

NPN EPITAXIAL PLANAR TYPE

DESCRIPTION

2SC3022 is a silicon NPN epitaxial planar type transistor specifically designed for UHF high power amplifier applications.

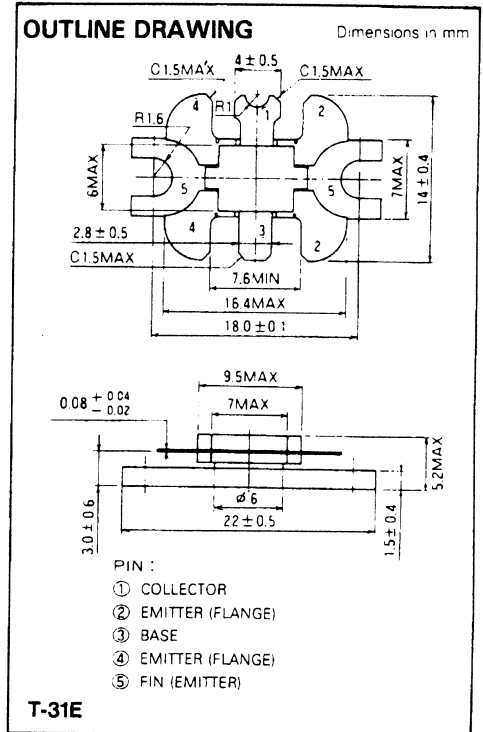
FEATURES

- High Power Gain: $G_{pe} \geq 4.7\text{dB}$
@ $V_{CC} = 12.5\text{V}$, $f = 520\text{MHz}$, $P_{in} = 6\text{W}$.
- Emitter ballasted construction.
- High ruggedness: Ability to withstand more than 20:1 load VSWR when operated at $V_{CC} = 15.2\text{V}$, $f = 520\text{MHz}$, $P_o = 18\text{W}$.
- Frange type ceramic package.
- $Z_{in} = 1.5 + j2.0\Omega$, $Z_{out} = 2.8 + j1.0\Omega$.
@ $V_{CC} = 12.5\text{V}$, $f = 520\text{MHz}$, $P_o = 18\text{W}$.

APPLICATION

For output stage of 15W power amplifiers in UHF band.

OUTLINE DRAWING



ABSOLUTE MAXIMUM RATINGS ($T_c = 25^\circ\text{C}$)

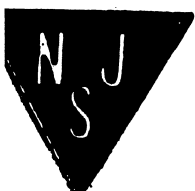
Symbol	Parameter	Conditions	Rating	Unit
V_{CBO}	Collector to base voltage		35	V
V_{EBO}	Emitter to base voltage		4	V
V_{CEO}	Collector to emitter voltage	$R_{BE} = \infty$	17	V
I_C	Collector current		7	A
P_C	Collector dissipation	$T_c = 25^\circ\text{C}$	50	W
T_J	Junction temperature		175	$^\circ\text{C}$
T_{stg}	Storage temperature		-55 to 175	$^\circ\text{C}$
R_{th-a}	Thermal resistance	Junction to ambient	50	$^\circ\text{C/W}$
R_{th-c}		Junction to case	3	$^\circ\text{C/W}$

Note: Above parameters are guaranteed independently.

ELECTRICAL CHARACTERISTICS ($T_c = 25^\circ\text{C}$)

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
$V_{i(BR)EBO}$	Emitter to base breakdown voltage	$I_E = 10\text{mA}$, $I_C = 0$	4			V
$V_{i(BR)CBO}$	Collector to base breakdown voltage	$I_C = 10\text{mA}$, $I_E = 0$	35			V
$V_{i(BR)CEO}$	Collector to emitter breakdown voltage	$I_C = 0.1\text{A}$, $R_{BE} = \infty$	17			V
I_{CBO}	Collector cut off current	$V_{CB} = 15\text{V}$, $I_E = 0$			2.0	mA
I_{EBO}	Emitter cut off current	$V_{EB} = 3\text{V}$, $I_C = 0$			3.0	mA
h_{FE}	DC forward current gain *	$V_{CE} = 10\text{V}$, $I_C = 1\text{A}$	20	50	180	-
P_O	Power Output	$V_{CC} = 12.5\text{V}$, $P_{in} = 6\text{W}$, $f = 520\text{MHz}$	18	19		W
η_C	Collector efficiency		55	60		%

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



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