2N2857

Silicon NPN Transistor

Data Sheet

Description

Semicoa Semiconductors offers:

- Screening and processing per MIL-PRF-19500 Appendix E
- JAN level (2N2857J)
- JANTX level (2N2857JX)
- JANTXV level (2N2857JV)
- JANS level (2N2857JS)
- 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
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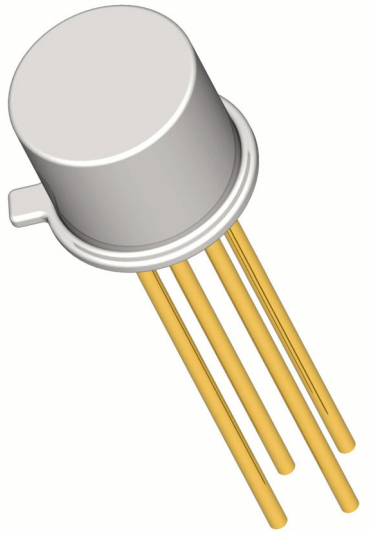
Applications

- Ultra-High frequency transistor
- Low power
- NPN silicon transistor



Features

- Hermetically sealed TO-72 metal can
- Also available in chip configuration
- Chip geometry 0011
- Reference document: MIL-PRF-19500/343

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}	15	Volts
Collector-Base Voltage	V_{CBO}	30	Volts
Emitter-Base Voltage	V_{EBO}	3	Volts
Collector Current, Continuous	I_C	40	mA
Power Dissipation, $T_A = 25^OC$ Derate linearly above 25^OC	P_T	200 1.14	mW mW/°C
Power Dissipation, $T_C = 25^OC$ Derate linearly above 25^OC	P_T	300 1.71	mW mW/°C
Operating Junction Temperature	T_J	-65 to +200	°C
Storage Temperature	T_{STG}	-65 to +200	°C

Semicoa Semiconductors, Inc.
333 McCormick Avenue, Costa Mesa, California 92626 714.979.1900, FAX 714.557.4541
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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 = 3 mA	15			Volts
Collector-Base Cutoff Current	I_{CBO1}	V_{CB} = 15 Volts			10	nA
Collector-Base Cutoff Current	I_{CBO3}	V_{CB} = 30 Volts			1	µA
Collector-Base Cutoff Current	I_{CBO2}	V_{CB} = 15 Volts, T_A = 150°C			1	µA
Collector-Emitter Cutoff Current	I_{CES}	V_{CE} = 16 Volts			100	nA
Emitter-Base Cutoff Current	I_{EBO1}	V_{EB} = 3 Volts			10	µA

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}	I_C = 3 mA, V_{CE} = 1 Volts I_C = 3 mA, V_{CE} = 1 Volts T_A = -55°C	30 10		150	
Base-Emitter Saturation Voltage	V_{BEsat}	I_C = 10 mA, I_B = 1 mA			1.0	Volts
Collector-Emitter Saturation Voltage	V_{CEsat}	I_C = 10 mA, I_B = 1 mA			0.4	Volts

Dynamic Characteristics

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Magnitude – Common Emitter, Short Circuit Forward Current Transfer Ratio	$\|h_{FE}\|$	V_{CE} = 6 Volts, I_C = 5 mA, f = 100 MHz	10		21	
Small Signal Short Circuit Forward Current Transfer Ratio	h_{FE}	V_{CE} = 6 Volts, I_C = 2 mA, f = 1 kHz	50		220	
Collector to Base Feedback Capacitance	C_{CB}	V_{CB} = 10 Volts, I_E = 0 mA, 100 kHZ < f < 1 MHz			1	pF
Collector Base time constant	$r_b'C_C$	V_{CB} = 6 Volts, I_E = 2 mA, f = 31.9 MHz	4		15	ps
Small Signal Power Gain	G_{pe}	V_{CE} = 6 Volts, I_E = 1.5 mA, f = 450 MHz	12.5		21	MHz
Noise Figure	F	V_{CE} = 6 Volts, I_C = 1.5 mA, f < 450 MHz, R_g = 50 Ω			4.5	dB

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