

Description

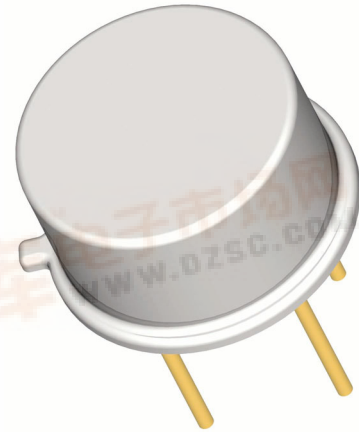
Semicoa Semiconductors offers:

- Screening and processing per MIL-PRF-19500 Appendix E
- JAN level (2N3506AJ)
- JANTX level (2N3506AJX)
- JANTXV level (2N3506AJV)
- JANS level (2N3506AJS)
- 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 switching transistor
- Low power
- NPN silicon transistor



Features

- Hermetically sealed TO-39 metal can
- Also available in chip configuration
- Chip geometry 1506
- Reference document: MIL-PRF-19500/349

Benefits

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

Absolute Maximum Ratings		$T_C = 25^{\circ}\text{C}$ unless otherwise specified	
Parameter	Symbol	Rating	Unit
Collector-Emitter Voltage	V_{CEO}	40	Volts
Collector-Base Voltage	V_{CBO}	60	Volts
Emitter-Base Voltage	V_{EBO}	5	Volts
Collector Current, Continuous	I_C	3	A
Power Dissipation, $T_A = 25^{\circ}\text{C}$ Derate linearly above 25°C	P_T	1 5.71	W mW/ $^{\circ}\text{C}$
Power Dissipation, $T_C = 25^{\circ}\text{C}$ Derate linearly above 25°C	P_T	5 28.6	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 Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 100\ \mu\text{A}$	60			Volts
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10\ \text{mA}$	40			Volts
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 10\ \mu\text{A}$	5			Volts
Collector-Emitter Cutoff Current	I_{CEX1}	$V_{CE} = 40\ \text{Volts}, V_{EB} = 4\ \text{Volts}$			1	μA
Collector-Emitter Cutoff Current	I_{CEX2}	$V_{CE} = 40\ \text{Volts}, V_{EB} = 4\ \text{Volts}, T_A = 150^\circ\text{C}$			1.5	mA

On Characteristics

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
DC Current Gain	h_{FE1}	$I_C = 500\ \text{mA}, V_{CE} = 1\ \text{Volts}$	50		250	
	h_{FE2}	$I_C = 1.5\ \text{A}, V_{CE} = 2\ \text{Volts}$	40		200	
	h_{FE3}	$I_C = 2.5\ \text{A}, V_{CE} = 3\ \text{Volts}$	30			
	h_{FE4}	$I_C = 3.0\ \text{A}, V_{CE} = 5\ \text{Volts}$	25			
	h_{FE5}	$I_C = 500\ \text{mA}, V_{CE} = 2\ \text{Volts}, T_A = -55^\circ\text{C}$	25			
Base-Emitter Saturation Voltage	V_{BEsat1}	$I_C = 500\ \text{mA}, I_B = 50\ \text{mA}$			0.5	Volts
	V_{BEsat2}	$I_C = 1.5\ \text{A}, I_B = 150\ \text{mA}$			1.0	
	V_{BEsat3}	$I_C = 2.5\ \text{A}, I_B = 250\ \text{mA}$			1.5	
Collector-Emitter Saturation Voltage	V_{CEsat1}	$I_C = 500\ \text{mA}, I_B = 50\ \text{mA}$	0.8		1.0	Volts
	V_{CEsat2}	$I_C = 1.5\ \text{A}, I_B = 150\ \text{mA}$			1.3	
	V_{CEsat3}	$I_C = 2.5\ \text{A}, I_B = 250\ \text{mA}$			2.0	

Dynamic Characteristics

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Magnitude – Common Emitter, Short Circuit Forward Current Transfer Ratio	$ h_{FE} $	$V_{CE} = 5\ \text{Volts}, I_C = 100\ \text{mA}, f = 20\ \text{MHz}$	3		15	
Open Circuit Output Capacitance	C_{OBO}	$V_{CB} = 10\ \text{Volts}, I_E = 0\ \text{mA}, 100\ \text{kHz} < f < 1\ \text{MHz}$			40	pF
Open Circuit Input Capacitance	C_{IBO}	$V_{EB} = 3\ \text{Volts}, I_C = 0\ \text{mA}, 100\ \text{kHz} < f < 1\ \text{MHz}$			300	pF
Delay Time	t_d	$I_C = 1.5\ \text{A}, I_{B1} = 150\ \text{mA}$			15	ns
Rise Time	t_r	$I_C = 1.5\ \text{A}, I_{B1} = 150\ \text{mA}$			30	ns

Switching Characteristics

Storage Time	t_s	$I_C = 1.5\ \text{A}, I_{B1}=I_{B2} = 150\ \text{mA}$			55	ns
Fall Time	t_f	$I_C = 1.5\ \text{A}, I_{B1}=I_{B2} = 150\ \text{mA}$			35	ns