

Description

Semicoa Semiconductors offers:

- Screening and processing per MIL-PRF-19500 Appendix E
- JAN level (2N6193J)
- JANTX level (2N6193JX)
- JANTXV level (2N6193JV)
- 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 switching transistor
- Low power
- PNP silicon transistor



Features

- Hermetically sealed TO-39 metal can
- Also available in chip configuration
- Chip geometry 9700
- Reference document: MIL-PRF-19500/561

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}	100	Volts
Collector-Base Voltage	V_{CBO}	100	Volts
Emitter-Base Voltage	V_{EBO}	6	Volts
Collector Current, Continuous	I_C	5	A
Power Dissipation, $T_A = 25^\circ\text{C}$ Derate linearly above 25°C	P_T	1 5.71	W mW/ $^\circ\text{C}$
Thermal Resistance	$R_{\theta JC}$	17.5	$^\circ\text{C}/\text{W}$
Operating Junction Temperature Storage Temperature	T_J T_{STG}	-65 to +200	$^\circ\text{C}$

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	$V_{(BR)CEO}$	$I_C = 50 \text{ mA}$	100			Volts
Collector-Base Cutoff Current	I_{CBO1}	$V_{CB} = 100 \text{ Volts}$			10	μA
Collector-Emitter Cutoff Current	I_{CEO}	$V_{CE} = 100 \text{ Volts}$			100	μA
Collector-Emitter Cutoff Current	I_{CEX1}	$V_{CE} = 90 \text{ Volts}, V_{BE} = 1.5 \text{ Volts}$			10	μA
	I_{CEX2}	$V_{CE} = 90 \text{ Volts}, V_{BE} = 1.5 \text{ Volts}, T_A = 150^\circ\text{C}$			1	mA
Emitter-Base Cutoff Current	I_{EBO1}	$V_{EB} = 6 \text{ Volts}$			100	μA

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}	$I_C = 0.5 \text{ A}, V_{CE} = 2 \text{ Volts}$	60		240	
	h_{FE2}	$I_C = 2 \text{ A}, V_{CE} = 2 \text{ Volts}$	60			
	h_{FE3}	$I_C = 5 \text{ A}, V_{CE} = 2 \text{ Volts}$	40			
	h_{FE4}	$I_C = 2 \text{ A}, V_{CE} = 2 \text{ Volts}, T_A = -55^\circ\text{C}$	12			
Base-Emitter Saturation Voltage	V_{BEsat1}	$I_C = 2 \text{ A}, I_B = 200 \text{ mA}$			1.2	Volts
	V_{BEsat2}	$I_C = 5 \text{ A}, I_B = 500 \text{ mA}$			1.8	
Collector-Emitter Saturation Voltage	V_{CEsat1}	$I_C = 2 \text{ A}, I_B = 200 \text{ mA}$			0.7	Volts
	V_{CEsat2}	$I_C = 5 \text{ A}, I_B = 500 \text{ mA}$			1.2	

Dynamic Characteristics						
Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Magnitude – Common Emitter, Short Circuit Forward Current Transfer Ratio	$ h_{FE} $	$V_{CE} = 10 \text{ Volts}, I_C = 500 \text{ mA}, f = 10 \text{ MHz}$	3		15	
Open Circuit Output Capacitance	C_{OBO}	$V_{CB} = 10 \text{ Volts}, I_E = 0 \text{ mA}, 100 \text{ kHz} < f < 1 \text{ MHz}$			300	pF
Open Circuit Input Capacitance	C_{IBO}	$V_{EB} = 2 \text{ Volts}, I_C = 0 \text{ mA}, 100 \text{ kHz} < f < 1 \text{ MHz}$			1,250	pF

Switching Characteristics						
Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Delay Time	t_d	$I_C = 2 \text{ A}, I_{B1} = 200 \text{ mA}$			100	ns
Rise Time	t_r				100	
Storage Time	t_s	$I_C = 2 \text{ mA}, I_{B1} = I_{B2} = 200 \text{ mA}$			2	μs
Fall Time	t_f				200	

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