

**DESCRIPTION**

2SC4989 is a silicon NPN epitaxial planar type transistor specifically designed for high power amplifiers in UHF band.

**FEATURES**

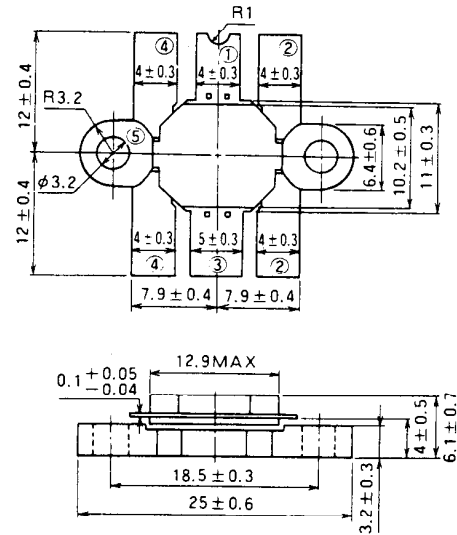
- High power output and high gain :  $P_o \geq 65W$ ,  $G_{pe} \geq 5.1dB$ ,  
@  $V_{cc} = 12.5V$ ,  $f = 520MHz$ ,  $P_{in} = 20W$
- Emitter ballasted construction.
- Load mismatch : Ability to withstand more than 8 : 1 load VSWR when operated at  $V_{cc} = 15.2V$ ,  $P_o = 65W$ ,  
 $f = 520MHz$ ,
- High reliability due to gold metalization die.
- Flange type ceramic package.

**APPLICATIONS**

For output stage of 50W power amplifiers in UHF band.

**OUTLINE DRAWING**

Dimension in mm



- PIN :
- ① COLLECTOR
  - ② EMITTER (FLANGE)
  - ③ BASE
  - ④ EMITTER (FLANGE)
  - ⑤ FIN (EMITTER)

T-40E

**ABSOLUTE MAXIMUM RATINGS** ( $T_c = 25^\circ C$  unless otherwise noted)

Symbol	Parameter	Conditions	Ratings	Unit
$V_{cbo}$	Collector-base voltage		35	V
$V_{ebo}$	Emitter-base voltage		4	V
$V_{ceo}$	Collector-emitter voltage	$R_{BE} = \infty$	17	V
$I_c$	Collector current		20	A
$P_c$	Collector dissipation		150	W
$T_j$	Junction temperature		175	$^\circ C$
$T_{stg}$	Storage temperature		- 55 to 175	$^\circ C$

Note. Above parameters are guaranteed independently.

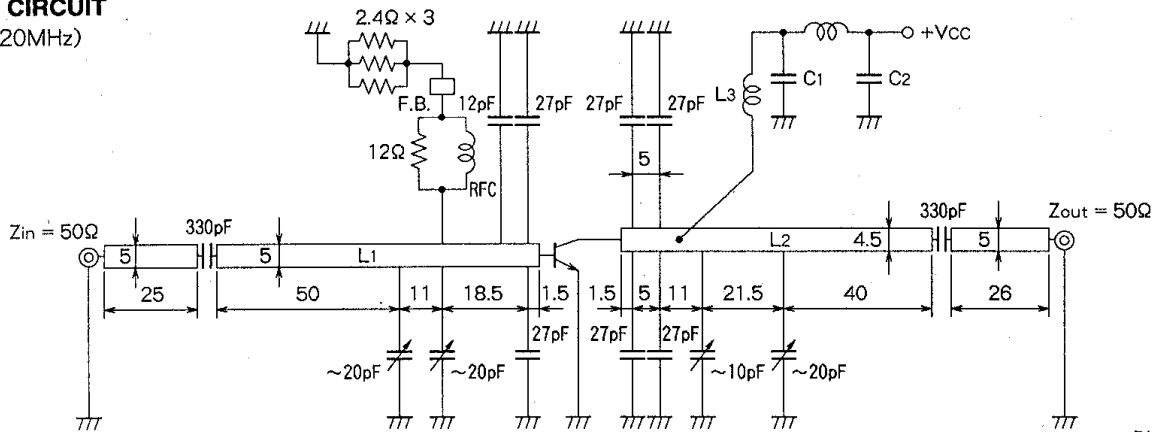
**ELECTRICAL CHARACTERISTICS** ( $T_c = 25^\circ C$  unless otherwise noted)

