

Description

Semicoa Semiconductors offers:

- Screening and processing per MIL-PRF-19500 Appendix E
- JAN level (2N4033J)
- JANTX level (2N4033JX) and
- JANTXV level (2N4033JV)
- 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

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



Features

- Hermetically sealed TO-39 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		$T_C = 25^\circ\text{C}$ unless otherwise specified	
Parameter	Symbol	Rating	Unit
Collector-Emitter Voltage	V_{CEO}	80	Volts
Collector-Base Voltage	V_{CBO}	80	Volts
Emitter-Base Voltage	V_{EBO}	5	Volts
Collector Current, Continuous	I_C	1	A
Power Dissipation, $T_A = 25^\circ\text{C}$ Derate linearly above 60°C	P_T	0.8 5.7	W mW/ $^\circ\text{C}$
Thermal Resistance	$R_{\theta JA}$	175	$^\circ\text{C}/\text{W}$
Operating Junction Temperature	T_J	-65 to +200	$^\circ\text{C}$
Storage Temperature	T_{STG}	-65 to +200	$^\circ\text{C}$

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	μA
	I_{CBO2}	$V_{CB} = 60$ Volts			10	nA
	I_{CBO3}	$V_{CB} = 60$ Volts, $T_A = 150^\circ\text{C}$			25	μA
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	μA
	I_{EBO2}	$V_{BE} = 3$ Volts			25	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}	$I_C = 100 \mu\text{A}$, $V_{CE} = 5$ Volts	50			
	h_{FE2}	$I_C = 100 \text{ mA}$, $V_{CE} = 5$ Volts	100		300	
	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	