

## Description

SEMICOA Corporation offers:

- Screening and processing per MIL-PRF-19500
- JAN level (2N720AJ)
- JANTX level (2N720AJX)
- JANTXV level (2N720AJV)
- 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
- NPN silicon transistor



## Features

- Hermetically sealed TO-18 metal can
- Also available in chip configuration
- Chip geometry 4500
- Reference document: MIL-PRF-19500/182

## Benefits

- Qualification Levels: JAN, JANTX, JANTXV
- Radiation testing available

Absolute Maximum Ratings		$T_C = 25^\circ\text{C}$ unless otherwise specified	
Parameter	Symbol	Rating	Unit
Collector-Emitter Voltage	$V_{CEO}$	80	Volts
Collector-Base Voltage	$V_{CBO}$	120	Volts
Emitter-Base Voltage	$V_{EBO}$	7	Volts
Collector Current, Continuous	$I_C$	500	mA
Power Dissipation, $T_A = 25^\circ\text{C}$ Derate linearly above $37.5^\circ\text{C}$	$P_T$	0.5 3.08	W mW/ $^\circ\text{C}$
Power Dissipation, $T_C = 25^\circ\text{C}$ Derate linearly above $25^\circ\text{C}$	$P_T$	1.8 10.3	W mW/ $^\circ\text{C}$
Operating Junction Temperature	$T_J$	-65 to +200	$^\circ\text{C}$
Storage Temperature	$T_{STG}$		
Thermal Resistance	$R_{\theta JA}$	325	$^\circ\text{C}/\text{W}$

## 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	$V_{(BR)CEO}$	$I_C = 30 \text{ mA}$	80			Volts
Collector-Emitter Breakdown Voltage	$V_{(BR)CER}$	$I_C = 10 \text{ mA}, R_{BE} = 10 \Omega$	100			Volts
Collector-Base Cutoff Current	$I_{CBO1}$	$V_{CB} = 120 \text{ Volts}$			100	$\mu\text{A}$
	$I_{CBO2}$	$V_{CB} = 90 \text{ Volts}$			10	nA
	$I_{CBO3}$	$V_{CE} = 90 \text{ Volts}, T_A = 150^\circ\text{C}$			15	$\mu\text{A}$
Emitter-Base Cutoff Current	$I_{EBO1}$	$V_{EB} = 7 \text{ Volts}$			100	$\mu\text{A}$
	$I_{EBO2}$	$V_{EB} = 5 \text{ Volts}$			10	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	$h_{FE1}$	$I_C = 1 \text{ mA}, V_{CE} = 10 \text{ Volts}$	20			
	$h_{FE2}$	$I_C = 10 \text{ mA}, V_{CE} = 10 \text{ Volts}$	35			
	$h_{FE3}$	$I_C = 150 \text{ mA}, V_{CE} = 10 \text{ Volts}$	40		120	
	$h_{FE4}$	$I_C = 10 \text{ mA}, V_{CE} = 10 \text{ Volts}, T_A = -55^\circ\text{C}$	20			
Base-Emitter Saturation Voltage	$V_{BEsat}$	$I_C = 150 \text{ mA}, I_B = 15 \text{ mA}$			1.3	Volts
Collector-Emitter Saturation Voltage	$V_{CEsat}$	$I_C = 150 \text{ mA}, I_B = 15 \text{ mA}$			5.0	Volts

### Dynamic Characteristics

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Magnitude – Common Emitter, Short Circuit Forward Current Transfer Ratio	$ h_{FE} $	$V_{CE} = 10 \text{ Volts}, I_C = 50 \text{ mA}, f = 20 \text{ MHz}$	3		10	
Short Circuit Forward Current Transfer Ratio	$h_{FE1}$	$f = 1 \text{ kHz}, V_{CE} = 5 \text{ Volts}, I_C = 1 \text{ mA}$	35		100	
	$h_{FE2}$	$V_{CE} = 10 \text{ Volts}, I_C = 5 \text{ mA}$	45		150	
Short Circuit Input Impedance	$h_{ie}$	$V_{CB} = 10\text{V}, I_C = 5\text{mA}$	4		8	$\Omega$
Open Circuit Output Admittance	$h_{oe}$	$V_{CB} = 10\text{V}, I_C = 5\text{mA}$			0.5	$\mu\Omega$
Open Circuit reverse Voltage Transfer Ratio	$h_{re}$	$V_{CB} = 10\text{V}, I_C = 5\text{mA}$			$1.5 \times 10^{-4}$	
Open Circuit Output Capacitance	$C_{OBO}$	$V_{CB} = 10 \text{ Volts}, I_C = 0 \text{ mA}, 100 \text{ kHz} < f < 1 \text{ MHz}$	2		15	pF

### Switching Characteristics

Pulse Response	$t_{on} + t_{off}$				30	ns
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