

## Description

Semicoa Semiconductors offers:

- Screening and processing per MIL-PRF-19500 Appendix E
- JAN level (2N4029J)
- JANTX level (2N4029JX) and
- JANTXV level (2N4029JV)
- 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

- High-speed switching
- Low Power
- PNP silicon transistor



## Features

- Hermetically sealed TO-18 metal can
- Also available in chip configuration
- Chip geometry 6700
- Reference document: MIL-PRF-19500/512

## Benefits

- Qualification Levels: JAN, JANTX, and JANTXV
- 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>	80	Volts
Collector-Base Voltage	V <sub>CBO</sub>	80	Volts
Emitter-Base Voltage	V <sub>EBO</sub>	5	Volts
Collector Current, Continuous	I <sub>C</sub>	1	A
Power Dissipation, T <sub>A</sub> = 25°C Derate linearly above 37.5°C	P <sub>T</sub>	0.5 3.08	W mW/°C
Thermal Resistance	R <sub>θJA</sub>	325	°C/W
Operating Junction Temperature	T <sub>J</sub>	-65 to +200	°C
Storage Temperature	T <sub>STG</sub>	-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-Base Cutoff Current	$I_{CBO1}$	$V_{CB} = 80$ Volts			10	$\mu\text{A}$
	$I_{CBO2}$	$V_{CB} = 60$ Volts			10	nA
	$I_{CBO3}$	$V_{CB} = 60$ Volts, $T_A = 150^\circ\text{C}$			25	$\mu\text{A}$
Collector-Emitter Cutoff Current	$I_{CEX}$	$V_{CE} = 60$ Volts, $V_{EB} = 2$ Volts			25	nA
Emitter-Base Cutoff Current	$I_{EBO1}$	$V_{BE} = 5$ Volts			10	$\mu\text{A}$
	$I_{EBO2}$	$V_{BE} = 3$ Volts			25	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	$h_{FE1}$	$I_C = 100 \mu\text{A}$ , $V_{CE} = 5$ Volts	50		300	
	$h_{FE2}$	$I_C = 100 \text{ mA}$ , $V_{CE} = 5$ Volts	100			
	$h_{FE3}$	$I_C = 500 \text{ mA}$ , $V_{CE} = 5$ Volts	70			
	$h_{FE4}$	$I_C = 1 \text{ A}$ , $V_{CE} = 5$ Volts	25			
	$h_{FE5}$	$I_C = 500 \text{ mA}$ , $V_{CE} = 5$ Volts $T_A = -55^\circ\text{C}$	30			
Base-Emitter Saturation Voltage	$V_{BEsat1}$	$I_C = 150 \text{ mA}$ , $I_B = 15 \text{ mA}$			0.9	Volts
	$V_{BEsat2}$	$I_C = 500 \text{ mA}$ , $I_B = 50 \text{ mA}$			1.2	
Collector-Emitter Saturation Voltage	$V_{CEsat1}$	$I_C = 150 \text{ mA}$ , $I_B = 15 \text{ mA}$			0.15	Volts
	$V_{CEsat2}$	$I_C = 500 \text{ mA}$ , $I_B = 50 \text{ mA}$			0.50	
	$V_{CEsat3}$	$I_C = 1 \text{ A}$ , $I_B = 100 \text{ mA}$			1.00	

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, $I_C = 50 \text{ mA}$ , $f = 100 \text{ MHz}$	1.5		6.0	
Open Circuit Output Capacitance	$C_{OBO}$	$V_{CB} = 10$ Volts, $I_E = 0 \text{ mA}$ , $100 \text{ kHz} < f < 1 \text{ MHz}$			20	pF
Open Circuit Input Capacitance	$C_{IBO}$	$V_{EB} = 0.5$ 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	$t_d$	$I_C = 500 \text{ mA}$ , $I_B = 50 \text{ mA}$			15	ns
Rise Time	$t_r$				25	
Storage Time	$t_s$	$I_C = 500 \text{ mA}$ , $I_B = 50 \text{ mA}$			175	ns
Fall Time	$t_f$				35	