

2SC1971

DESCRIPTION

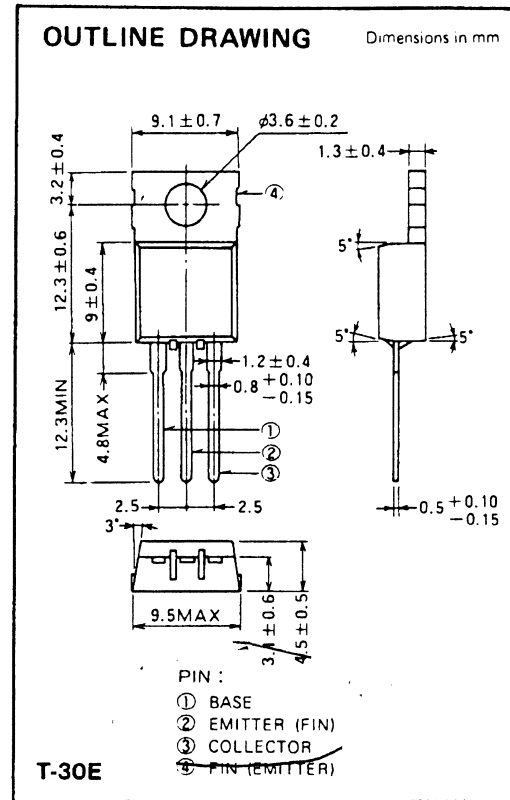
2SC1971 is a silicon NPN epitaxial planar type transistor designed for RF power amplifiers on VHF band mobile radio applications.

FEATURES

- High power gain: $G_{pe} \geq 10\text{dB}$
@ $V_{CC} = 13.5\text{V}$, $P_O = 6\text{W}$, $f = 175\text{MHz}$
- Emitter ballasted construction, gold metallization for high reliability and good performances.
- TO-220 package similar is combinient for mounting.
- Ability of withstanding more than 20:1 load VSWR when operated at $V_{CC} = 15.2\text{V}$, $P_O = 6\text{W}$, $f = 175\text{MHz}$.

APPLICATION

4 to 5 watts output power amplifiers in VHF band applications.



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	$R_{BE} = \infty$	17	V
I_C	Collector current		2	A
P_C	Collector dissipation	$T_a = 25^\circ\text{C}$	1.5	W
		$T_C = 25^\circ\text{C}$	12.5	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	83	$^\circ\text{C/W}$
R_{th-c}		Junction to case	10	$^\circ\text{C/W}$

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	$I_F = 5\text{mA}$, $I_C = 0$	4			V
$V_{(BR)CBO}$	Collector to base breakdown voltage	$I_C = 10\text{mA}$, $I_E = 0$	35			V
$V_{(BR)CEO}$	Collector to emitter breakdown voltage	$I_C = 50\text{mA}$, $R_{BE} = \infty$	17			V
I_{CBO}	Collector cutoff current	$V_{CB} = 25\text{V}$, $I_E = 0$			500	μA
I_{EBO}	Emitter cutoff current	$V_{EB} = 3\text{V}$, $I_C = 0$			500	μA
h_{FE}	DC forward current gain *	$V_{CE} = 10\text{V}$, $I_C = 0.1\text{A}$	10	50	180	—
* P_O	Output power	$V_{CC} = 13.5\text{V}$, $P_{in} = 0.6\text{W}$, $f = 175\text{MHz}$	6	7		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.

NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.

