2SC741

NPN EPITAXIAL PLANAR TYPE

DESCRIPTION

2SC741 is a silicon NPN epitaxial planar type transistor designed for industrial use RF power amplifiers on VHF band mobile radio applications.

FEATURES

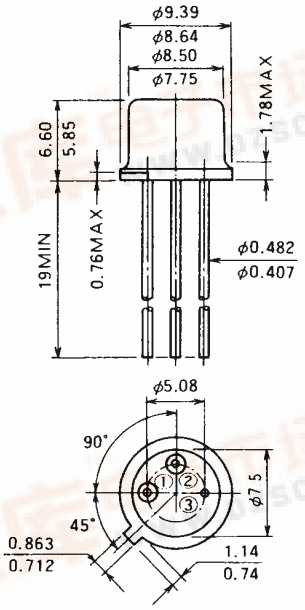
- High power gain: $G_{pe} \geqq 13dB$
  @V_{CC} = 13.5V, P_O = 0.2W, f = 150MHz
- TO-39 metal seeled package for high reliability.
- Collector electrode is electrically connected to the case.

APPLICATION

Driver stage in VHF band.

OUTLINE DRAWING

Dimensions in mm



PIN :
① EMITTER
② BASE
③ COLLECTOR (CASE)

T-8C

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_{CER}	Collector to emitter voltage	R_{BE} = 10Ω	40	V
I_C	Collector current		0.3	A
P_C	Collector dissipation	T_a = 25°C	0.68	W
		T_C = 25°C	2.5	W
T_j	Junction temperature		175	°C
T_{stg}	Storage temperature		−65 to 175	°C
Rth-a	Thermal resistance	Junction to ambient	220	°C/W
Rth-c		Junction to case	60	°C/W

Note. Above parameters are guaranteed independently.

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

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
$V_{(BR)EBO}$	Emitter to base breakdown voltage	I_E = 1mA, I_C = 0	4			V
$V_{(BR)CBO}$	Collector to base breakdown voltage	I_C = 1mA, I_E = 0	40			V
$V_{(BR)CER}$	Collector to emitter breakdown voltage	I_C = 10mA, R_{BE} = 10Ω	40			V
I_{CBO}	Collector cutoff current	V_{CB} = 15V, I_E = 0			1	μA
I_{EBO}	Emitter cutoff current	V_{EB} = 3V, I_C = 0			1	μA
h_{FE}	DC forward current gain *	V_{CE} = 10V, I_C = 0.1A	10	50	180	—
P_O	Output power	V_{CC} = 13.5V, P_{in} = 10mW, f = 150MHz	0.2	0.3		W
η_C	Collector efficiency		50	60		%

Note. * Pulse test, P_W = 150μs, duty = 5%.
Above parameters, ratings, limits and conditions are subject to change.

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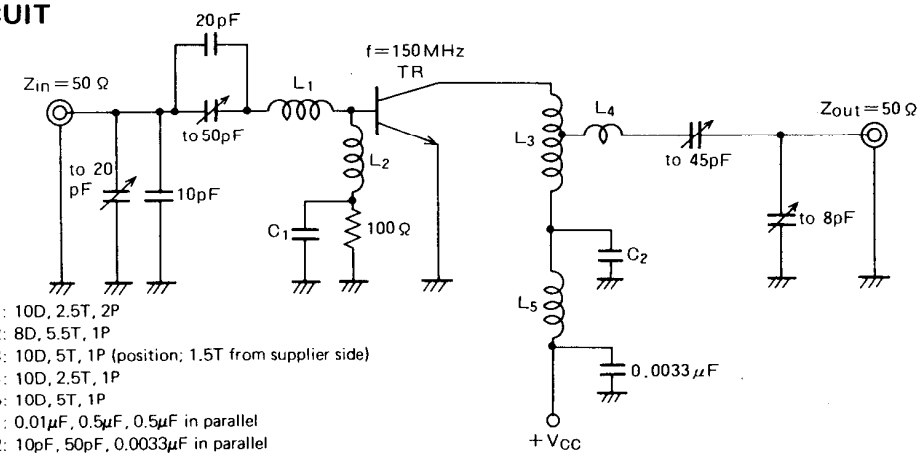
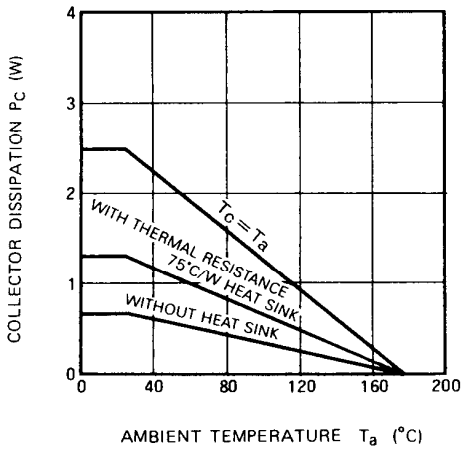
TEST CIRCUIT



