2SC1970

NPN EPITAXIAL PLANAR TYPE

DESCRIPTION

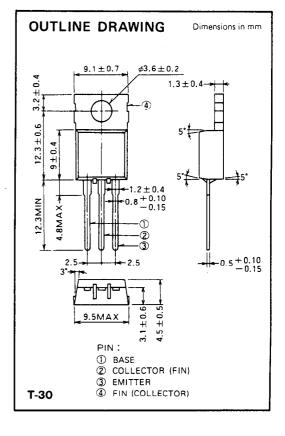
2SC1970 is a silicon NPN epitaxial planar type transistor designed for RF power amplifiers on VHF band mobile radio applications.

FEATURES

- High power gain: $G_{pe} \ge 9.2 dB$ $@V_{CC} = 13.5 V$, $P_0 = 1 W$, f = 175 MHz
- Emitter ballasted construction, gold metallization for high reliability and good performances.
- TO-220 package similarly is combinient for mounting.

APPLICATION

0.8 to 1 watts output power amplifiers and driver in VHF band mobile radio applications.



ABSOLUTE MAXIMUM RATINGS (T_C = 25°C unless otherwise specified)

Symbol	Parameter	Conditions	Ratings	Unit
V _{CBO}	Collector to base voltage		40	V.
V _{EBO}	Emitter to base voltage		4	V
V _{CEO}	Collector to emitter voltage	R _{BE} = ∞	17	V
lc	Collector current		0.6	А
Pc	Collector dissipation	Ta = 25°C	1	w
		T _C = 25°C	5	w
Tį	Junction temperature		150	*c
Tstg	Storage temperature		-55 to 150	°C
Rth-a		Junction to ambient	125	*c/w
Rth-c	Thermal resistance	Junction to case	25	*c/w

Note. Above parameters are guaranteed independently.

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise specified)

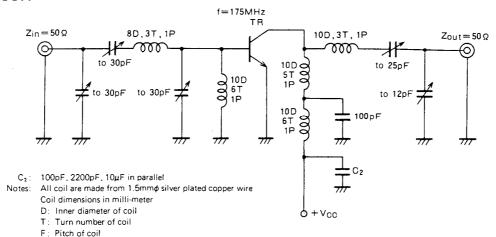
Symbol	Parameter Test conditions	Total conditations	Limits			11.12
		l est conditions	Min	Тур	Max	Unit
V(BR)EBO	Emitter to base breakdown voltage	IE = 1mA, IC = 0	4			٧
V(BR)CBO	Collector to base breakdown voltage	I _C =5mA, I _E =0	40			V
V(BR)CEO	Collector to emitter breakdown voltage	I _C =50mA, R _{BE} =∞	. 17			٧
сво	Collector cutoff current	V _{CB} =25V, I _E =0			100	μА
I _{EBO}	Emitter cutoff current	V _{EB} =3V, 1 _C =0			100	μА
hFE	DC forward current gain *	V _{CE} = 10 V, 1 _C = 0.1A	10	50	180	
Po	Output power	V _{CC} =13.5V, P _{in} =0.12W, f=175MHz	1	1.2		W
$\eta_{\rm C}$	Collector efficiency		50	60		%

Note. *Pulse test, $P_W = 150 \mu s$, duty=5%

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

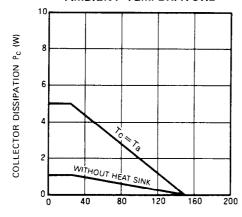


TEST CIRCUIT



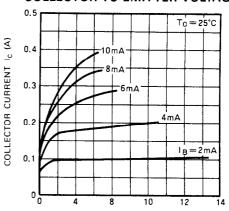
TYPICAL PERFORMANCE DATA

COLLECTOR DISSIPATION VS. AMBIENT TEMPERATURE



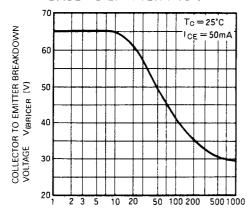
AMBIENT TEMPERATURE Ta (°C)

COLLECTOR CURRENT VS. COLLECTOR TO EMITTER VOLTAGE



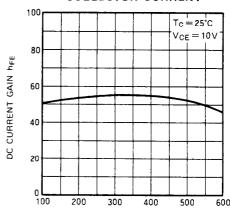
COLLECTOR TO EMITTER VOLTAGE VCE (V)

COLLECTOR TO EMITTER BREAKDOWN VOLTAGE VS. BASE TO EMITTER RESISTANCE



BASE TO EMITTER RESISTANCE R_{BE} (Ω)

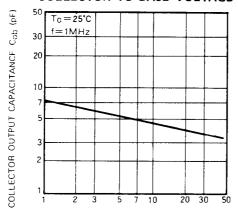
DC CURRENT GAIN VS. COLLECTOR CURRENT



COLLECTOR CURRENT Ic (mA)

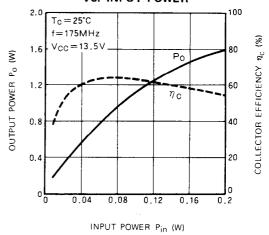
NPN EPITAXIAL PLANAR TYPE

COLLECTOR OUTPUT CAPACITANCE VS. COLLECTOR TO BASE VOLTAGE

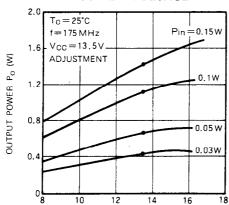


COLLECTOR TO BASE VOLTAGE VCB (V)

OUTPUT POWER, COLLECTOR EFFICIENCY VS. INPUT POWER



OUTPUT POWER VS. COLLECTOR SUPPLY VOLTAGE



COLLECTOR SUPPLY VOLTAGE V_{CC} (V)