

2SC1957

Silicon NPN Transistor

Final RF Power Output

The 2SC1957 is a silicon NPN epitaxial planer type transistor designed for RF power amplifiers on HF band mobile radio applications.

Features:

High Power Gain: $G_{pe} \geq 12\text{dB}$ ($V_{CC} = 12\text{V}$, $P_O = 16\text{W}$, $f = 27\text{MHz}$)

Ability to Withstand Infinite VSWR Load when Operated at:

$$V_{CC} = 16\text{V}, P_O = 20\text{W}, f = 27\text{MHz}$$

Application:

10 to 14 Watt Output Power Class AB Amplifier Applications in HF Band

Absolute Maximum Ratings: ($T_C = +25^\circ\text{C}$ unless otherwise specified)

Collector-Emitter Voltage ($R_{BE} = \text{Infinity}$), V_{CEO}	25V
Collector-Base Voltage, V_{CBO}	60V
Emitter-Base Voltage, V_{EBO}	5V
Collector Current, I_C	6A
Collector Power Dissipation ($T_A = +25^\circ\text{C}$), P_D	1.7W
Collector Power Dissipation ($T_C = +50^\circ\text{C}$), P_D	20W
Operating Junction Temperature, T_J	+150°C
Storage Temperature Range, T_{stg}	-55° to +150°C
Thermal Resistance, Junction-to-Case, R_{thJC}	6.25°C/W
Thermal Resistance, Junction-to-Ambient, R_{thJA}	73.5°C/W

Electrical Characteristics: ($T_C = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 1\text{mA}, I_E = 0$	60	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10\text{mA}, R_{BE} = \text{Infinity}$	25	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 5\text{mA}, I_C = 0$	5	-	-	V
Collector Cutoff Current	I_{CBO}	$V_{CB} = 30\text{V}, I_E = 0$	-	-	100	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 4\text{V}, I_C = 0$	-	-	100	μA
DC Forward Current Gain	h_{FE}	$V_{CE} = 12\text{V}, I_C = 10\text{mA}$, Note 1	10	50	180	
Power Output	P_O	$V_{CC} = 12\text{V}, P_{in} = 1\text{W}, f = 27\text{MHz}$	16	18	-	W
Collector Efficiency			60	70	-	%

Note 1. Pulse test: Pulse Width = 150 μs , Duty Cycle = 5%.

