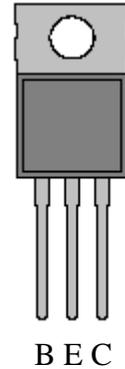


2SC1590  
Silicon NPN Transistor  
RF Power Output

The 2SC1590 is a silicon NPN epitaxial planer type transistor designed for 136-174MHz RF power amplifiers on VHF band mobile radio applications.



Features:

- High Power Gain:  $G_{pe} \geq 10\text{dB}$  ( $V_{CC} = 13.5\text{V}$ ,  $P_O = 6\text{W}$ ,  $f = 175\text{MHz}$ )
- Ability to Withstand more than 20:1 VSWR Load when Operated at:  
 $V_{CC} = 15.2\text{V}$ ,  $P_O = 6\text{W}$ ,  $f = 175\text{MHz}$

Application:

- 4 to 5 Watt Output Power Amplifier Applications in VHF Band

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

Collector-Emitter Voltage ( $R_{BE} = \text{Infinity}$ ), $V_{CEO}$	17V
Collector-Base Voltage, $V_{CBO}$	35V
Emitter-Base Voltage, $V_{EBO}$	4V
Collector Current, $I_C$	12A
Collector Power Dissipation ( $T_A = +25^\circ\text{C}$ ), $P_D$	1.5W
Collector Power Dissipation ( $T_C = +50^\circ\text{C}$ ), $P_D$	12.5W
Operating Junction Temperature, $T_J$	+150°C
Storage Temperature Range, $T_{stg}$	-55° to +150°C
Thermal Resistance, Junction-to-Case, $R_{thJC}$	10°C/W
Thermal Resistance, Junction-to-Ambient, $R_{thJA}$	83°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	$V_{(BR)CBO}$	$I_C = 10\text{mA}$ , $I_E = 0$	35	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 50\text{mA}$ , $R_{BE} = \text{Infinity}$	17	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 5\text{mA}$ , $I_C = 0$	4	-	-	V
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = 25\text{V}$ , $I_E = 0$	-	-	500	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 3\text{V}$ , $I_C = 0$	-	-	500	$\mu\text{A}$
DC Forward Current Gain	$h_{FE}$	$V_{CE} = 10\text{V}$ , $I_C = 100\text{mA}$ , Note 1	10	50	180	
Power Output	$P_O$	$V_{CC} = 13.5\text{V}$ , $P_{in} = 600\text{mW}$ , $f =$	6	7	-	W
Collector Efficiency		175MHz	60	70	-	%

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