

Description

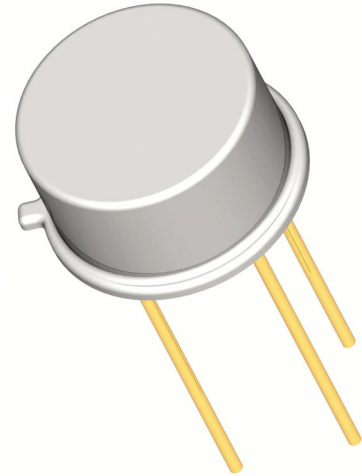
Semicoa Semiconductors offers:

- Screening and processing per MIL-PRF-19500 Appendix E
- JAN level (2N4150J)
- JANTX level (2N4150JX)
- JANTXV level (2N4150JV)
- 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
- Low power, High voltage
- NPN silicon transistor



Features

- Hermetically sealed TO-5 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°C unless otherwise specified	
Parameter	Symbol	Rating	Unit
Collector-Emitter Voltage	V _{CEO}	70	Volts
Collector-Base Voltage	V _{CB0}	100	Volts
Emitter-Base Voltage	V _{EBO}	10	Volts
Collector Current, Continuous	I _C	10	A
Power Dissipation, T _A = 25°C Derate linearly above 25°C	P _T	1 5.7	W mW/°C
Power Dissipation, T _C = 25°C Derate linearly above 100°C	P _T	5 50	W mW/°C
Thermal Resistance	R _{θJA} R _{θJC}	.175 .020	°C/W
Operating Junction Temperature Storage Temperature	T _J T _{STG}	-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	$V_{(BR)CEO}$	$I_C = 100\text{ mA}$	70			Volts
Collector-Base Cutoff Current	I_{CBO1}	$V_{CB} = 100\text{ Volts}$			10	μA
	I_{CBO2}	$V_{CB} = 80\text{ Volts,}$			100	nA
Collector-Emitter Cutoff Current	I_{CEO}	$V_{CE} = 60\text{ Volts}$			10	μA
Collector-Emitter Cutoff Current	I_{CEX1}	$V_{CE} = 60\text{ Volts, } V_{EB} = .5\text{ Volts}$			10	μA
	I_{CEX2}	$V_{CE} = 60\text{ Volts, } V_{EB} = .5\text{ Volts,}$ $T_A = 150^\circ\text{C}$			100	μA
Emitter-Base Cutoff Current	I_{EBO1}	$V_{EB} = 7\text{ Volts}$			10	μA
	I_{EBO2}	$V_{EB} = 5\text{ Volts}$			100	nA

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}	$I_C = 1\text{ A, } V_{CE} = 5\text{ Volts}$	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	μs
Fall Time	t_f				500	ns