

SONY[®]
SEMICONDUCTORS

2SC2020

[TENTATIVE]

RF POWER TRANSISTOR

2SC2020 is designed for HF and VHF Power Amplifier Applications. Most useful for 12-Watt SSB Citizens Band Transceiver Output Stage.

1. Features

- High Power Gain 14 dB min. $\left(\begin{matrix} f=27\text{MHz} \\ V_{CC}=12\text{V} \\ P_O=5\text{W} \end{matrix} \right)$
- Good Linearity
- Large Surge Capability
- High Reliability

2. Construction NPN SEP type Silicon Transistor

3. Application HF and VHF Power Amplifier

4. Outline TO-220 (JEDEC)

5. Absolute Maximum Ratings (Ta=25°C)

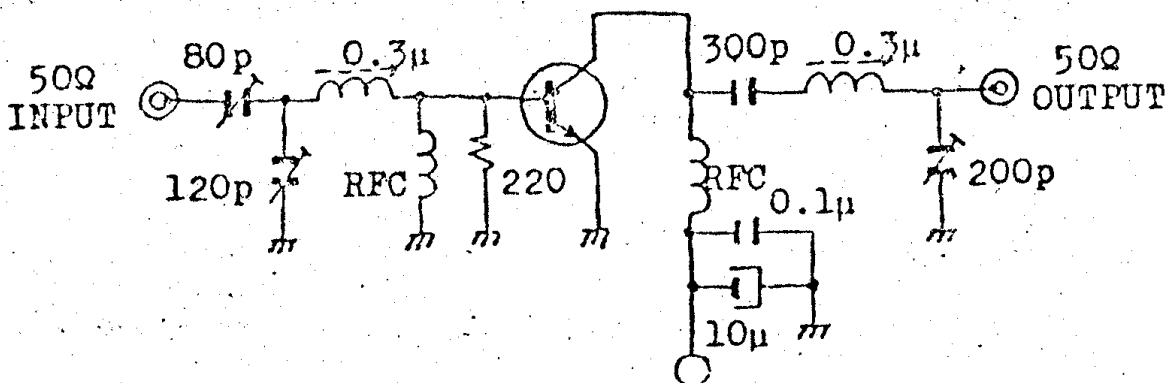
Collector - Base Voltage	V _{CB0}	45	V
Collector-Emitter Voltage	V _{CE0}	20	V
Emitter - Base Voltage	V _{EB0}	4	V
Collector Current	I _C	3	A (Pulse)
Collector Current	I _C	2	A
Collector Power Dissipation	P _C	12	W (Tc=25°C)
Junction Temperature	T _j	150	°C
Storage Temperature	T _{stg}	-50 +150	°C



