2SC2609

NPN EPITAXIAL PLANAR TYPE

DESCRIPTION

Mitsubishi 2SC2609 is a silicon NPN epitaxial planar type transistor specifically deisgned for VHF power amplifier applications.

FEATURES

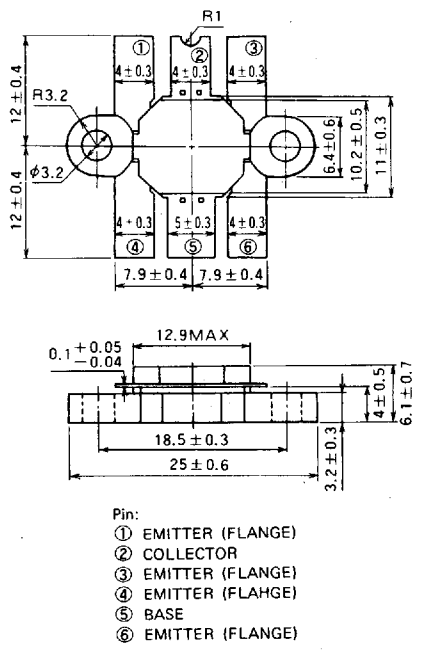
- High power gain: $G_{pe} \geqq 6.0$dB
  @V_{CC} = 28V, P_O = 100W, f = 220MHz
- High ruggedness: Ability to withstand more than 20:1 load VSWR when operated at V_{CC} = 28V, f = 220MHz, P_O = 70W

APPLICATION

For output stage of 100W power amplifiers VHF band.

OUTLINE DRAWING

Dimensions in mm



Pin:
① EMITTER (FLANGE)
② COLLECTOR
③ EMITTER (FLANGE)
④ EMITTER (FLAHGE)
⑤ BASE
⑥ EMITTER (FLANGE)

ABSOLUTE MAXIMUM RATINGS (T_C=25°C unless otherwise specified)

Symbol	Parameter	Conditions	Ratings	Unit
V_{CBO}	Collector to base voltage		55	V
V_{EBO}	Emitter to base voltage		4	V
V_{CEO}	Collector to emitter voltage	$R_{BE}=\infty$	35	V
I_C	Collector current		15	A
P_C	Collector dissipation	T_C=25°C	170	W
T_j	Junction temperature		+175	°C
Tstg	Storage temperature		−55~+175	°C

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

Symbol	Parameter	Test conditions	Limits			Unit
			Max	Typ	Min	
$V_{(BR)EBO}$	Emitter to base breakdown voltage	I_E=10mA, I_C=0	4			V
$V_{(BR)CBO}$	Collector to base breakdown voltage	I_C=100mA, I_E=0	55			V
$V_{(BR)CEO}$	Collector to emitter breakdown voltage	I_C=200mA, $R_{BE}=\infty$	35			V
I_{CBO}	Collector cut off current	V_{BE}=35V, I_E=0			10	mA
I_{EBO}	Emitter cut off current	V_{EB}=3V, I_C=0			4	mA
h_{FE}	DC forward current gain *	V_{CE}=25V, I_C=0.2A	20	50	110	—
P_O	Power output	V_{CC}=28V, f=220MHz, P_{in}=25W	100	110		W
η_C	Collector efficiency		55	60		%

* Note: Pulse test, P_W = 150μs, duty = 5%.

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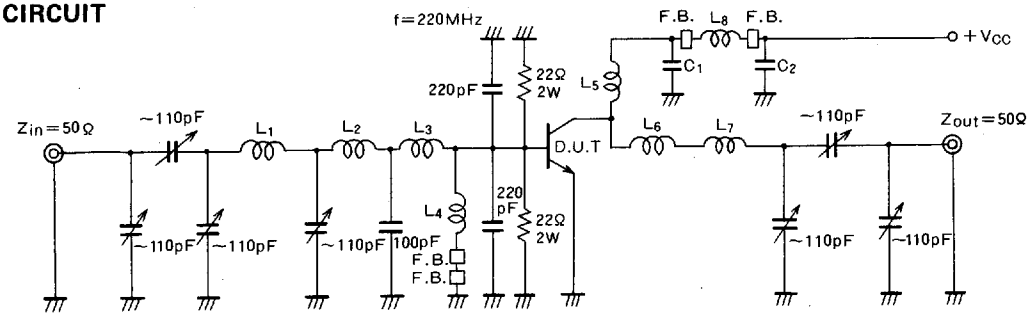
TEST CIRCUIT

