SEMICOA SEMICONDUCTORS

Data Sheet No. 2N1893S

Type 2N1893S
Geometry 4500
Polarity NPN
Qual Level: JAN - JANTXV

Generic Part Number: 2N1893

REF: MIL-PRF-19500/182

Features:

Request Quotation

- General-purpose low-power NPN silicon transistor.
- Housed in TO-39 case.
- Also available in chip form using the 4500 chip geometry.
- The Min and Max limits shown are per MIL-PRF-19500/182 which Semicoa meets in all cases.

TO-39

Maximum Ratings

T_C = 25°C unless otherwise specified

Rating	Symbol	Rating	Unit
Collector-Emitter voltage	V_{CEO}	80	V
Collector-Base Voltage	V_{CBO}	120	V
Emitter-Base Voltage	V_{EBO}	7.0	V
Collector - Emitter Voltage, R_{BE} = 10 Ohms	V_{CER}	100	V
Collector Current, Continuous	I_C	500	mA
Power Dissipation, T_A = 25°C	P_T	0.8	mW
Derate above 25°C		4.57	mW/°C
Power Dissipation, T_C = 25°C	P_T	3.0	mW
Derate above 25°C		17.2	mW/°C
Operating Junction Temperature	T_J	-55 to +200	°C
Storage Temperature	T_{STG}	-55 to +200	°C

Electrical Characteristics

$T_C = 25^oC$ unless otherwise specified

OFF Characteristics	Symbol	Min	Max	Unit
Collector-Base Breakdown Voltage $I_C = 100$ µA, pulsed	$V_{(BR)CBO}$	120	---	V
Collector-Emitter Breakdown Voltage $I_C = 30$ mA, pulsed	$V_{(BR)CEO}$	80	---	V
Emitter-Base Breakdown Voltage $I_E = 10$ µA, pulsed	$V_{(BR)EBO}$	7.0	---	---
Collector-Base Cutoff Current $V_{CB} = 90$ V	I_{CBO1}	---	10	nA
Collector-Base Cutoff Current $V_{CB} = 90$ V, $T_A = 150^oC$	I_{CBO2}	---	15	µA
Emitter-Base Cutoff Current $V_{EB} = 6$ V	I_{EBO}	---	10	nA

ON Characteristics	Symbol	Min	Max	Unit
Forward Current Transfer Ratio				
$I_C = 0.1$ mA, $V_{CE} = 10$ V, pulsed	h_{FE1}	20	---	---
$I_C = 10$ mA, $V_{CE} = 10$ V, pulsed	h_{FE2}	35	---	---
$I_C = 150$ mA, $V_{CE} = 10$ V, pulsed	h_{FE3}	40	120	---
Base-Emitter Saturation Voltage				
$I_C = 150$ mA, $I_B = 15$ mA, pulsed	$V_{BE(sat)1}$	---	1.3	V dc
Collector-Emitter Saturation Voltage				
IC = 150 mA, IB = 15 mA, pulsed	$V_{CE(sat)1}$	---	5.0	V dc

Small Signal Characteristics	Symbol	Min	Max	Unit
Magnitude of Common Emitter, Small Signal, Short Circuit Forward Current Transfer Ratio $V_{CE} = 5$ V, $I_C = 1$ mA, f = 20 MHz	$\|h_{FE}\|$	3.0	10	---
Small Signal, Short Circuit Forward Current Transfer Ratio $V_{CE} = 5$ V, $I_C = 5$ mA	h_{FE}	35	100	---
Small Signal, Short Circuit Forward Current Transfer Ratio $V_{CE} = 10$ V, $I_C = 10$ mA, f = 1 kHz	h_{FE}	45	---	---
Small Signal, Short Circuit Input Impedance $V_{CB} = 10$ V, $I_C = 5$ mA	hib	4.0	8.0	Ohms
Small Signal, Open Circuit Output Admittance $V_{CB} = 10$ V, $I_C = 5.0$ mA	hob	0	0.5	µOhms
Small signal, Open Circuit Reverse Voltage Transfer Ratio $V_{CB} = 10$ V, $I_C = 5$ mA	hrb	---	$1.5x10^{-4}$	---
Open Circuit Output Capacitance $V_{CB} = 10$ V, $I_E = 0$, 100 kHz < f < 1 MHz	C_{OBO}	5.0	15	pF
Pulse Response See Test Condition in MIL-S-19500/182D	$t_{on} + t_{off}$	---	30	ns