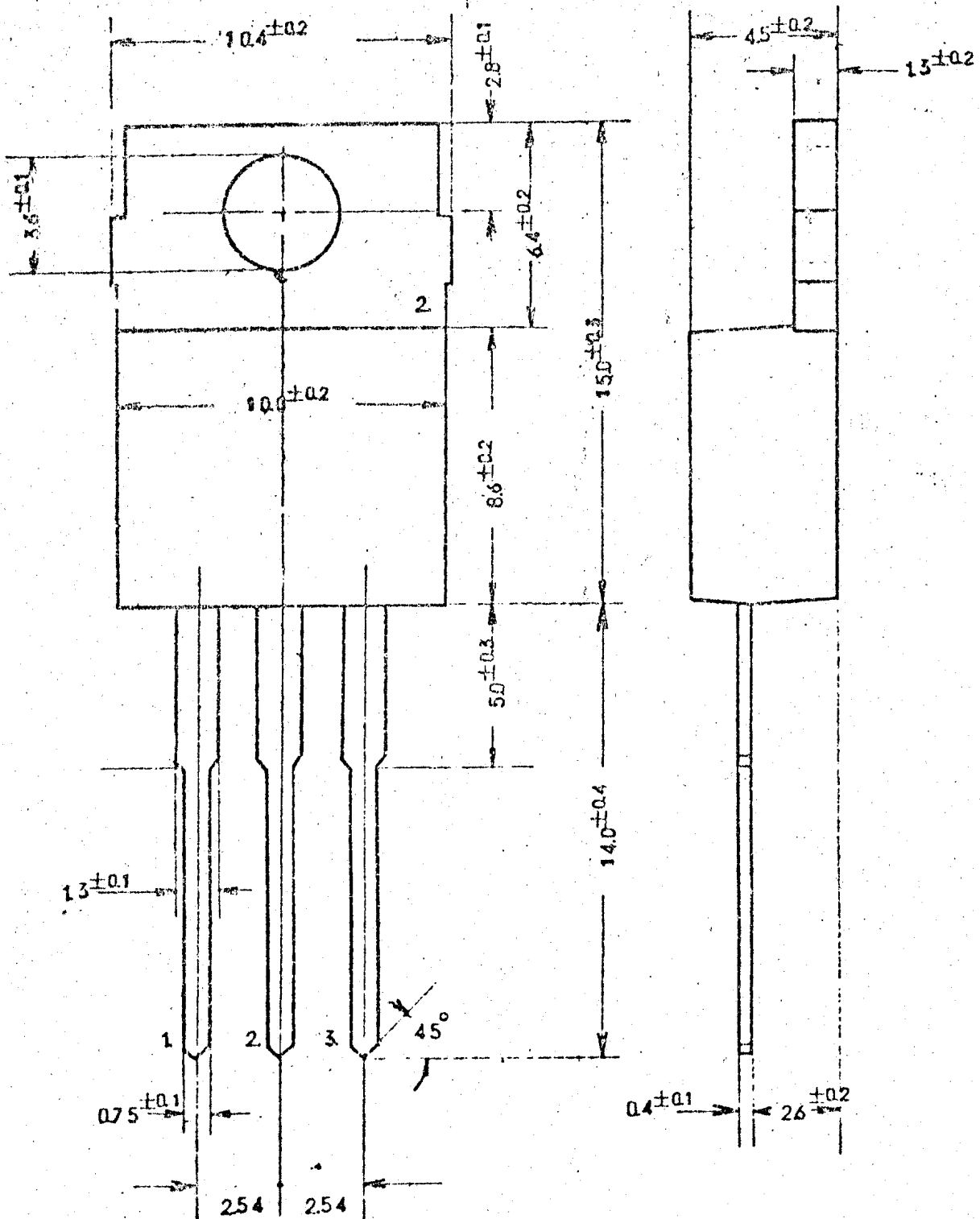
6. Electrical Characteristics ($T_a=25^\circ\text{C}$)

Characteristic		Conditions	Min.	Typ.	Max.	Unit
Collector Cut off Current	I_{CES}	$V_{CE}=40\text{V}$ $R_{BE}=0$			2	μA
Emitter Cut off Current	I_{EBO}	$V_{EB}=4\text{V}$			2	μA
Collector-Base Voltage	V_{CBO}	$I_C=0.1\text{mA}$	45			V
Collector-Emitter Voltage	V_{CEO}	$I_C=10\text{mA}$	20			V
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C=1\text{A}$ $I_B=0.1\text{A}$		0.2	0.5	V
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$			0.9	1.0	V
DC Current Gain	h_{FE}	$V_{CE}=2\text{V}$ $I_C=0.1\text{A}$	30		150	
Output Capacitance	C_{ob}	$V_{CB}=10\text{V}, I_E=0$ $f=1\text{MHz}$		20	30	pF
Gain Bandwidth Product	f_T	$V_{CE}=2\text{V}$ $I_E=-0.1\text{A}$	150	270		MHz
Output Power	P_O	$V_{CC}=12\text{V}$ $f=27\text{MHz}$	5	7		W
Collector Efficiency	η_C	$P_i=0.2\text{W}$ See Fig.1	60			%
Input Impedance	Z_{in}	$V_{CC}=12\text{V}$ $f=27\text{MHz}$		$6.2 - j9.1$		Ω
Output Impedance	Z_{out}	$P_O=5\text{W}$		$15 - j14.9$		Ω

Fig.1 Test Circuit



DIMENSIONAL OUTLINE



Dimensions in millimeters

Lead #1 - Base

Lead #2 - Collector (Flange)