

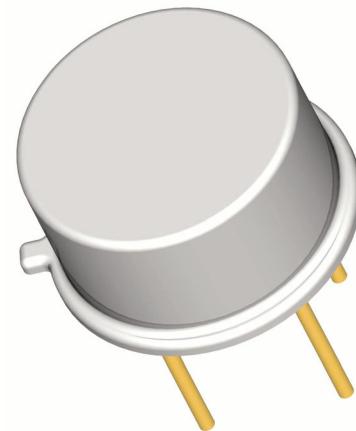
Description

Semicoa Semiconductors offers:

- Screening and processing per MIL-PRF-19500 Appendix E
- JAN level (2N1893SJ)
- JANTX level (2N1893SJX)
- JANTXV level (2N1893SV)
- QCI to the applicable level
- 100% die visual inspection per MIL-STD-750 method 2072 for JANTXV
- Radiation testing (total dose) upon request

Applications

- General purpose
- Low power
- NPN silicon transistor



Features

- Hermetically sealed TO-39 metal can
- Also available in chip configuration
- Chip geometry 4500
- Reference document: MIL-PRF-19500/182

Benefits

- Qualification Levels: JAN, JANTX, and JANTXV
- Radiation testing available

Absolute Maximum Ratings		T_c = 25°C unless otherwise specified	
Parameter	Symbol	Rating	Unit
Collector-Emitter Voltage	V _{CEO}	80	Volts
Collector-Base Voltage	V _{CBO}	120	Volts
Emitter-Base Voltage	V _{EBO}	7	Volts
Collector Current, Continuous	I _C	500	mA
Power Dissipation, T _A = 25°C Derate linearly above 60°C	P _T	0.8 5.7	W mW/°C
Power Dissipation, T _c = 25°C Derate linearly above 25°C	P _T	3.0 17.2	W mW/°C
Thermal Resistance	R _{θJA}	175	°C/W
Operating Junction Temperature Storage Temperature	T _J T _{STG}	-65 to +200	°C

ELECTRICAL CHARACTERISTICS

 characteristics specified at $T_A = 25^\circ\text{C}$
Off Characteristics

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Collector-Emitter Breakdown Voltage	$V_{(\text{BR})\text{CEO}}$	$I_C = 30 \text{ mA}$	80			Volts
Collector-Emitter Breakdown Voltage	$V_{(\text{BR})\text{CER}}$	$I_C = 10 \text{ mA}, R_{BE} = 10 \Omega$	100			Volts
Collector-Base Cutoff Current	I_{CBO1} I_{CBO2} I_{CBO3}	$V_{CB} = 120 \text{ Volts}$ $V_{CB} = 90 \text{ Volts}$ $V_{CE} = 90 \text{ Volts}, T_A = 150^\circ\text{C}$			100 10 15	μA nA μA
Emitter-Base Cutoff Current	I_{EBO1} I_{EBO2}	$V_{EB} = 7 \text{ Volts}$ $V_{EB} = 5 \text{ Volts}$			100 10	μA nA

On Characteristics

 Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2.0\%$

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
DC Current Gain	h_{FE1} h_{FE2} h_{FE3} h_{FE4}	$I_C = 0.1 \text{ mA}, V_{CE} = 10 \text{ Volts}$ $I_C = 10 \text{ mA}, V_{CE} = 10 \text{ Volts}$ $I_C = 150 \text{ mA}, V_{CE} = 10 \text{ Volts}$ $I_C = 10 \text{ mA}, V_{CE} = 10 \text{ Volts}, T_A = -55^\circ\text{C}$	20 35 40 20		120	
Base-Emitter Saturation Voltage	$V_{BE\text{sat}}$	$I_C = 150 \text{ mA}, I_B = 15 \text{ mA}$			1.3	Volts
Collector-Emitter Saturation Voltage	$V_{CE\text{sat}}$	$I_C = 150 \text{ mA}, I_B = 15 \text{ mA}$			5.0	Volts

Dynamic Characteristics

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Magnitude – Common Emitter, Short Circuit Forward Current Transfer Ratio	$ h_{FE} $	$V_{CE} = 10 \text{ Volts}, I_C = 50 \text{ mA}, f = 20 \text{ MHz}$	3		10	
Short Circuit Forward Current Transfer Ratio	h_{FE1} h_{FE2}	$f = 1 \text{ kHz}$ $V_{CE} = 5 \text{ Volts}, I_C = 1 \text{ mA}$ $V_{CE} = 10 \text{ Volts}, I_C = 5 \text{ mA}$	35 45		100 150	
Short Circuit Input Impedance	h_{ie}	$V_{CB} = 10V, I_C = 5\text{mA}$	4		8	Ω
Open Circuit Output Admittance	h_{oe}	$V_{CB} = 10V, I_C = 5\text{mA}$			0.5	$\mu\Omega$
Open Circuit reverse Voltage Transfer Ratio	h_{re}	$V_{CB} = 10V, I_C = 5\text{mA}$			1.5×10^{-4}	
Open Circuit Output Capacitance	C_{OBO}	$V_{CB} = 10 \text{ Volts}, I_C = 0 \text{ mA}, 100 \text{ kHz} < f < 1 \text{ MHz}$	2		15	pF

Switching Characteristics

Pulse Response	$t_{on} + t_{off}$				30	ns
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