

## Description

Semicoa Semiconductors offers:

- Screening and processing per MIL-PRF-19500 Appendix E
- JAN level (2N3737J)
- JANTX level (2N3737JX)
- JANTXV level (2N3737JV)
- JANS level (2N3737JS)
- 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

- General purpose
- Low power
- NPN silicon transistor



## Features

- Hermetically sealed TO-46 metal can
- Also available in chip configuration
- Chip geometry 0806
- Reference document: MIL-PRF-19500/395

## 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>	40	Volts
Collector-Base Voltage	V <sub>CBO</sub>	75	Volts
Emitter-Base Voltage	V <sub>EBO</sub>	5	Volts
Collector Current, Continuous	I <sub>C</sub>	1.5	A
Power Dissipation, T <sub>A</sub> = 25°C Derate linearly above 25°C	P <sub>T</sub>	0.5 2.86	W mW/°C
Power Dissipation, T <sub>C</sub> = 25°C Derate linearly above 25°C	P <sub>T</sub>	1.9 11.3	W mW/°C
Thermal Resistance	R <sub>θJA</sub>	350	°C/W
Operating Junction Temperature	T <sub>J</sub>	-65 to +200	°C
Storage Temperature	T <sub>STG</sub>		

## 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	$V_{(BR)CEO}$	$I_C = 10 \text{ mA}$	40			Volts
Collector-Base Cutoff Current	$I_{CBO1}$	$V_{CB} = 75 \text{ Volts}$		10		$\mu\text{A}$
	$I_{CBO2}$	$V_{CB} = 30 \text{ Volts}$		250		nA
Collector-Emitter Cutoff Current	$I_{CEX1}$	$V_{CE} = 30 \text{ Volts}, V_{EB} = 2 \text{ Volts}$			200	nA
	$I_{CEX2}$	$V_{CE} = 30 \text{ Volts}, V_{EB} = 2 \text{ Volts}, T_A = 150^\circ\text{C}$			250	$\mu\text{A}$
Emitter-Base Cutoff Current	$I_{EBO1}$	$V_{EB} = 5 \text{ Volts}$			10	$\mu\text{A}$
	$I_{EBO2}$	$V_{EB} = 4 \text{ Volts}$			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	$h_{FE1}$	$I_C = 10 \text{ mA}, V_{CE} = 1 \text{ Volts}$	35			
	$h_{FE2}$	$I_C = 150 \text{ mA}, V_{CE} = 1 \text{ Volts}$	40			
	$h_{FE3}$	$I_C = 500 \text{ mA}, V_{CE} = 1 \text{ Volts}$	40		140	
	$h_{FE4}$	$I_C = 1 \text{ A}, V_{CE} = 1.5 \text{ Volts}$	20		80	
	$h_{FE5}$	$I_C = 1.5 \text{ A}, V_{CE} = 5 \text{ Volts}$	20			
	$h_{FE6}$	$I_C = 500 \text{ mA}, V_{CE} = 1 \text{ Volts}, T_A = -55^\circ\text{C}$	15			
Base-Emitter Saturation Voltage	$V_{BEsat1}$	$I_C = 10 \text{ mA}, I_B = 1 \text{ mA}$			0.8	Volts
	$V_{BEsat2}$	$I_C = 150 \text{ mA}, I_B = 15 \text{ mA}$			1.0	
	$V_{BEsat3}$	$I_C = 500 \text{ mA}, I_B = 50 \text{ mA}$			1.2	
	$V_{BEsat4}$	$I_C = 1 \text{ A}, I_B = 100 \text{ mA}$	0.9		1.4	
Collector-Emitter Saturation Voltage	$V_{CEsat1}$	$I_C = 10 \text{ mA}, I_B = 1 \text{ mA}$			0.2	Volts
	$V_{CEsat2}$	$I_C = 150 \text{ mA}, I_B = 15 \text{ mA}$			0.3	
	$V_{CEsat3}$	$I_C = 500 \text{ mA}, I_B = 50 \text{ mA}$			0.5	
	$V_{CEsat4}$	$I_C = 1 \text{ A}, I_B = 100 \text{ mA}$			0.9	

Dynamic Characteristics						
Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Magnitude – Common Emitter, Short Circuit Forward Current Transfer Ratio	$ h_{FE} $	$V_{CE} = 10 \text{ Volts}, I_C = 50 \text{ mA}, f = 100 \text{ MHz}$	2.5		6.0	
Open Circuit Output Capacitance	$C_{OBO}$	$V_{CB} = 10 \text{ Volts}, I_E = 0 \text{ mA}, 100 \text{ kHz} < f < 1 \text{ MHz}$			9	pF
Open Circuit Input Capacitance	$C_{IBO}$	$V_{EB} = 0.5 \text{ Volts}, I_C = 0 \text{ mA}, 100 \text{ kHz} < f < 1 \text{ MHz}$			80	pF

Switching Characteristics						
Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Delay Time	$t_d$	$V_{BE} = 2 \text{ Volts}, I_C = 1 \text{ A}, I_B = 100 \text{ mA}$			8	ns
Rise Time	$t_r$	$I_B = 100 \text{ mA}$			40	ns
Saturated Turn-Off Time	$t_{OFF}$	$I_C = 1 \text{ A}, I_{B1} = I_{B2} = 100 \text{ mA}$			60	ns