

Description

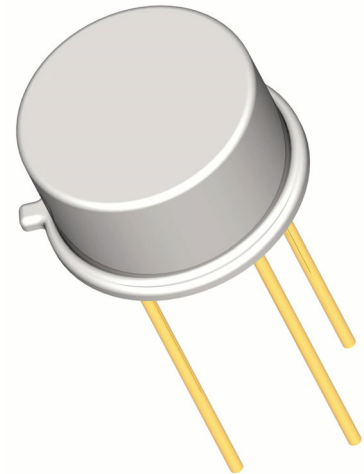
Semicoa Semiconductors offers:

- Screening and processing per MIL-PRF-19500 Appendix E
- JAN level (2N1893J)
- JANTX level (2N1893JX)
- JANTXV level (2N1893JV)
- QCI to the applicable level
- 100% die visual inspection per MIL-STD-750 method 2072 for JANTXV
- Radiation testing (total dose) upon request

Please contact Semicoa for special configurations
www.SEMICOA.com or (714) 979-1900

Applications

- General purpose
- Low power
- NPN silicon transistor



Features

- Hermetically sealed TO-5 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		$T_C = 25^\circ\text{C}$ 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, $T_A = 25^\circ\text{C}$ Derate above 60°C	P_T	0.8 5.7	W mW/ $^\circ\text{C}$
Power Dissipation, $T_C = 25^\circ\text{C}$ Derate above 25°C	P_T	3.0 17.2	W mW/ $^\circ\text{C}$
Operating Junction Temperature	T_J	-65 to +200	$^\circ\text{C}$
Storage Temperature	T_{STG}		
Thermal Resistance	$R_{\theta JA}$	175	$^\circ\text{C}/\text{W}$

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	$V_{(BR)CEO}$	$I_C = 30\text{ mA}$	80			Volts
Collector-Emitter Breakdown Voltage	$V_{(BR)CER}$	$I_C = 10\text{ mA}, R_{BE} = 10\ \Omega$	100			Volts
Collector-Base Cutoff Current	I_{CBO1}	$V_{CB} = 120\text{ Volts}$			100	μA
	I_{CBO2}	$V_{CB} = 90\text{ Volts}$			10	nA
	I_{CBO3}	$V_{CE} = 90\text{ Volts}, T_A = 150^\circ\text{C}$			15	μA
Emitter-Base Cutoff Current	I_{EBO1}	$V_{EB} = 7\text{ Volts}$			100	μA
	I_{EBO2}	$V_{EB} = 5\text{ Volts}$			10	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}	$I_C = 1\text{ mA}, V_{CE} = 10\text{ Volts}$	20			
	h_{FE2}	$I_C = 10\text{ mA}, V_{CE} = 10\text{ Volts}$	35			
	h_{FE3}	$I_C = 150\text{ mA}, V_{CE} = 10\text{ Volts}$	40		120	
	h_{FE4}	$I_C = 10\text{ mA}, V_{CE} = 10\text{ Volts}, T_A = -55^\circ\text{C}$	20			
Base-Emitter Saturation Voltage	V_{BEsat}	$I_C = 150\text{ mA}, I_B = 15\text{ mA}$			1.3	Volts
Collector-Emitter Saturation Voltage	V_{CEsat}	$I_C = 150\text{ mA}, I_B = 15\text{ mA}$			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}	$f = 1\text{ kHz}, V_{CE} = 5\text{ Volts}, I_C = 1\text{ mA}$	35		100	
	h_{FE2}	$V_{CE} = 10\text{ Volts}, I_C = 5\text{ mA}$	45		150	
Short Circuit Input Impedance	h_{ie}	$V_{CB} = 10\text{V}, I_C = 5\text{mA}$	4		8	Ω
Open Circuit Output Admittance	h_{oe}	$V_{CB} = 10\text{V}, I_C = 5\text{mA}$			0.5	$\mu\Omega$
Open Circuit reverse Voltage Transfer Ratio	h_{re}	$V_{CB} = 10\text{V}, I_C = 5\text{mA}$			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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