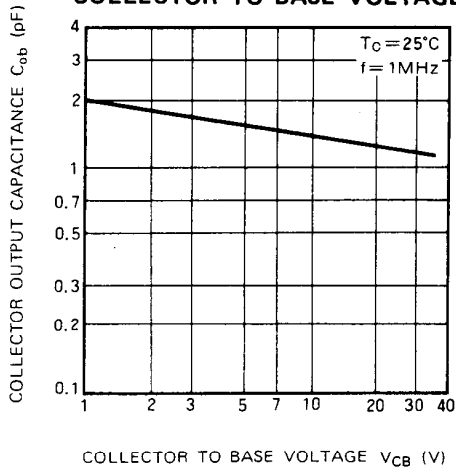
**COLLECTOR TO EMITTER BREAKDOWN VOLTAGE VS. BASE TO EMITTER RESISTANCE**



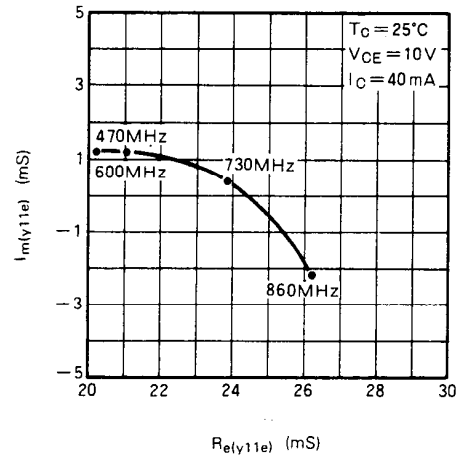
**DC CURRENT GAIN VS. COLLECTOR CURRENT**



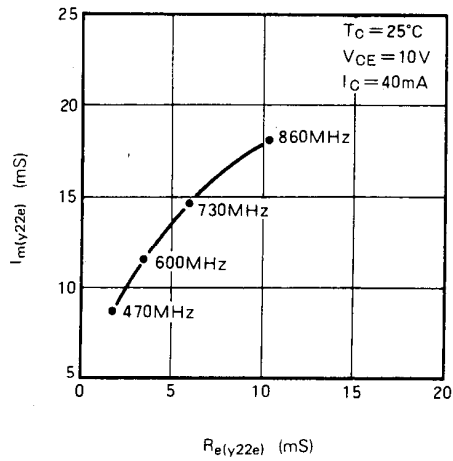
**COLLECTOR OUTPUT CAPACITANCE VS. COLLECTOR TO BASE VOLTAGE**



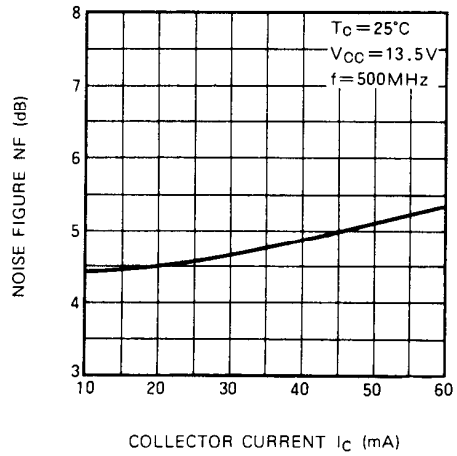
**INPUT ADMITANCE VS. FREQUENCY**



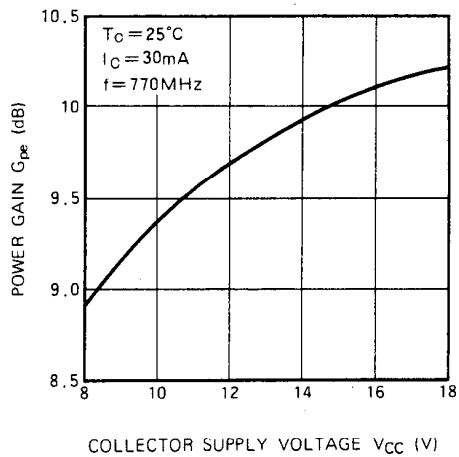
**OUTPUT ADMITANCE VS. FREQUENCY**



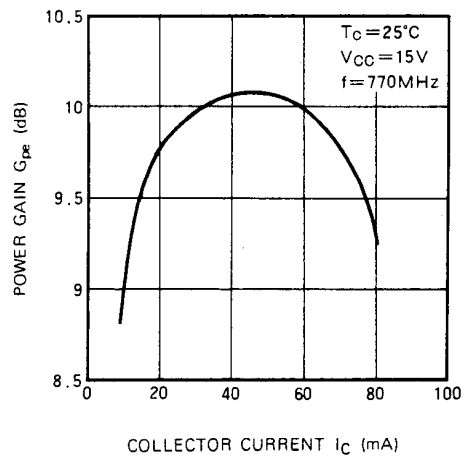
**NOISE FIGURE VS. COLLECTOR CURRENT**



**POWER GAIN VS. COLLECTOR SUPPLY VOLTAGE**



**POWER GAIN VS. COLLECTOR CURRENT**



**THIRD ORDER INTERMODULATION  
DISTORTION VS. OUTPUT LEVEL**

