

MITSUBISHI ELECTRIC CORP.

SPEC. SHEET	Drawn	M. Koyama		A	B		C			
	Approved	K. Kusunoki Dec '85								
Type No.	2SC2312									
Application	RF POWER AMPLIFICATION									
Structure	NPN Silicon Epitaxial Planar Type Transistor									
Outline	Fig. 1									
Absolute max. ratings	V_{CB0}	V_{EB0}	V_{CE0}	I_C	I_{E0}	P_C	P_{D0}	T_j	T_{stg}	T_C
Condition			$R_{BE} = \infty$			$T_C = 25^\circ C$	$T_A = 25^\circ C$			$25^\circ C \pm 3^\circ C$
Limits	60 V	5 V	20 V	6 A	— A	25 W	— W	$+150^\circ C$	$-55^\circ C$ $+150^\circ C$	
Parameter	Symbol	Conditions	Values			Unit	AQL (%)			
			MIN.	TYP.	MAX.					
Emitter to Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 5mA$ $I_C = 0$	5			V	0.65			
Collector to Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 1mA$ $I_E = 0$	60			V	0.65			
Collector to Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10mA$ $R_{BE} = \infty$	20			V	0.65			
Collector Cutoff Current	I_{CBO}	$V_{CB} = 30V$ $I_E = 0$			500	μA	0.65			
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 4V$ $I_C = 0$			100	μA	0.65			
DC Forward Current Transfer Ratio	$H_{FE}^{*1,2}$	$V_{CE} = 10V$ $I_C = 1A$	35		180	—	0.65			
Output Power	P_O	$V_{CC} = 12V, f = 27MHz, P_{in} = 1.5W$	17	18.5		W	0.65			
Collector Efficiency	η_C	Same as above	60	70		%	0.65			
Load VSWR ^{*3}										

Notes: 1. Pulsed test.
2. See Table 1. hFE Classification.
3. Open and short test at the output terminal of the test circuit when operated at $V_{CC} = 16V, f = 27MHz, P_O = 20W$.

Table 1. hFE Classification

Item	hFE	Ident.
B	35 - 70	BB
C	55 - 110	CC
D	90 - 180	DD

RF POWER TRANSISTOR -	2SC2312 - E22 - A	SPEC. SHEET
-----------------------	-------------------	-------------

Technical drawing of a 2N4350A transistor showing top, side, and bottom views with dimensions in millimeters.

Top View Dimensions:

- Overall width: 9.1 ± 0.7
- Overall height: 12.3 ± 0.6
- Distance from top edge to collector pin center: 3.2 ± 0.4
- Distance from collector pin center to emitter pin center: 9 ± 0.4
- Distance from emitter pin center to bottom edge: 4.8 MAX
- Pin diameter: $\phi 3.6 \pm 0.2$
- Pin spacing (center-to-center): 1.3 ± 0.4
- Pin 1 (Base) diameter: 1.2 ± 0.4
- Pin 2 (Collector) diameter: $0.8 +0.10 -0.15$
- Pin 3 (Emitter) diameter: $0.8 +0.10 -0.15$
- Pin 4 (Fin Collector) diameter: $0.5 +0.10 -0.15$

Side View Dimensions:

- Lead angle: 5°
- Lead height: 5

Bottom View Dimensions:

- Overall width: 9.5 MAX
- Overall height: 3.1 ± 0.6
- Distance from bottom edge to collector pin center: 4.5 ± 0.5

Legend:

- ① BASE
- ② COLLECTOR (FIN)
- ③ EMITTER
- ④ FIN (COLLECTOR)

$Z_{in}=50\text{ohm}$

110pF, 110pF, 8D, 7T, 1P, 220 ohm, T.U.T., 8D, 9T, 1P, 110pF, 100pF, 110pF, 220pF, $Z_{out}=50\text{ohm}$

C1: 10pF, 100pF, 2200pF, 4700pF, 0.01uF in parallel.
 C2: 100pF, 820pF, 0.05uF, 10uF in parallel.

Notes:
 * Dimensions of coil mm
 * D; Inner diameter of coil
 T; Turn number of coil
 P; Pitch of coil.

+Vcc

Notes:

* Dimensions of coil mm.

* D; Inner diameter of coil.

T; Turn number of coil.

P; Pitch of coil.