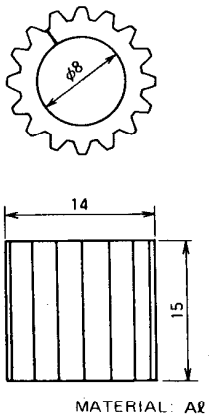
L1: 10D, 2.5T, 2P
L2: 8D, 5.5T, 1P
L3: 10D, 5T, 1P (position; 1.5T from supplier side)
L4: 10D, 2.5T, 1P
L5: 10D, 5T, 1P
C1: 0.01μF, 0.5μF, 0.5μF in parallel
C2: 10pF, 50pF, 0.0033μF in parallel
Notes: All coils are made from 1.5mm silver plated copper wire
Coil dimensions in milli-meter
D: Inner diameter of coil
T: Turn number of coil
P: Pitch of coil

TYPICAL PERFORMANCE DATA

COLLECTOR DISSIPATION VS. AMBIENT TEMPERATURE

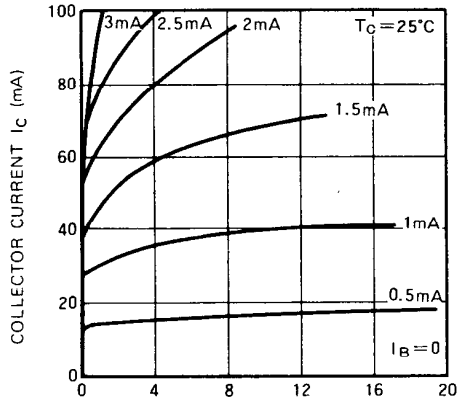


THERMAL RESISTANCE 75°C HEAT SINK DRAWING

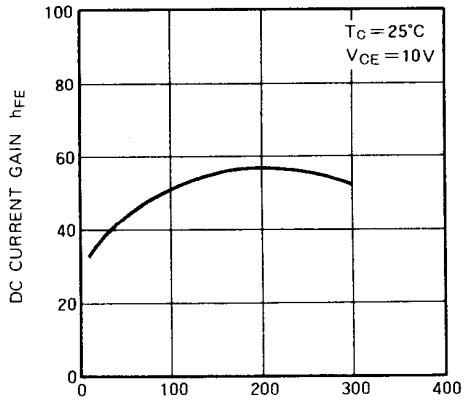


MATERIAL: Al
DIMENSIONS: mm

COLLECTOR CURRENT VS. COLLECTOR TO EMITTER VOLTAGE



DC CURRENT GAIN VS. COLLECTOR CURRENT



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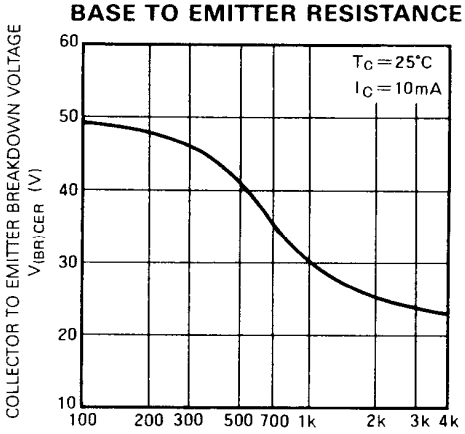
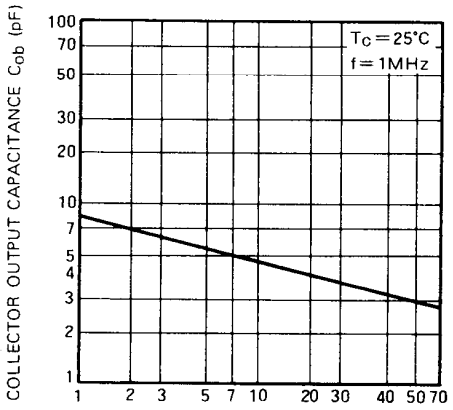
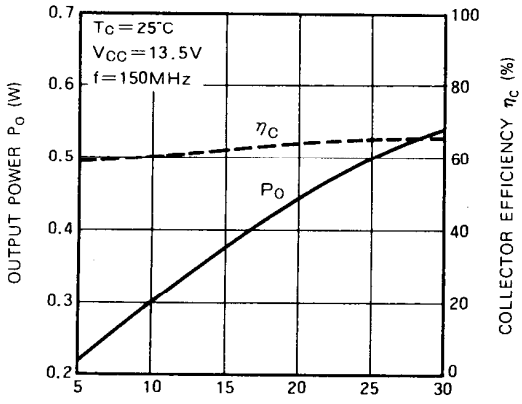
COLLECTOR TO EMITTER BREAKDOWN VOLTAGE VS. BASE TO EMITTER RESISTANCE



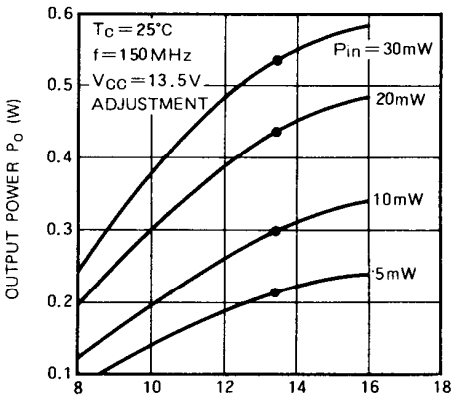
COLLECTOR OUTPUT CAPACITANCE VS. COLLECTOR TO BASE VOLTAGE



OUTPUT POWER, COLLECTOR EFFICIENCY VS. INPUT POWER



OUTPUT POWER VS. COLLECTOR SUPPLY VOLTAGE



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