2N3737

Silicon NPN Transistor

Data Sheet

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 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_C = 25°C unless otherwise specified

Parameter	Symbol	Rating	Unit
Collector-Emitter Voltage	V_{CEO}	40	Volts
Collector-Base Voltage	V_{CBO}	75	Volts
Emitter-Base Voltage	V_{EBO}	5	Volts
Collector Current, Continuous	I_C	1.5	A
Power Dissipation, T_A = 25°C Derate linearly above 25°C	P_T	0.5 2.86	W mW/°C
Power Dissipation, T_C = 25°C Derate linearly above 25°C	P_T	1.9 11.3	W mW/°C
Thermal Resistance	$R_{\theta JA}$	350	°C/W
Operating Junction Temperature Storage Temperature	T_J T_{STG}	-65 to +200	°C

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ELECTRICAL CHARACTERISTICS

characteristics specified at T_A = 25°C

Off Characteristics

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 10 mA	40			Volts
Collector-Base Cutoff Current	I_{CBO1} I_{CBO2}	V_{CB} = 75 Volts V_{CB} = 30 Volts		10 250		µA nA
Collector-Emitter Cutoff Current	I_{CEX1} I_{CEX2}	V_{CE} = 30 Volts, V_{EB} = 2 Volts V_{CE} = 30 Volts, V_{EB} = 2 Volts, T_A = 150°C			200 250	nA µA
Emitter-Base Cutoff Current	I_{EBO1} I_{EBO2}	V_{EB} = 5 Volts V_{EB} = 4 Volts			10 100	µA nA

On Characteristics

Pulse Test: Pulse Width = 300 µs, Duty Cycle ≤ 2.0%

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
DC Current Gain	h_{FE1} h_{FE2} h_{FE3} h_{FE4} h_{FE5} h_{FE6}	I_C = 10 mA, V_{CE} = 1 Volts I_C = 150 mA, V_{CE} = 1 Volts I_C = 500 mA, V_{CE} = 1 Volts I_C = 1 A, V_{CE} = 1.5 Volts I_C = 1.5 A, V_{CE} = 5 Volts I_C = 500 mA, V_{CE} = 1 Volts T_A = -55°C	35 40 40 20 20 15		 140 80	
Base-Emitter Saturation Voltage	V_{BEsat1} V_{BEsat2} V_{BEsat3} V_{BEsat4}	I_C = 10 mA, I_B = 1 mA I_C = 150 mA, I_B = 15 mA I_C = 500 mA, I_B = 50 mA I_C = 1 A, I_B = 100 mA	 0.9		0.8 1.0 1.2 1.4	Volts
Collector-Emitter Saturation Voltage	V_{CEsat1} V_{CEsat2} V_{CEsat3} V_{CEsat4}	I_C = 10 mA, I_B = 1 mA I_C = 150 mA, I_B = 15 mA I_C = 500 mA, I_B = 50 mA I_C = 1 A, I_B = 100 mA			0.2 0.3 0.5 0.9	Volts

Dynamic Characteristics

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

Switching Characteristics

Delay Time Rise Time	t_d t_r	V_{BE} = 2 Volts, I_C = 1 A, I_B = 100 mA			8 40	ns
Saturated Turn-Off Time	t_{OFF}	I_C = 1 A, I_{B1}=I_{B2}=100 mA			60	ns

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