

## Description

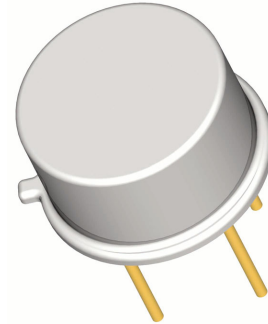
SEMICOA Corporation offers:

- Screening and processing per MIL-PRF-19500 Appendix E
- JAN level (2N4150SJ)
- JANTX level (2N4150SJX)
- JANTXV level (2N4150SJV)
- 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](http://www.SEMICOA.com) or (714) 979-1900

## Applications

- General purpose
- Low power, High voltage
- NPN silicon transistor



## Features

- Hermetically sealed TO-39 metal can
- Also available in chip configuration
- Chip geometry 3101
- Reference document: MIL-PRF-19500/394

## 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	$V_{CEO}$	70	Volts
Collector-Base Voltage	$V_{CBO}$	100	Volts
Emitter-Base Voltage	$V_{EBO}$	10	Volts
Collector Current, Continuous	$I_C$	10	A
Power Dissipation, $T_A = 25^\circ\text{C}$ Derate linearly above $25^\circ\text{C}$	$P_T$	1 5.7	W mW/ $^\circ\text{C}$
Power Dissipation, $T_C = 25^\circ\text{C}$ Derate linearly above $100^\circ\text{C}$	$P_T$	5 50	W mW/ $^\circ\text{C}$
Thermal Resistance	$R_{\theta JA}$ $R_{\theta JC}$	.175 .020	$^\circ\text{C}/\text{W}$
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	$V_{(BR)CEO}$	$I_C = 100 \text{ mA}$	70			Volts
Collector-Base Cutoff Current	$I_{CBO1}$	$V_{CB} = 100 \text{ Volts}$			10	$\mu\text{A}$
	$I_{CBO2}$	$V_{CB} = 80 \text{ Volts,}$			100	nA
Collector-Emitter Cutoff Current	$I_{CEO}$	$V_{CE} = 60 \text{ Volts}$			10	$\mu\text{A}$
Collector-Emitter Cutoff Current	$I_{CEX1}$	$V_{CE} = 60\text{Volts, } V_{EB} = .5\text{Volts}$			10	$\mu\text{A}$
	$I_{CEX2}$	$V_{CE} = 60\text{Volts, } V_{EB} = .5\text{Volts,}$ $T_A = 150^\circ\text{C}$			100	$\mu\text{A}$
Emitter-Base Cutoff Current	$I_{EBO1}$	$V_{EB} = 7 \text{ Volts}$			10	$\mu\text{A}$
	$I_{EBO2}$	$V_{EB} = 5 \text{ Volts}$			100	nA

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	$h_{FE1}$	$I_C = 1 \text{ A, } V_{CE} = 5 \text{ Volts}$	50		200	
	$h_{FE2}$	$I_C = 5 \text{ A, } V_{CE} = 5 \text{ Volts}$	40		120	
	$h_{FE3}$	$I_C = 10 \text{ A, } V_{CE} = 5 \text{ Volts}$	10			
	$h_{FE4}$	$I_C = 5 \text{ A, } V_{CE} = 5 \text{ Volts}$ $T_A = -55^\circ\text{C}$	20			
Base-Emitter Saturation Voltage	$V_{BEsat1}$	$I_C = 5 \text{ A, } I_B = 500 \text{ mA}$			1.5	Volts
	$V_{BEsat2}$	$I_C = 10 \text{ A, } I_B = 1 \text{ A}$			2.5	
Collector-Emitter Saturation Voltage	$V_{CEsat1}$	$I_C = 5 \text{ A, } I_B = 500 \text{ mA}$			0.6	Volts
	$V_{CEsat2}$	$I_C = 10 \text{ A, } I_B = 1 \text{ A}$			2.5	

Dynamic Characteristics						
Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Magnitude – Common Emitter, Short Circuit Forward Current Transfer Ratio	$ h_{FE} $	$V_{CE} = 10 \text{ Volts, } I_C = 200 \text{ mA,}$ $f = 10 \text{ MHz}$	1.5		7.5	
Small Signal Short Circuit Forward Current Transfer Ratio	$h_{FE}$	$V_{CE} = 5 \text{ Volts, } I_C = 50 \text{ mA,}$ $f = 1 \text{ kHz}$	40		160	
Open Circuit Output Capacitance	$C_{OBO}$	$V_{CB} = 10 \text{ Volts, } I_E = 0 \text{ mA,}$ $100 \text{ kHz} < f < 1 \text{ MHz}$			350	pF

Switching Characteristics						
Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Delay Time	$t_d$	$I_C = 5 \text{ A, } I_B = 500 \text{ mA,}$			50	ns
Rise Time	$t_r$				500	
Storage Time	$t_s$	$I_C = 5 \text{ A, } I_{B1} = -I_{B2} = 500 \text{ mA}$			1.5	$\mu\text{s}$
Fall Time	$t_f$				500	ns