

**Type 2N6989**  
**Geometry 0400**  
**Polarity NPN**  
**Qual Level: JAN - JANS**

**Generic Part Number:**  
**2N6989**

**REF: MIL-PRF-19500/559**

**Features:**

[Request Quotation](#)

- An array of four independent NPN silicon switching transistors.
- Housed in a [cerdip](#) case.
- Also available in chip form using the [0400](#) chip geometry.
- The Min and Max limits shown are per [MIL-PRF-19500/559](#) which Semicoa meets in all cases.
- The **Typ** values are actual batch averages for Semicoa.
- [Radiation Graphs available.](#)



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**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 $I_C = 10\ \text{mA}$ , pulsed	$V_{(BR)CEO}$	50	65	---	V
Emitter-Base Breakdown Voltage $I_E = 10\ \mu\text{A}$	$V_{(BR)EBO}$	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
<b>DC Current Gain</b>					
$I_C = 100\ \mu\text{A}$ , $V_{CE} = 10\ \text{V}$	$h_{FE1}$	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	---	---
<b>Collector-Emitter Saturation Voltage</b>					
$I_C = 150\ \text{mA}$ , $I_B = 15\ \text{mA}$ (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
<b>Base-Emitter Saturation Voltage</b>					
$I_C = 150\ \text{mA}$ , $I_B = 15\ \text{mA}$ (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