

DESCRIPTION

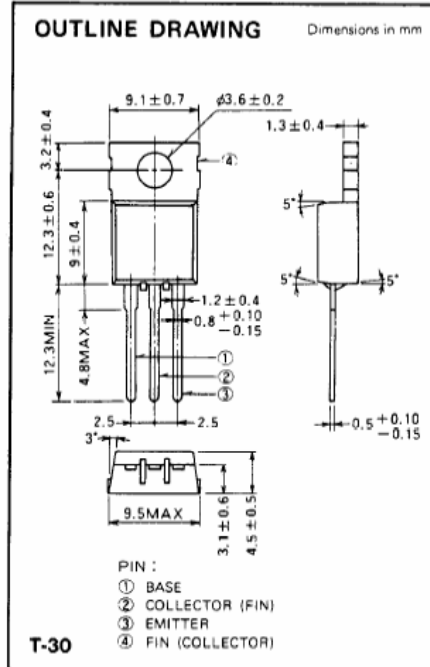
2SC1969 is a silicon NPN epitaxial planar type transistor designed for RF power amplifiers on HF band mobile radio applications.

FEATURES

- High power gain: $G_{pe} \geq 12\text{dB}$
@ $V_{CC} = 12\text{V}$, $P_O = 16\text{W}$, $f = 27\text{MHz}$
- Emitter ballasted construction for high reliability and good performances.
- TO-220 package similarly is combinient for mounting.
- Ability of withstanding infinite load VSWR when operated at $V_{CC} = 16\text{V}$, $P_O = 20\text{W}$, $f = 27\text{MHz}$.

APPLICATION

10 to 14 watts output power class AB amplifiers applications in HF band.



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

Symbol	Parameter	Conditions	Ratings	Unit
V_{CBO}	Collector to base voltage		60	V
V_{EBO}	Emitter to base voltage		5	V
V_{CEO}	Collector to emitter voltage	$R_{BE} = \infty$	25	V
I_C	Collector current		6	A
P_C	Collector dissipation	$T_a = 25^\circ\text{C}$	1.7	W
		$T_C = 25^\circ\text{C}$	20	W
T_j	Junction temperature		150	$^\circ\text{C}$
T_{stg}	Storage temperature		-55 to 150	$^\circ\text{C}$
R_{th-a}	Thermal resistance	Junction to ambient	73.5	$^\circ\text{C}/\text{W}$
R_{th-c}		Junction to case	6.25	$^\circ\text{C}/\text{W}$

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	$I_E = 5\text{mA}$, $I_C = 0$	5			V
$V_{(BR)CBO}$	Collector to base breakdown voltage	$I_C = 1\text{mA}$, $I_E = 0$	60			V
$V_{(BR)CEO}$	Collector to emitter breakdown voltage	$I_C = 10\text{mA}$, $R_{BE} = \infty$	25			V
I_{CBO}	Collector cutoff current	$V_{CB} = 30\text{V}$, $I_E = 0$			100	μA
I_{EBO}	Emitter cutoff current	$V_{EB} = 4\text{V}$, $I_C = 0$			100	μA
h_{FE}	DC forward current gain *	$V_{CE} = 12\text{V}$, $I_C = 10\text{mA}$	10	50	180	—
P_O	Output power	$V_{CC} = 12\text{V}$, $P_{in} = 1\text{w}$, $f = 27\text{MHz}$	16	18		W
η_C	Collector efficiency		60	70		%

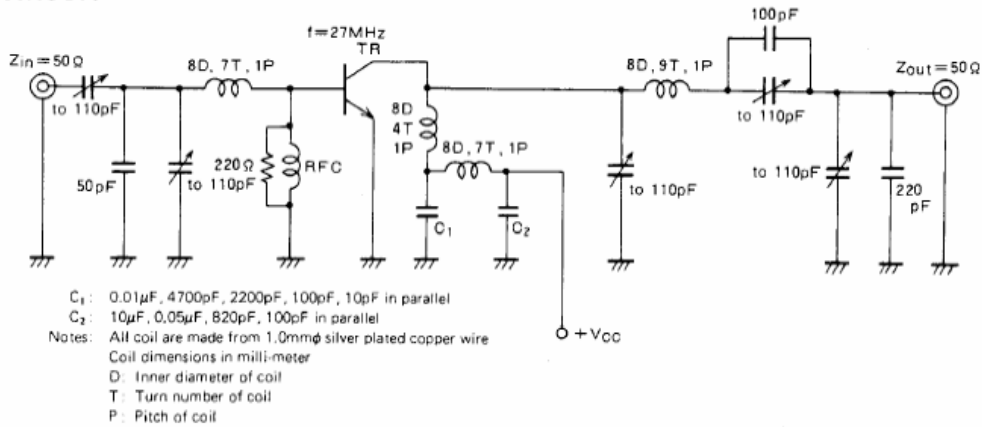
Note. * Pulse test, $P_w = 150\mu\text{s}$, duty = 5%.

Above parameters, ratings, limits and conditions are subject to change.