Symbol	Parameter	Test conditions	Limits		Unit
			Min	Max	
$V_{(BR)CBO}$	Collector-base breakdown voltage	$I_c = 20mA$ , $I_E = 0$	35		V
$V_{(BR)EBO}$	Emitter-base breakdown voltage	$I_E = 20mA$ , $I_c = 0$	4		V
$V_{(BR)CEO}$	Collector-emitter breakdown voltage	$I_c = 100mA$ , $R_{BE} = \infty$	17		V
$I_{cBO}$	Collector cutoff current	$V_{CB} = 15V$ , $I_E = 0$		5	mA
$I_{eBO}$	Emitter cutoff current	$V_{EB} = 3V$ , $I_c = 0$		5	mA
$h_{FE}$	DC forward current gain	$V_{CE} = 5V$ , $I_c = 5A$	10	180	-
$P_o$	Output power	$V_{cc} = 12.5V$ , $f = 520MHz$ , $P_{in} = 20W$	65		W
$\eta_c$	Collector efficiency		55		%

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

**TEST CIRCUIT**

(f = 520MHz)

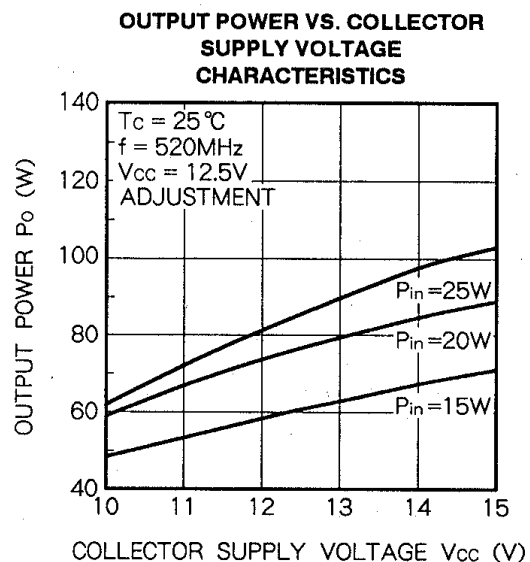
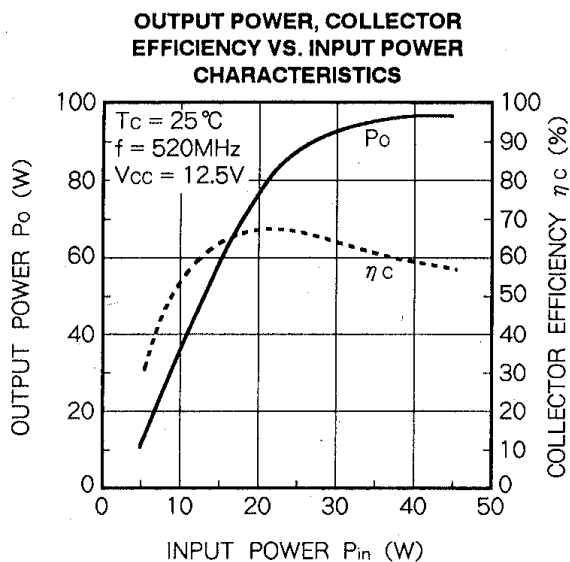
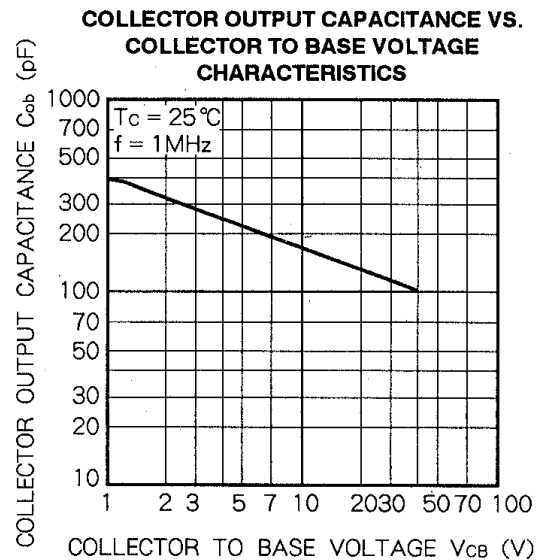
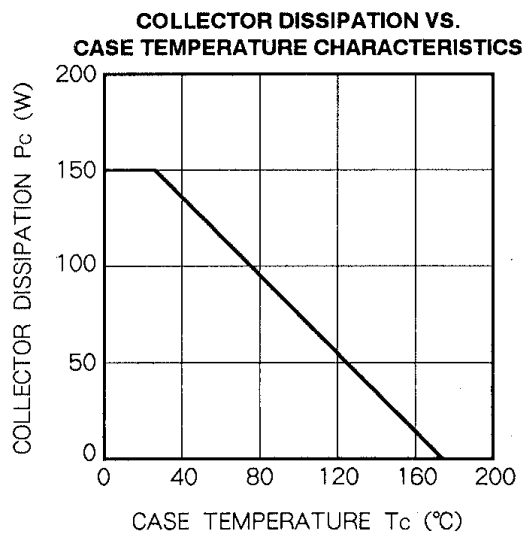