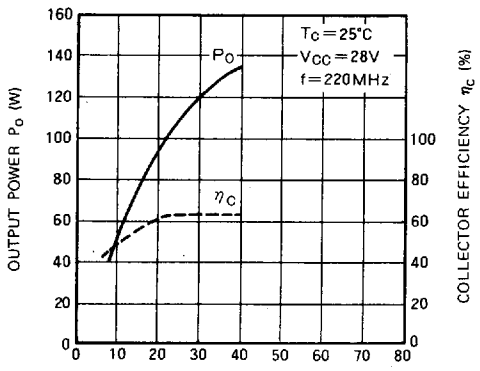


L_1 : 10D, 1T, ϕ1.6 Ag-plated Cu wire.
L_2 : Length 10, ϕ1.6 Ag-plated Cu wire.
L_3 : Length 15, ϕ1.6 Ag-plated Cu wire.
L_4 : 10D, 6T, 2P, ϕ1.6 Ag-plated Cu wire.
L_5 : 10D, 5T, 3P, ϕ1.6 Ag-plated Cu wire.
L_6 : Length 20, Width 4, Thinkness 0.2 Cupper plate.
L_7 : Length 27, ϕ1.6 Ag-plated Cu wire.
L_8 : 8D, 20T, 1P, ϕ0.8 Enameled wire.

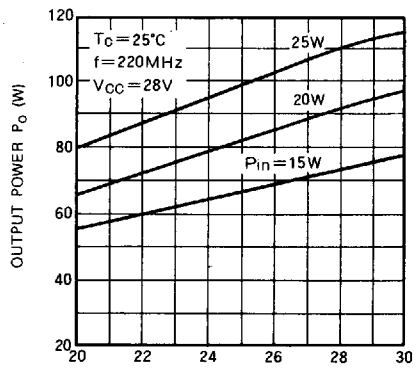
C_1 : 1000pF, 3300pF, 0.1μF, 4.7μF, in parallel.
C_2 : 1000pF, 3300μF, 0.1μF, 47μF, in parallel.
B.F : Ferrint Bead
inside diameter 1.35.
outside diameter 3.5.
length 3.0.
(Note) Dimensions: mm
D : inner diameter of coil.
T : turn numbers of coil.
P : pitch of coil.

TYPICAL PERFORMANCE DATA

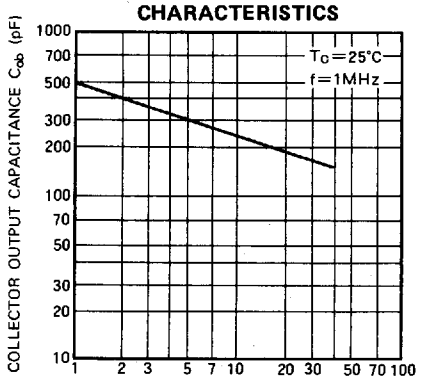
OUTPUT POWER, COLLECTOR EFFICIENCY VS. INPUT POWER



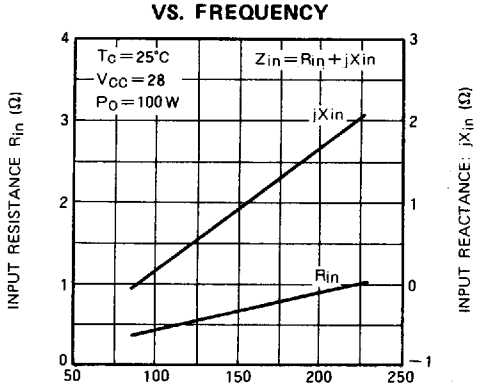
OUTPUT POWER VS. COLLECTOR SUPPLY VOLTAGE



COLLECTOR OUTPUT CAPACITANCE VS. COLLECTOR TO BASE VOLTAGE CHARACTERISTICS



INPUT IMPEDANCE VS. FREQUENCY



INPUT IMPEDANCE VS. FREQUENCY