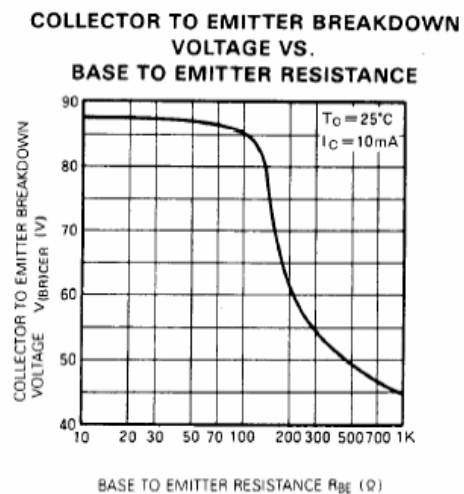
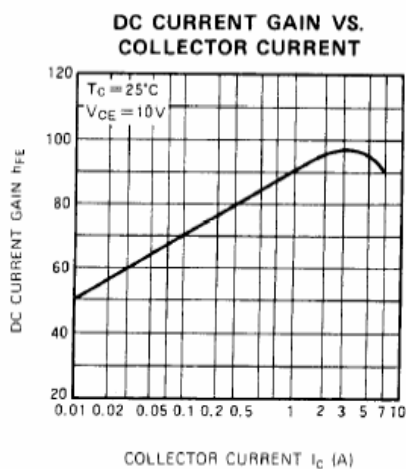
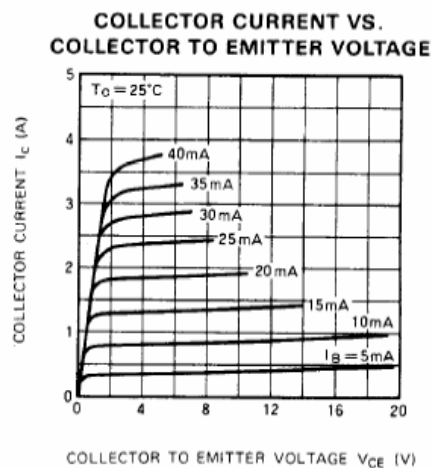
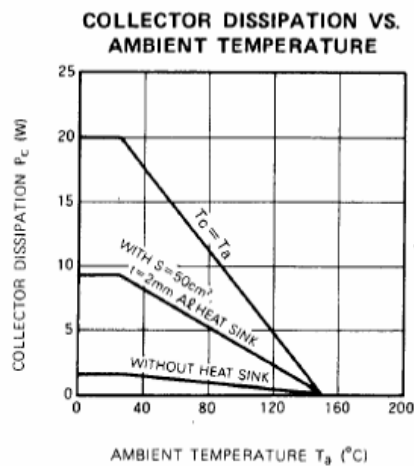
Item	X	A	B	C	D
h_{FE}	10-25	20-45	35-70	55-110	90-180

2SC1969

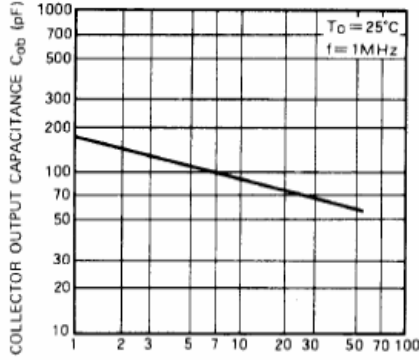
TEST CIRCUIT



TYPICAL PERFORMANCE DATA

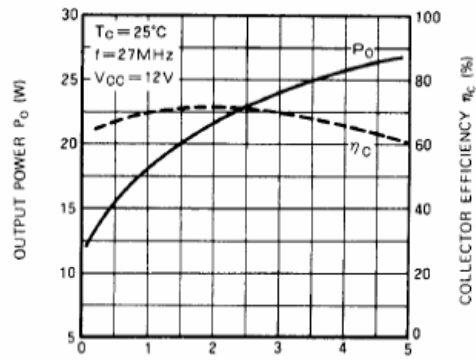


COLLECTOR OUTPUT CAPACITANCE VS. COLLECTOR TO BASE VOLTAGE CHARACTERISTICS



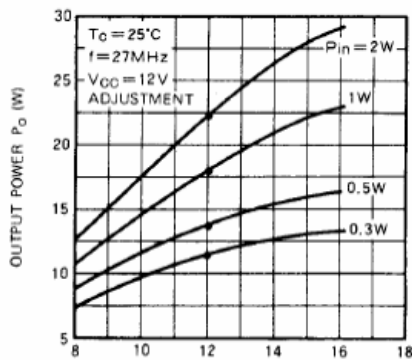
COLLECTOR TO BASE VOLTAGE V_{CB} (V)

OUTPUT POWER, COLLECTOR EFFICIENCY VS. INPUT POWER



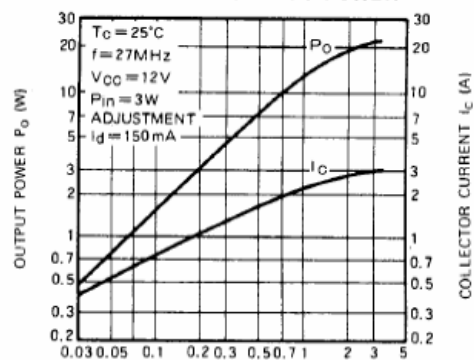
INPUT POWER P_{in} (W)

OUTPUT POWER VS. COLLECTOR SUPPLY VOLTAGE



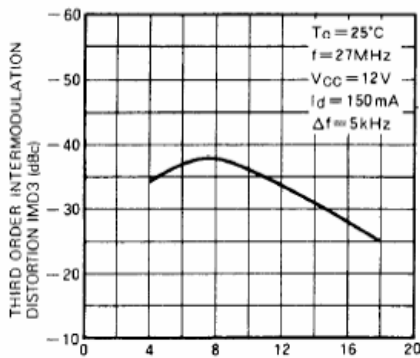
COLLECTOR SUPPLY VOLTAGE V_{CC} (V)

IN CASE AB OPERATING OUTPUT POWER COLLECTOR CURRENT VS. INPUT POWER



INPUT POWER P_{in} (W)

THIRD ORDER INTERMODULATION DISTORTION VS. OUTPUT POWER



OUTPUT POWER LEVEL (PEP) (W)