

## Description

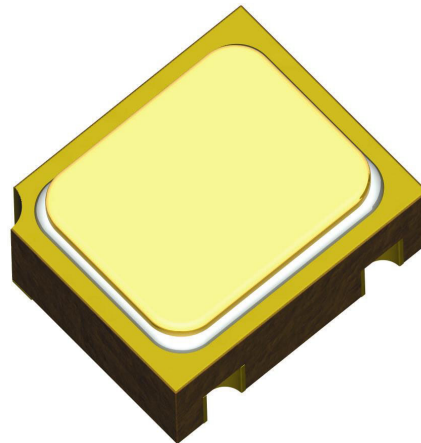
Semicoa Semiconductors offers:

- Screening and processing per MIL-PRF-19500 Appendix E
- JAN level (2N3737UBJ)
- JANTX level (2N3737UBJX)
- JANTXV level (2N3737UBJV)
- JANS level (2N3737UBJS)
- 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](http://www.SEMICOA.com) or (714) 979-1900

## Applications

- General purpose
- Low power
- NPN silicon transistor



## Features

- Hermetically sealed Cersot ceramic
- Also available in chip configuration
- Chip geometry 0806
- Reference document:  
MIL-PRF-19500/395

## 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	$V_{CBO}$	75	Volts
Emitter-Base Voltage	$V_{EBO}$	5	Volts
Collector Current, Continuous	$I_C$	1.5	A
Power Dissipation, $T_A = 25^{\circ}\text{C}$ Derate linearly above $37.5^{\circ}\text{C}$	$P_T$	0.5 3.07	W mW/ $^{\circ}\text{C}$
Thermal Resistance	$R_{\theta JA}$	325	$^{\circ}\text{C}/\text{W}$
Operating Junction Temperature	$T_J$	-65 to +200	$^{\circ}\text{C}$
Storage Temperature	$T_{STG}$		

## 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	$V_{(BR)CEO}$	$I_C = 10\text{ mA}$	40			Volts
Collector-Base Cutoff Current	$I_{CBO1}$	$V_{CB} = 75\text{ Volts}$		10		$\mu\text{A}$
	$I_{CBO2}$	$V_{CB} = 30\text{ Volts}$		250		nA
Collector-Emitter Cutoff Current	$I_{CEX1}$	$V_{CE} = 30\text{ Volts}, V_{EB} = 2\text{ Volts}$			200	nA
	$I_{CEX2}$	$V_{CE} = 30\text{ Volts}, V_{EB} = 2\text{ Volts}, T_A = 150^\circ\text{C}$			250	$\mu\text{A}$
Emitter-Base Cutoff Current	$I_{EBO1}$	$V_{EB} = 5\text{ Volts}$			10	$\mu\text{A}$
	$I_{EBO2}$	$V_{EB} = 4\text{ Volts}$			100	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	$h_{FE1}$	$I_C = 10\text{ mA}, V_{CE} = 1\text{ Volts}$	35			
	$h_{FE2}$	$I_C = 150\text{ mA}, V_{CE} = 1\text{ Volts}$	40			
	$h_{FE3}$	$I_C = 500\text{ mA}, V_{CE} = 1\text{ Volts}$	40		140	
	$h_{FE4}$	$I_C = 1\text{ A}, V_{CE} = 1.5\text{ Volts}$	20		80	
	$h_{FE5}$	$I_C = 1.5\text{ A}, V_{CE} = 5\text{ Volts}$	20			
	$h_{FE6}$	$I_C = 500\text{ mA}, V_{CE} = 1\text{ Volts}, T_A = -55^\circ\text{C}$	15			
Base-Emitter Saturation Voltage	$V_{BEsat1}$	$I_C = 10\text{ mA}, I_B = 1\text{ mA}$			0.8	Volts
	$V_{BEsat2}$	$I_C = 150\text{ mA}, I_B = 15\text{ mA}$			1.0	
	$V_{BEsat3}$	$I_C = 500\text{ mA}, I_B = 50\text{ mA}$			1.2	
	$V_{BEsat4}$	$I_C = 1\text{ A}, I_B = 100\text{ mA}$	0.9		1.4	
Collector-Emitter Saturation Voltage	$V_{CEsat1}$	$I_C = 10\text{ mA}, I_B = 1\text{ mA}$			0.2	Volts
	$V_{CEsat2}$	$I_C = 150\text{ mA}, I_B = 15\text{ mA}$			0.3	
	$V_{CEsat3}$	$I_C = 500\text{ mA}, I_B = 50\text{ mA}$			0.5	
	$V_{CEsat4}$	$I_C = 1\text{ A}, I_B = 100\text{ mA}$			0.9	

### Dynamic Characteristics

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Magnitude – Common Emitter, Short Circuit Forward Current Transfer Ratio	$ h_{FE} $	$V_{CE} = 10\text{ Volts}, I_C = 50\text{ mA}, f = 100\text{ MHz}$	2.5		6.0	
Open Circuit Output Capacitance	$C_{OBO}$	$V_{CB} = 10\text{ Volts}, I_E = 0\text{ mA}, 100\text{ kHz} < f < 1\text{ MHz}$			9	pF
Open Circuit Input Capacitance	$C_{IBO}$	$V_{EB} = 0.5\text{ Volts}, I_C = 0\text{ mA}, 100\text{ kHz} < f < 1\text{ MHz}$			80	pF

### Switching Characteristics

Delay Time	$t_d$	$V_{BE} = 2\text{ Volts}, I_C = 1\text{ A}, I_B = 100\text{ mA}$			8	ns
Rise Time	$t_r$				40	
Saturated Turn-Off Time	$t_{OFF}$	$I_C = 1\text{ A}, I_{B1}=I_{B2}=100\text{ mA}$			60	ns