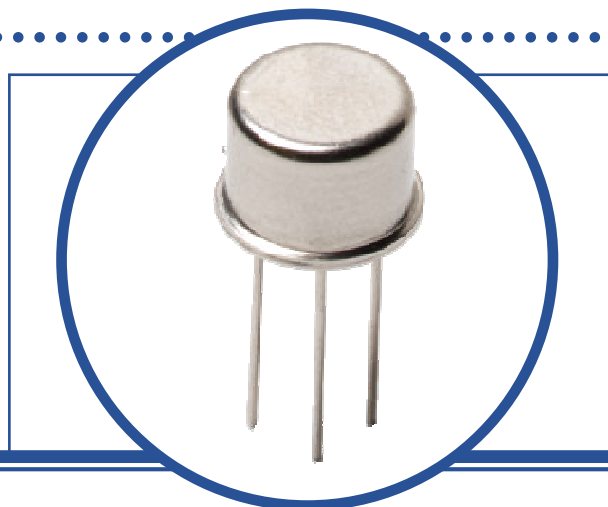


# SILICON PLANAR EPITAXIAL NPN TRANSISTOR

## 2N5237S

- Low Power, High Voltage.
- Hermetic TO-39 Metal Package.
- Ideally Suited For Switching And General Purpose Applications.
- Screening Options Available



### ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = 25°C unless otherwise stated)

V <sub>CBO</sub>	Collector – Base Voltage	150V
V <sub>CEO</sub>	Collector – Emitter Voltage	120V
V <sub>EBO</sub>	Emitter – Base Voltage	10V
I <sub>C</sub>	Continuous Collector Current	10A
P <sub>D</sub>	Total Power Dissipation at T <sub>A</sub> = 25°C	1.0W
	Derate Above 25°C	5.71mW/°C
P <sub>D</sub>	Total Power Dissipation at T <sub>C</sub> = 25°C	15W
	Derate Above 50°C	100mW/°C
T <sub>J</sub>	Junction Temperature Range	-65 to +200°C
T <sub>stg</sub>	Storage Temperature Range	-65 to +200°C

### THERMAL PROPERTIES

Symbols	Parameters	Max.	Units
R <sub>θJA</sub>	Thermal Resistance, Junction To Ambient	175	°C/W
R <sub>θJC</sub>	Thermal Resistance, Junction To Case	10	°C/W

Semelab Limited reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.

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## ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise stated)

Symbols	Parameters	Test Conditions	Min.	Typ	Max.	Units
$V_{(BR)CEO}^{(1)}$	Collector-Emitter Breakdown Voltage	$I_C = 10\text{mA}$ $I_B = 0$	120			V
$I_{CEO}$	Collector Cut-Off Current	$V_{CE} = 110\text{V}$ $I_B = 0$			10	$\mu\text{A}$
$I_{CBO}$	Collector Cut-Off Current	$V_{CB} = 80\text{V}$ $I_E = 0$			0.1	
		$V_{CB} = 150\text{V}$ $I_E = 0$			10	
$I_{CEX}$	Collector Cut-Off Current	$V_{CE} = 110\text{V}$ $V_{BE} = -0.5\text{V}$			10	
		$T_A = 150^\circ\text{C}$			100	
$I_{EBO}$	Emitter Cut-Off Current	$V_{EB} = 5\text{V}$ $I_C = 0$			0.1	
		$V_{EB} = 7\text{V}$ $I_C = 0$			10	
$h_{FE}^{(1)}$	Forward-current transfer ratio	$I_C = 1.0\text{A}$ $V_{CE} = 5\text{V}$	50		225	
		$I_C = 5\text{A}$ $V_{CE} = 5\text{V}$	40		120	
		$T_A = -55^\circ\text{C}$	20			
$V_{CE(sat)}^{(1)}$	Collector-Emitter Saturation Voltage	$I_C = 5\text{A}$ $I_B = 0.5\text{A}$			0.6	V
		$I_C = 10\text{A}$ $I_B = 1.0\text{A}$			2.5	
$V_{BE(sat)}^{(1)}$	Base-Emitter Saturation Voltage	$I_C = 5\text{A}$ $I_B = 0.5\text{A}$			1.5	
		$I_C = 10\text{A}$ $I_B = 1.0\text{A}$			2.5	

## DYNAMIC CHARACTERISTICS

$h_{fe}$	Small-Signal Current Gain	$I_C = 50\text{mA}$ $V_{CE} = 5\text{V}$ $f = 1.0\text{KHz}$	40		160	
$ h_{fe} $	Small signal forward-current transfer ratio	$I_C = 200\text{mA}$ $V_{CE} = 10\text{V}$ $f = 10\text{MHz}$	1.5		7.5	
$C_{obo}$	Output Capacitance	$V_{CB} = 10\text{V}$ $I_E = 0$ $f = 1.0\text{MHz}$			350	$\mu\text{F}$
$t_d$	Delay Time	$I_C = 5\text{A}$ $V_{CC} = 20\text{V}$			50	ns
$t_r$	Rise Time	$I_{B1} = 500\text{mA}$			500	
$t_s$	Storage Time	$I_C = 5\text{A}$ $V_{CC} = 20\text{V}$			1500	
$t_f$	Fall Time	$I_{B1} = -I_{B2} = 500\text{mA}$			500	

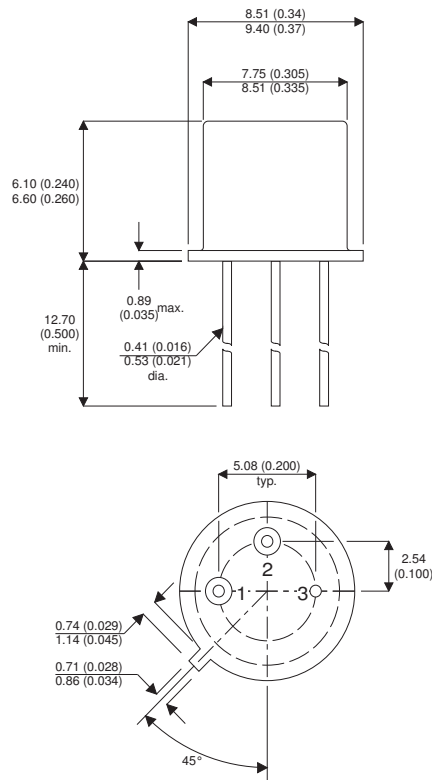
### Notes

(1) Pulse Width  $\leq 300\mu\text{s}$ ,  $\delta \leq 2\%$

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## MECHANICAL DATA

Dimensions in mm (inches)



### TO-39 (TO-205AD) METAL PACKAGE Underside View

Pin 1 - Emitter

Pin 2 - Base

Pin 3 - Collector