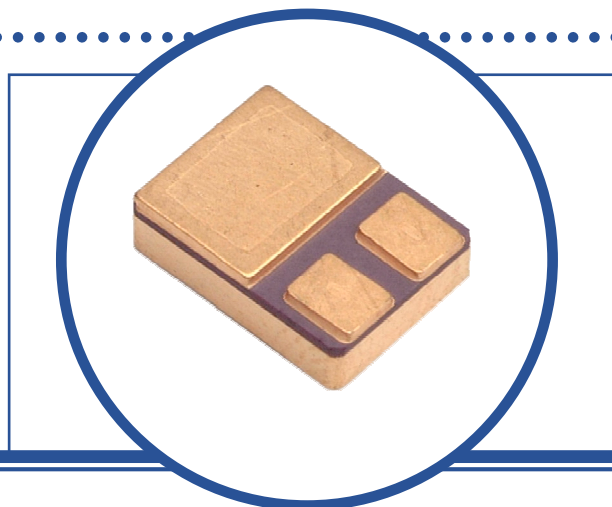


# PNP SWITCHING SILICON TRANSISTOR

## 2N3867SMD05

- High Voltage
- Hermetic Ceramic Surface Mount Package
- Ideally suited for Power Linear, Switching and general Purpose Applications
- Screening Options Available



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

V <sub>CB0</sub>	Collector – Base Voltage	40V
V <sub>CEO</sub>	Collector – Emitter Voltage	40V
V <sub>EBO</sub>	Emitter – Base Voltage	4V
I <sub>C</sub>	Continuous Collector Current	3A
I <sub>B</sub>	Base Current	0.5A
P <sub>D</sub>	Total Power Dissipation at T <sub>C</sub> = 25°C <sup>(1)</sup> T <sub>A</sub> = 25°C <sup>(2)</sup>	35W 1.0W
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>θJC</sub>	Thermal Resistance, Junction To Case	5	°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.



# PNP SWITCHING SILICON TRANSISTOR 2N3867SMD05

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

Symbols	Parameters	Test Conditions	Min.	Typ	Max.	Units
$V_{(BR)CEO}^{(3)}$	Collector-Emitter Breakdown Voltage	$I_C = 20\text{mA}$ $I_B = 0$	40			V
$I_{CEX}$	Collector Cut-Off Current	$V_{CE} = 40\text{V}$ $V_{EB} = 2\text{V}$			1.0	$\mu\text{A}$
		$T_A = 150^\circ\text{C}$			50	
$I_{CBO}$	Collector Cut-Off Current	$V_{CB} = 40\text{V}$ $I_E = 0$			100	$\mu\text{A}$
$I_{EBO}$	Emitter Cut-Off Current	$V_{EB} = 4\text{V}$ $I_C = 0$			100	
$h_{FE}^{(3)}$	Forward-current transfer ratio	$I_C = 500\text{mA}$ $V_{CE} = 1.0\text{V}$	50			-
		$T_A = -55^\circ\text{C}$	25			
		$I_C = 1.5\text{A}$ $V_{CE} = 2\text{V}$	40		200	
		$I_C = 2.5\text{A}$ $V_{CE} = 3\text{V}$	25			
$V_{CE(sat)}^{(3)}$	Collector-Emitter Saturation Voltage	$I_C = 500\text{mA}$ $I_B = 50\text{mA}$			0.5	V
		$I_C = 1.5\text{A}$ $I_B = 150\text{mA}$			0.75	
		$I_C = 2.5\text{A}$ $I_B = 250\text{mA}$			1.5	
$V_{BE(sat)}^{(3)}$	Base-Emitter Saturation Voltage	$I_C = 500\text{mA}$ $I_B = 50\text{mA}$			1.0	V
		$I_C = 1.5\text{A}$ $I_B = 150\text{mA}$	0.9		1.4	
		$I_C = 2.5$ $I_B = 250\text{mA}$			2	

## DYNAMIC CHARACTERISTICS

$ h_{fe} $	Magnitude of common-emitter small-signal short-circuit forward-current transfer ratio	$I_C = 100\text{mA}$ $V_{CE} = 5$ $f = 20\text{MHz}$	3		12	
$C_{obo}$	Output Capacitance	$V_{CB} = 10\text{V}$ $I_E = 0$ $f = 1\text{MHz}$			120	$\text{pF}$
$C_{ibo}$	Input Capacitance	$V_{EB} = 3\text{V}$ $I_C = 0$ $f = 1\text{MHz}$			800	
$t_d$	Delay Time	$V_{CC} = -30\text{V}$ $V_{EB} = 0\text{V}$			35	ns
$t_r$	Rise Time	$I_C = 1.5\text{A}$ $I_{B1} = 150\text{mA}$			65	
$t_s$	Storage Time	$V_{CC} = -30\text{V}$ $V_{EB} = 0\text{V}$			500	
$t_f$	Fall Time	$I_C = 1.5\text{A}$ $I_{B1} = I_{B2} = 150\text{mA}$			100	

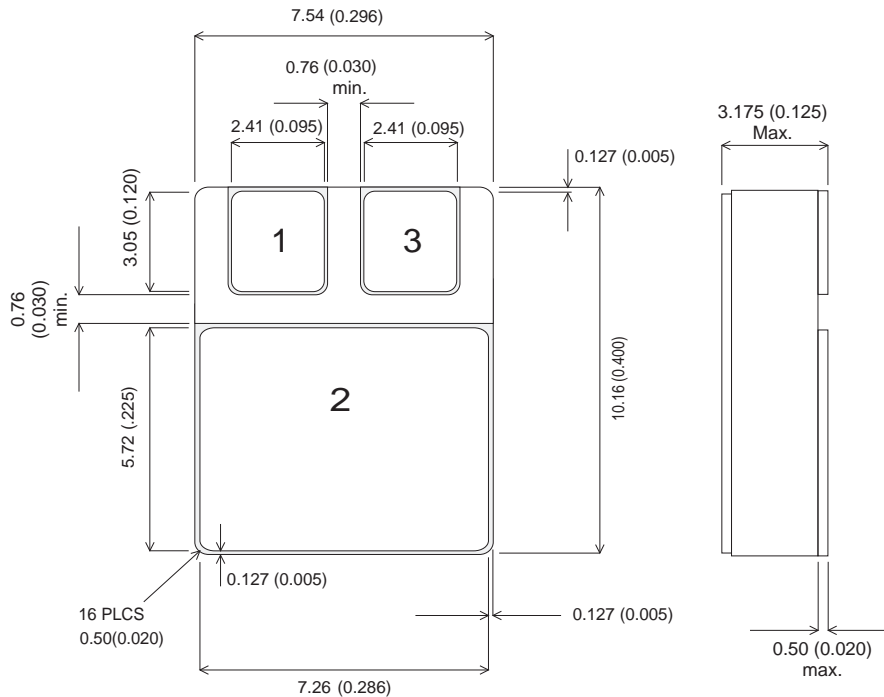
### Notes

- Derate Linearly  $200\text{mW}/^\circ\text{C}$  for  $T_C > 25^\circ\text{C}$
- Derate Linearly  $5.7\text{mW}/^\circ\text{C}$  for  $T_A > 25^\circ\text{C}$
- Pulse Width  $\leq 300\mu\text{s}$ ,  $\delta \leq 2\%$

# PNP SWITCHING SILICON TRANSISTOR 2N3867SMD05

## MECHANICAL DATA

Dimensions in mm (inches)



## SMD05 (TO-276AA)

### Underside View

Pad 1 – Base

Pad 2 – Collector

Pad 3 - Emitter