

## Description

Semicoa Semiconductors offers:

- Screening and processing per MIL-PRF-19500 Appendix E
- JAN level (2N5151J)
- JANTX level (2N5151JX)
- JANTXV level (2N5151JV)
- JANS level (2N5151JS)
- QCI to the applicable level
- 100% die visual inspection per MIL-STD-750 method 2072 for JANTXV and JANS
- Radiation testing (total dose) upon request

Please contact Semicoa for special configurations  
[www.SEMICOA.com](http://www.SEMICOA.com) or (714) 979-1900

## Applications

- High-speed power switching
- Low power
- PNP silicon transistor



## Features

- Hermetically sealed TO-39 metal can
- Also available in chip configuration
- Chip geometry 9702
- Reference document: MIL-PRF-19500/545

## Benefits

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

Absolute Maximum Ratings		T <sub>C</sub> = 25°C unless otherwise specified	
Parameter	Symbol	Rating	Unit
Collector-Emitter Voltage	V <sub>CEO</sub>	80	Volts
Collector-Base Voltage	V <sub>CB0</sub>	100	Volts
Emitter-Base Voltage	V <sub>EBO</sub>	5.5	Volts
Collector Current, Continuous	I <sub>C</sub>	2	A
Power Dissipation, T <sub>A</sub> = 25°C Derate linearly above 25°C	P <sub>T</sub>	1 5.7	W mW/°C
Power Dissipation, T <sub>C</sub> = 25°C Derate linearly above 25°C	P <sub>T</sub>	11.8 66.7	W mW/°C
Thermal Resistance	R <sub>θJA</sub> R <sub>θJC</sub>	175 15	°C/W
Operating Junction Temperature Storage Temperature	T <sub>J</sub> T <sub>STG</sub>	-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	$V_{(BR)CEO}$	$I_C = 100\text{ mA}$	80			Volts
Collector-Emitter Cutoff Current	$I_{CES1}$	$V_{CE} = 60\text{ Volts}$			1	$\mu\text{A}$
Collector-Emitter Cutoff Current	$I_{CES2}$	$V_{CE} = 100\text{ Volts}$			1	mA
Collector-Emitter Cutoff Current	$I_{CEO}$	$V_{CE} = 40\text{ Volts}$			50	$\mu\text{A}$
Collector-Emitter Cutoff Current	$I_{CEX}$	$V_{CE} = 60\text{ Volts}, V_{EB} = 2\text{ Volts}, T_A = 150^\circ\text{C}$			500	nA
Emitter-Base Cutoff Current	$I_{EBO1}$	$V_{EB} = 4\text{ Volts}$			1	$\mu\text{A}$
Emitter-Base Cutoff Current	$I_{EBO1}$	$V_{EB} = 5.5\text{ Volts}$			1	mA

### On Characteristics

Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
DC Current Gain	$h_{FE1}$	$I_C = 50\text{ mA}, V_{CE} = 5\text{ Volts}$	20			
	$h_{FE2}$	$I_C = 2.5\text{ A}, V_{CE} = 5\text{ Volts}$	30		90	
	$h_{FE3}$	$I_C = 5\text{ A}, V_{CE} = 5\text{ Volts}$	20			
	$h_{FE4}$	$I_C = 2.5\text{ A}, V_{CE} = 5\text{ Volts}, T_A = -55^\circ\text{C}$	15			
Base-Emitter Voltage	$V_{BE}$	$V_{CE} = 5\text{ Volts}, I_C = 2.5\text{ mA}$			1.45	Volts
Base-Emitter Saturation Voltage	$V_{BEsat1}$	$I_C = 2.5\text{ A}, I_B = 250\text{ mA}$			1.45	Volts
	$V_{BEsat2}$	$I_C = 5\text{ A}, I_B = 500\text{ mA}$			2.20	Volts
Collector-Emitter Saturation Voltage	$V_{CEsat1}$	$I_C = 2.5\text{ A}, I_B = 250\text{ mA}$			0.75	Volts
	$V_{CEsat2}$	$I_C = 5\text{ A}, I_B = 500\text{ mA}$			1.50	Volts

### Dynamic Characteristics

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Magnitude – Common Emitter, Short Circuit Forward Current Transfer Ratio	$ h_{FE} $	$V_{CE} = 5\text{ Volts}, I_C = 500\text{ mA}, f = 10\text{ MHz}$	6			
Small Signal Short Circuit Forward Current Transfer Ratio	$h_{FE}$	$V_{CE} = 5\text{ Volts}, I_C = 100\text{ mA}, f = 1\text{ kHz}$	20			
Open Circuit Output Capacitance	$C_{OBO}$	$V_{CB} = 10\text{ Volts}, I_E = 0\text{ mA}, f = 1\text{ MHz}$			250	pF

### Switching Characteristics

Saturated Turn-On Time	$t_{ON}$	$I_C = 5\text{ A}, I_{B1} = 500\text{ mA}, I_{B2} = -500\text{ mA}, V_{BEoff} = 3.7\text{ V}, R_L = 6\ \Omega$			0.5	$\mu\text{s}$
Storage Time	$t_s$				1.4	$\mu\text{s}$
Fall Time	$t_f$				0.5	$\mu\text{s}$
Saturated Turn-Off Time	$t_{OFF}$				1.5	$\mu\text{s}$