

DESCRIPTION

2SC2056 is a silicon NPN epitaxial planar type transistor designed for RF power amplifiers in VHF band portable or hand-held radio applications.

FEATURES

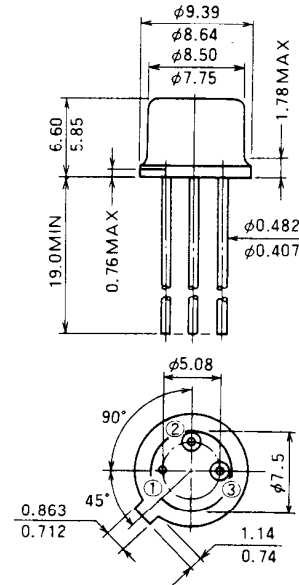
- High power gain: $G_{pe} \geq 9\text{dB}$
@ $V_{CC} = 7.2\text{V}$, $P_O = 1.6\text{W}$, $f = 175\text{MHz}$
- TO-39 metal sealed package for high reliability.
- Emitter ballasted construction, gold metallization for good performances.
- Emitter electrode is connected electrically to the case.

APPLICATION

1 to 1.5 watt power amplifiers in VHF band portable or hand-held radio applications.

OUTLINE DRAWING

Dimensions in mm



PIN :

- ① EMITTER (CASE)
- ② BASE
- ③ COLLECTOR

T-8E

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

Symbol	Parameter	Conditions	Ratings	Unit
V_{CBO}	Collector to base voltage		18	V
V_{EBO}	Emitter to base voltage		4	V
V_{CEO}	Collector to emitter voltage	$R_{BE} = \infty$	9	V
I_C	Collector current		0.6	A
P_C	Collector dissipation	$T_a = 25^\circ\text{C}$	0.8	W
		$T_C = 25^\circ\text{C}$	4	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	187.5	$^\circ\text{C/W}$
R_{th-c}		Junction to case	37.5	$^\circ\text{C/W}$

Note. Above parameters are guaranteed independently.

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise specified)

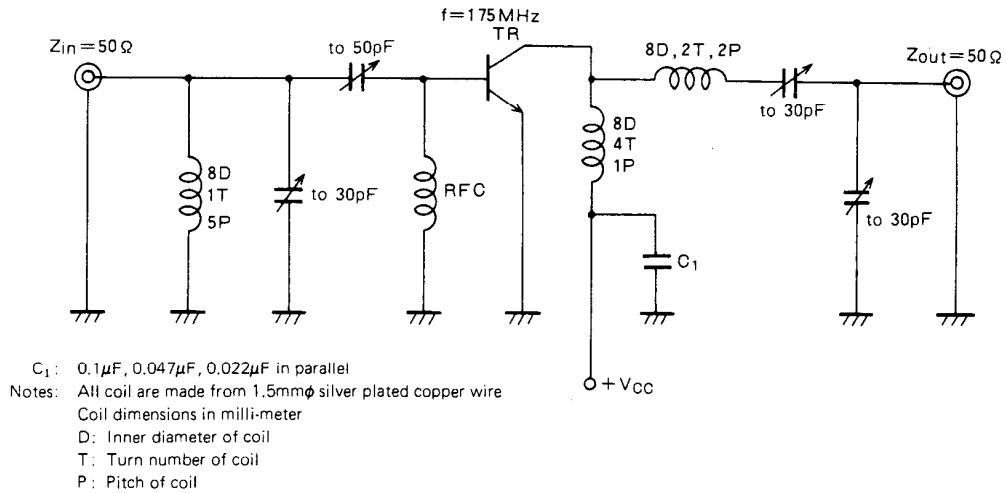
Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
$V_{(BR)EBO}$	Emitter to base breakdown voltage	$I_E = 1\text{mA}$, $I_C = 0$	4			V
$V_{(BR)CBO}$	Collector to base breakdown voltage	$I_C = 10\text{mA}$, $I_E = 0$	18			V
$V_{(BR)CEO}$	Collector to emitter breakdown voltage	$I_C = 10\text{mA}$, $R_{BE} = \infty$	9			V
I_{CBO}	Collector cutoff current	$V_{CB} = 10\text{V}$, $I_E = 0$			100	μA
I_{EBO}	Emitter cutoff current	$V_{EB} = 3\text{V}$, $I_C = 0$			100	μA
h_{FE}	DC forward current gain *	$V_{CE} = 7\text{V}$, $I_C = 0.1\text{A}$	10	50	180	—
P_O	Output power	$V_{CC} = 7.2\text{V}$, $P_{in} = 0.2\text{W}$, $f = 175\text{MHz}$	1.6	2		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.

