

Type 2N3507
Geometry 1506
Polarity NPN
Qual Level: JAN - JANTXV

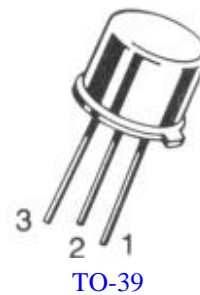
Generic Part Number:
2N3507

REF: MIL-PRF-19500/349

Features:

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- General-purpose silicon transistor for switching and amplifier applications.
- Housed in [TO-39](#) case.
- Also available in chip form using the [1506](#) chip geometry.
- The Min and Max limits shown are per [MIL-PRF-19500/349](#) which Semicoa meets in all cases.



Maximum Ratings

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

Rating		Rating	
Collector-Emitter Voltage	V_{CEO}	50	V
Collector-Base Voltage	V_{CBO}	80	V
Emitter-Base Voltage	V_{EBO}	5.0	V
Collector Current, Continuous	I_C	3.0	A
Power Dissipation, $T_A = 25^\circ\text{C}$	P_T	1.0	W
Derate above 25°C		5.71	$\text{mW}/^\circ\text{C}$
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	Max	Unit
Collector-Base Breakdown Voltage $I_C = 10 \mu\text{A}$	$V_{(BR)CBO}$	80	---	V
Collector-Emitter Breakdown Voltage $I_C = 10 \text{ mA}$	$V_{(BR)CEO}$	50	---	V
Emitter-Base Breakdown Voltage $I_E = 10 \mu\text{A}$	$V_{(BR)EBO}$	5.0	---	V
Collector-Emitter Cutoff Current $V_{CE} = 60 \text{ V}, V_{EB} = 4 \text{ V}$	I_{CEX1}	---	1.0	μA
Collector-Emitter Cutoff Current $V_{CE} = 60 \text{ V}, V_{EB} = 4 \text{ V}, T_A = +150^\circ\text{C}$	I_{CEX2}	---	1.0	μA
Collector Current Continuous $V_{CB} = 50 \text{ V}$	I_C	3.0	---	A
ON Characteristics	Symbol	Min	Max	Unit
DC Current Gain				
$I_C = 1.5 \text{ A}, V_{CE} = 2 \text{ V}$ (pulsed)	h_{FE2}	30	150	---
$I_C = 2.5 \text{ A}, V_{CE} = 3 \text{ V}$ (pulsed)	h_{FE3}	25	---	---
$I_C = 3.0 \text{ A}, V_{CE} = 5 \text{ V}$ (pulsed)	h_{FE4}	20	---	---
$I_C = 500 \text{ mA}, V_{CE} = 1 \text{ V}$ (pulsed), $T_A = -55^\circ\text{C}$	h_{FE5}	17	---	---
Base-Emitter Saturation Voltage				
$I_C = 500 \text{ mA}, I_B = 50 \text{ mA}$ (pulsed)	$V_{BE(sat)1}$	---	1.0	V dc
$I_C = 1.5 \text{ A}, I_B = 150 \text{ mA}$ (pulsed)	$V_{BE(sat)2}$	0.9	1.4	V dc
$I_C = 2.5 \text{ A}, I_B = 250 \text{ mA}$ (pulsed)	$V_{BE(sat)3}$	---	2.0	V dc
Collector-Emitter Saturation Voltage				
$I_C = 500 \text{ mA}, I_B = 50 \text{ mA}$ (pulsed)	$V_{CE(sat)1}$	---	0.5	V dc
$I_C = 1.5 \text{ A}, I_B = 150 \text{ mA}$ (pulsed)	$V_{CE(sat)2}$	---	1.0	V dc
$I_C = 2.5 \text{ A}, I_B = 250 \text{ mA}$ (pulsed)	$V_{CE(sat)3}$	---	1.5	V dc
Small Signal Characteristics	Symbol	Min	Max	Unit
Magnitude of Common Emitter, Small Signal, Short Circuit Forward Current Transfer Ratio $V_{CE} = 5 \text{ V}, I_C = 100 \text{ mA}, f = 20 \text{ MHz}$	$ h_{FE} $	3.0	15	---
Open Circuit Output Capacitance $V_{CB} = 10 \text{ V}, I_E = 0, 100 \text{ kHz} < f < 1 \text{ MHz}$	C_{OBO}	---	40	pF
Input Capacitance, Output Open Circuited $V_{EB} = 3 \text{ V}, I_C = 0, 100 \text{ kHz} < f < 1 \text{ MHz}$	C_{IBO}	---	300	pF
Pulse Response Characteristics	Symbol	Min	Max	Unit
Delay Time $I_C = 1.5 \text{ A}, I_{B1} = 150 \text{ mA}$	t_d	---	15	ns
Rise Time $I_C = 1.5 \text{ A}, I_{B1} = 150 \text{ mA}$	t_r	---	30	ns
Storage Time $I_C = 1.5 \text{ mA}, I_{B2} = I_{B1} = 150 \text{ mA}$	t_s	---	55	ns
Fall Time $I_C = 1.5 \text{ mA}, I_{B2} = I_{B1} = 150 \text{ mA}$	t_f	---	35	ns