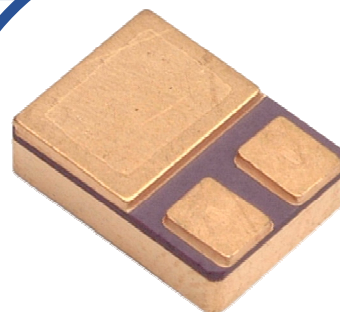


PNP SWITCHING SILICON TRANSISTOR

2N3867SMD05

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



ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ\text{C}$ unless otherwise stated)

V_{CBO}	Collector – Base Voltage	40V
V_{CEO}	Collector – Emitter Voltage	40V
V_{EBO}	Emitter – Base Voltage	4V
I_C	Continuous Collector Current	3A
I_B	Base Current	0.5A
P_D	Total Power Dissipation at $T_C = 25^\circ\text{C}^{(1)}$ $T_A = 25^\circ\text{C}^{(2)}$	35W 1.0W
T_J	Junction Temperature Range	-65 to +200°C
T_{stg}	Storage Temperature Range	-65 to +200°C

THERMAL PROPERTIES

Symbols	Parameters	Max.	Units
$R_{\theta JC}$	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	$V_{CE} = 40\text{V}$ $V_{EB} = 2\text{V}$ $T_A = 150^\circ\text{C}$			1.0 50	μA
I_{CBO}	Collector Cut-Off Current	$V_{CB} = 40\text{V}$ $I_E = 0$			100	μA
I_{EBO}	Emitter Cut-Off Current	$V_{EB} = 4\text{V}$ $I_C = 0$			100	μA
$h_{FE}^{(3)}$	Forward-current transfer ratio	$I_C = 500\text{mA}$ $V_{CE} = 1.0\text{V}$ $T_A = -55^\circ\text{C}$	50 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			
		$I_C = 3\text{A}$ $V_{CE} = 5\text{V}$	20			
$V_{CE(sat)}^{(3)}$	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	
		$I_C = 1.5\text{A}$ $I_B = 150\text{mA}$	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	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

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

Dimensions in mm (inches)



Pad 1 – Base Pad 2 – Collector Pad 3 - Emitter