

Type 2N5109
Geometry 1007
Polarity NPN
Qual Level: JAN - JANTXV

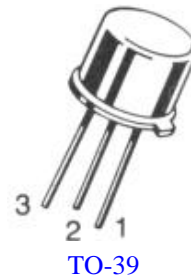
Generic Part Number:
2N5109

REF: MIL-PRF-19500/453

Features:

[Request Quotation](#)

- VHF-UHF amplifier silicon transistor.
- Housed in [TO-39](#) case.
- Also available in chip form using the [1007](#) chip geometry.
- The Min and Max limits shown are per [MIL-PRF-19500/398](#) which Semicoa meets in all cases.



Maximum Ratings

$T_C = 25^\circ\text{C}$ unless otherwise specified

Rating	Symbol	Rating	Unit
Collector-Emitter Voltage	V_{CEO}	20	V
Collector-Base Voltage	V_{CBO}	40	V
Emitter-Base Voltage	V_{EBO}	3.0	V
Collector Current, Continuous	I_C	0.4	A
Power Dissipation at 25°C ambient Derate above 25°C	P_T	1.0 5.71	W mW/°C
Operating Junction Temperature	T_J	-65 to +200	°C
Storage Temperature	T_{STG}	-65 to +200	°C

Electrical Characteristics

$T_C = 25^\circ\text{C}$ unless otherwise specified

OFF Characteristics	Symbol	Min	Max	Unit
Collector-Base Breakdown Voltage $I_C = 100 \mu\text{A}$	$V_{(BR)CBO}$	40	---	V
Collector-Emitter Breakdown Voltage $I_C = 5 \text{ mA}$	$V_{(BR)CEO}$	20	---	V
Collector-Emitter Breakdown Voltage $I_C = 5 \text{ mA}, R_2 = 10 \text{ ohms}$	$V_{(BR)CER}$	40	---	V
Emitter-Base Breakdown Voltage $I_E = 100 \mu\text{A}$	$V_{(BR)EBO}$	3.0	---	V
Collector-Emitter Cutoff Current $V_{CE} = 15 \text{ V}$	I_{CEO1}	---	20	μA
Collector-Emitter Cutoff Current $V_{CE} = 15 \text{ V}, T_C = +175^\circ\text{C}$	I_{CEO2}	---	5.0	mA

ON Characteristics	Symbol	Min	Max	Unit
Forward Current Transfer Ratio $I_C = 50 \text{ mA}, V_{CE} = 15 \text{ V}$ (pulsed)	h_{FE1}	40	150	---
$I_C = 50 \text{ mA}, V_{CE} = 5.0 \text{ V}$ (pulsed)	h_{FE2}	15	---	---
Collector-Emitter Saturation Voltage $I_C = 100 \text{ mA}, I_B = 50 \text{ mA}$ (pulsed)	$V_{CE(sat)1}$	---	0.5	V dc

Small Signal Characteristics	Symbol	Min	Max	Unit
<i>Magnitude of Common Emitter, Small Signal, Short Circuit</i> Current Transfer Ratio $I_C = 25 \text{ mA}, V_{CE} = 15 \text{ V}, f = 200 \text{ MHz}$	h_{FE}	5.0	10	---
$I_C = 25 \text{ mA}, V_{CE} = 15 \text{ V}, f = 200 \text{ MHz}$		6.0	11	---
$I_C = 25 \text{ mA}, V_{CE} = 15 \text{ V}, f = 200 \text{ MHz}$		5.0	10.5	---
<i>Open Circuit Output Capacitance</i> $V_{CB} = 28 \text{ V}, I_E = 0, 100 \text{ kHz} < f < 1 \text{ MHz}$	C_{OBO}	---	3.5	pF
<i>Power Gain (Narrow Band) Current</i> $V_{CC} = 15 \text{ V}, I_C = 50 \text{ mA}, f = 200 \text{ MHz}$	G_{PE}	11	3.5	dB
<i>Cross Modulation</i> $V_{CC} = 15 \text{ V}, I_C = 50 \text{ mA}, f = 200 \text{ MHz}$ 54 dBm V output	cm	---	-57	dB
<i>Noise Figure</i> $V_{CC} = 15 \text{ V}, I_C = 50 \text{ mA}, f = 200 \text{ MHz}$	NF	---	3.5	dB
<i>Voltage Gain (Wideband)</i> $V_{CC} = 15 \text{ V}, I_C = 50 \text{ mA}, f = 50 \text{ to } 216 \text{ MHz}$	G_{VE}	11	---	dB