

Type 2N2219AL**Geometry 0400****Polarity NPN****Qual Level: JAN - JANS****Generic Part Number:
2N2219A****REF: MIL-PRF-19500/251****Features:**[Request Quotation](#)

- General-purpose transistor for switching and amplifier applications.
- Housed in **TO-5** case.
- Also available in chip form using the **0400** chip geometry.
- The Min and Max limits shown are per **MIL-PRF-19500/251** which Semicoa meets in all cases.
- The **Typ** values are actual batch averages for Semicoa.
- Radiation Graphs available.

**TO-5****Maximum Ratings** $T_C = 25^{\circ}\text{C}$ unless otherwise specified

Rating	Symbol	Rating	Unit
Collector-Emitter Voltage	V_{CEO}	50	V
Collector-Base Voltage	V_{CBO}	75	V
Emitter-Base Voltage	V_{EBO}	6.0	V
Collector Current, Continuous	I_C	800	mA
Operating Junction Temperature	T_J	-65 to +200	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-65 to +200	$^{\circ}\text{C}$

Electrical Characteristics

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

OFF Characteristics	Symbol	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage $I_C = 10\ \mu\text{A}$	$V_{(BR)CBO}$	75	120	---	V
Collector-Emitter Breakdown Voltage $I_C = 10\ \text{mA}$	$V_{(BR)CEO}$	50	65	---	V
Emitter-Base Breakdown Voltage $I_C = 10\ \mu\text{A}$	$V_{(BR)EBO}$	6.0	7.0	---	V
Collector-Emitter Cutoff Current $V_{CE} = 50\ \text{V}$	I_{CES}	---	3.0	50	nA
Collector-Base Cutoff Current $V_{CB} = 60\ \text{V}$	I_{CBO1}	---	2.0	10	nA
Emitter-Base Cutoff Current $V_{EB} = 4\ \text{V}$	I_{EBO}	---	0.5	10	nA

ON Characteristics	Symbol	Min	Typ	Max	Unit
DC Current Gain					
$I_C = 100\ \mu\text{A}, V_{CE} = 10\ \text{V}$	h_{FE1}	50	180	---	---
$I_C = 1.0\ \text{mA}, V_{CE} = 10\ \text{V}$	h_{FE2}	75	200	325	---
$I_C = 10\ \text{mA}, V_{CE} = 10\ \text{V}$	h_{FE3}	100	200	---	---
$I_C = 150\ \text{mA}, V_{CE} = 10\ \text{V}$ (pulse test)	h_{FE4}	100	200	300	---
$I_C = 500\ \text{mA}, V_{CE} = 10\ \text{V}$ (pulse test)	h_{FE5}	30	75	---	---
Collector-Emitter Saturation Voltage					
$I_C = 150\ \text{mA}, I_B = 15\ \text{mA}$ (pulse test)	$V_{CE(sat)1}$	---	0.1	0.3	V dc
$I_C = 500\ \text{mA}, I_B = 50\ \text{mA}$ (pulse test)	$V_{CE(sat)2}$	---	0.3	1.0	V dc
Base-Emitter Saturation Voltage					
$I_C = 150\ \text{mA}, I_B = 15\ \text{mA}$ (pulse test)	$V_{BE(sat)1}$	0.6	0.85	1.2	V dc
$I_C = 500\ \text{mA}, I_B = 50\ \text{mA}$ (pulse test)	$V_{BE(sat)2}$	---	1.0	2.0	V dc

Small Signal Characteristics	Symbol	Min	Typ	Max	Unit
Short Circuit Forward Current Transfer Ratio $I_C = 1\ \text{mA}, V_{CE} = 10\ \text{V}, f = 1\ \text{kHz}$	AC h_{FE}	50	240	---	---
Open Circuit Output Capacitance $V_{CB} = 10\ \text{V}, I_E = 0\ \text{V}, 100\ \text{kHz} < f < 1\ \text{MHz}$	C_{OBO}	---	4.5	8	pF
Input Capacitance, Output Open Circuited $V_{EB} = 0.5\ \text{V}, I_C = 0, 100\ \text{kHz} < f < 1\ \text{MHz}$	C_{IBO}	---	17.5	25	pF

Switching Characteristics	Symbol	Min	Typ	Max	Unit
Saturated Turn On Switching Time to 90% 16V, 50 ohm input pulse	t_{ON}	---	14	35	ns
Saturated Turn Off Switching Time to 10% 16V, 50 ohm input pulse	t_{OFF}	---	175	300	ns