Dimensions in mm

L1, L2: Microstrip: Board material 1.6mm thick, glass-teflon  $\epsilon_r = 2.6$   
 L3: 5D, 2Turn, 1P,  $\phi 1.6$ mm silver plated copper wire  
 L4: 5D, 5Turn, 1P,  $\phi 1.6$ mm silver plated copper wire  
 RFC: 5D, 8Turn, 1P,  $\phi 0.7$ mm enameled wire

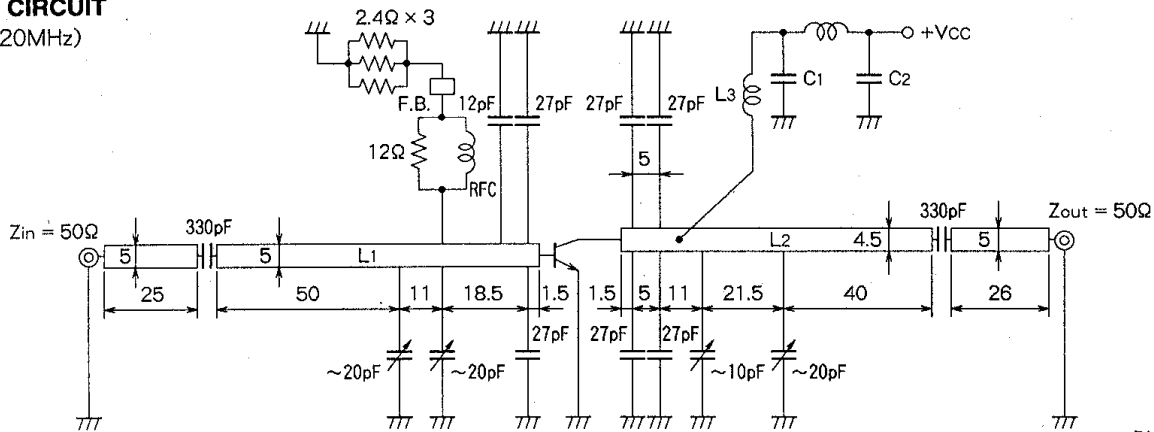
F.B: Ferrite Bead  
 C1: 47pF, 2200pF, 22000pF, 2200 $\mu$ F in Paralleled  
 C2: 47pF, 2200pF, 22000pF, 2200 $\mu$ F, 100 $\mu$ F

**TYPICAL PERFORMANCE DATA**



**TEST CIRCUIT**

(f = 520MHz)



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