

## Description

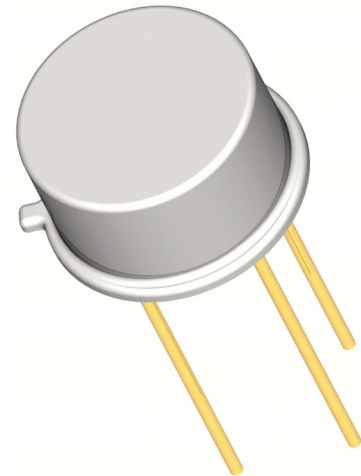
Semicoa Semiconductors offers:

- Screening and processing per MIL-PRF-19500 Appendix E
- JAN level (2N5237J)
- JANTX level (2N5237JX)
- JANTXV level (2N5237JV)
- 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-5 metal can
- Also available in chip configuration
- Chip geometry 3111
- 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	$V_{CEO}$	120	Volts
Collector-Base Voltage	$V_{CBO}$	150	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  $T_A = 25^\circ\text{C}$

<b>Off Characteristics</b>						
Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 100\text{ mA}$	120			Volts
Collector-Base Cutoff Current	$I_{CBO1}$	$V_{CB} = 150\text{ Volts}$			10	$\mu\text{A}$
	$I_{CBO2}$	$V_{CB} = 80\text{ Volts,}$			100	nA
Collector-Emitter Cutoff Current	$I_{CEO}$	$V_{CE} = 110\text{ Volts}$			10	$\mu\text{A}$
Collector-Emitter Cutoff Current	$I_{CEX1}$	$V_{CE} = 110\text{Volts, } V_{EB} = .5\text{Volts}$			10	$\mu\text{A}$
	$I_{CEX2}$	$V_{CE} = 110\text{Volts, } V_{EB} = .5\text{Volts,}$ $T_A = 150^\circ\text{C}$			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

<b>On Characteristics</b>			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		225	
	$h_{FE2}$	$I_C = 5\text{ A, } V_{CE} = 5\text{ Volts}$	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	

<b>Dynamic Characteristics</b>						
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

<b>Switching Characteristics</b>						
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