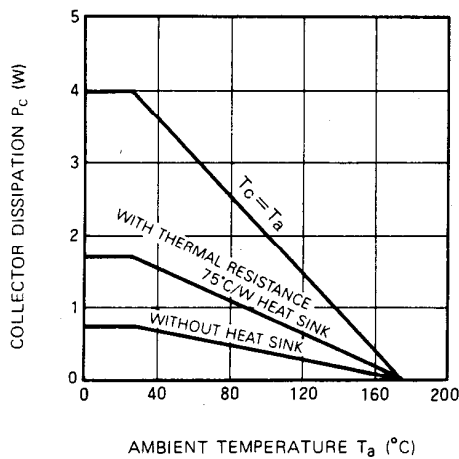
NPN EPITAXIAL PLANAR TYPE

TEST CIRCUIT

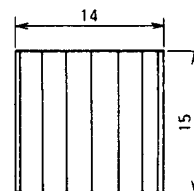
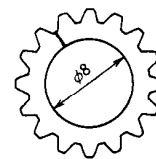


TYPICAL PERFORMANCE DATA

COLLECTOR DISSIPATION VS. AMBIENT TEMPERATURE

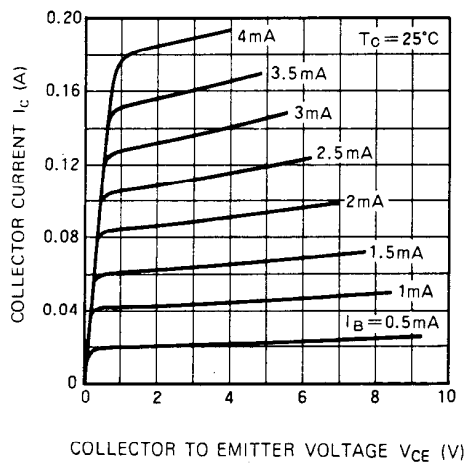


**THERMAL RESISTANCE 75°C/W
HEAT SINK OUTLINE DRAWING**

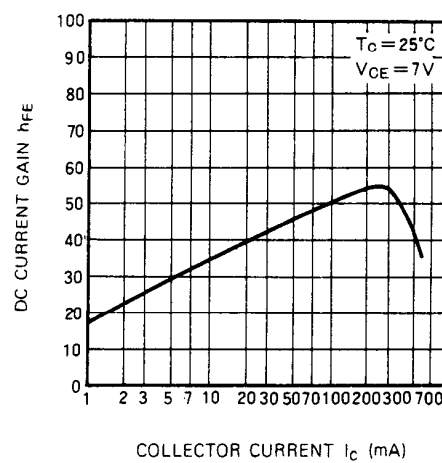


MATERIAL: AL
DIMENSIONS: mm

COLLECTOR CURRENT VS. COLLECTOR TO EMITTER VOLTAGE

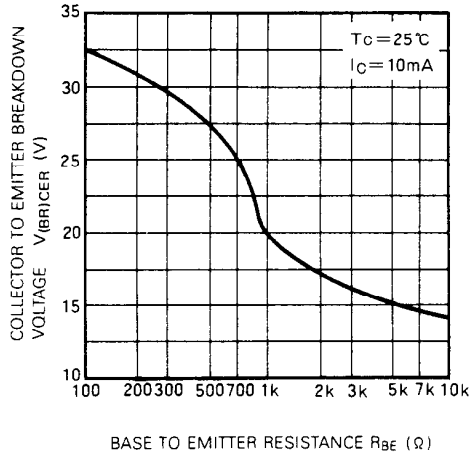


DC CURRENT GAIN VS. COLLECTOR CURRENT

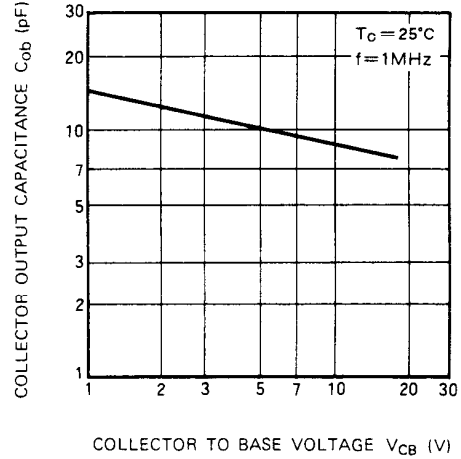


NPN EPITAXIAL PLANAR TYPE

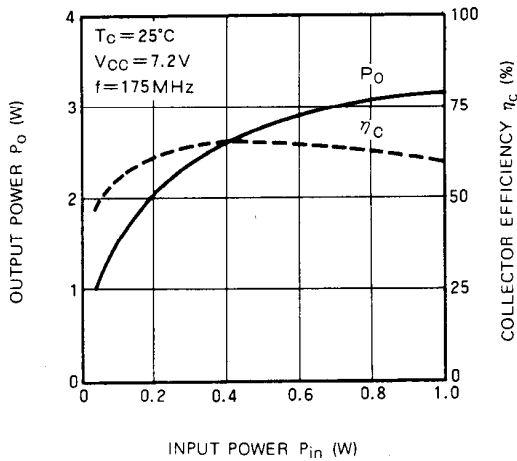
**COLLECTOR TO EMITTER BREAKDOWN
VOLTAGE VS.
BASE TO EMITTER RESISTANCE**



**COLLECTOR OUTPUT
CAPACITANCE VS. COLLECTOR
TO BASE VOLTAGE
CHARACTERISTICS**



**OUTPUT POWER, COLLECTOR
EFFICIENCY VS. INPUT POWER**



**OUTPUT POWER VS.
COLLECTOR SUPPLY VOLTAGE**

