

Power and Hybrid

SILICON SWITCHING NPN TRANSISTOR



2N2222ACSM

- High Speed Saturated Switching
- Hermetic Ceramic Surface Mount Package
- Screening Options Available



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

V_{CBO}	Collector – Base Voltage	75V
V_{CEO}	Collector – Emitter Voltage	40V
V_{EBO}	Emitter – Base Voltage	6V
I_C	Continuous Collector Current	0.8A
P_D	Total Power Dissipation at $T_A = 25^\circ\text{C}$ Derate Above 25°C	500mW 2.86mW/ $^\circ\text{C}$
T_J	Junction Temperature Range	-65 to $+200^\circ\text{C}$
T_{stg}	Storage Temperature Range	-65 to $+200^\circ\text{C}$

THERMAL PROPERTIES

Symbols	Parameters	Max.	Units
$R_{\theta JA}$	Thermal Resistance, Junction To Ambient	350	$^\circ\text{C}/\text{W}$

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.



Semelab Limited

Coventry Road, Lutterworth, Leicestershire, LE17 4JB

Document Number: 3391

Telephone: +44 (0) 1455 556565
Fax: +44 (0) 1455 552612

Email: sales@semelab-tt.com

Website: <http://www.semelab-tt.com>

Issue: 5
Page: 1 of 3

SILICON SWITCHING NPN TRANSISTOR

2N2222ACSM



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	$I_C = 10\text{mA}$	40			V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 10\mu\text{A}$	75			
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10\mu\text{A}$	6			
I_{CEX}	Collector-Emitter Cut-Off Current	$V_{EB} = 3\text{V}$ $V_{CE} = 60\text{V}$			10	nA
I_{CBO}	Collector-Base Cut-Off Current	$I_E = 0$ $V_{CB} = 60\text{V}$ $T_A = 150^\circ\text{C}$			10	
I_{EBO}	Emitter Cut-Off Current	$I_C = 0$ $V_{EB} = 3\text{V}$			10	nA
$V_{CE(Sat)}^{(1)}$	Collector-Emitter Saturation Voltage	$I_C = 150\text{mA}$ $I_B = 15\text{mA}$			0.3	V
		$I_C = 500\text{mA}$ $I_B = 50\text{mA}$			1.0	
$V_{BE(Sat)}^{(1)}$	Base-Emitter Saturation Voltage	$I_C = 150\text{mA}$ $I_B = 15\text{mA}$	0.6		1.2	
		$I_C = 500\text{mA}$ $I_B = 50\text{mA}$			2.0	
$h_{FE}^{(1)}$	DC Current Gain	$I_C = 0.1\text{mA}$ $V_{CE} = 10\text{V}$	35			-
		$I_C = 1.0\text{mA}$ $V_{CE} = 10\text{V}$	50			
		$I_C = 10\text{mA}$ $V_{CE} = 10\text{V}$	75			
		$T_A = -55^\circ\text{C}$	35			
		$I_C = 150\text{mA}$ $V_{CE} = 10\text{V}$	100		300	
		$I_C = 150\text{mA}$ $V_{CE} = 1.0\text{V}$	50			
		$I_C = 500\text{mA}$ $V_{CE} = 10\text{V}$	40			

DYNAMIC CHARACTERISTICS

C_{obo}	Output Capacitance	$V_{CB} = 10\text{V}$ $I_E = 0$ $f = 1.0\text{MHz}$			8	pF
C_{ibo}	Input Capacitance	$V_{EB} = 0.5\text{V}$ $I_C = 0$ $f = 1.0\text{MHz}$			30	
f_t	Transition Frequency	$I_C = 20\text{mA}$ $V_{CE} = 20\text{V}$ $f = 100\text{MHz}$	300			MHz
h_{fe}	Small Signal Current Gain	$I_C = 1.0\text{mA}$ $V_{CE} = 10\text{V}$ $f = 1.0\text{kHz}$	50		300	-
		$I_C = 10\text{mA}$ $V_{CE} = 10\text{V}$ $f = 1.0\text{kHz}$	75		375	
t_d	Delay Time	$V_{CC} = 30\text{V}$ $V_{BE} = 0.5\text{V}$			10	ns
t_r	Rise Time	$I_C = 150\text{mA}$ $I_{B1} = 15\text{mA}$			25	
t_s	Storage Time	$V_{CC} = 30\text{V}$ $V_{BE} = 0.5\text{V}$			225	
t_f	Fall Time	$I_C = 150\text{mA}$ $I_{B1} = I_{B2} = 15\text{mA}$			60	

Note

(1) Pulse Width $\leq 380\mu\text{s}$, $\delta \leq 2\%$

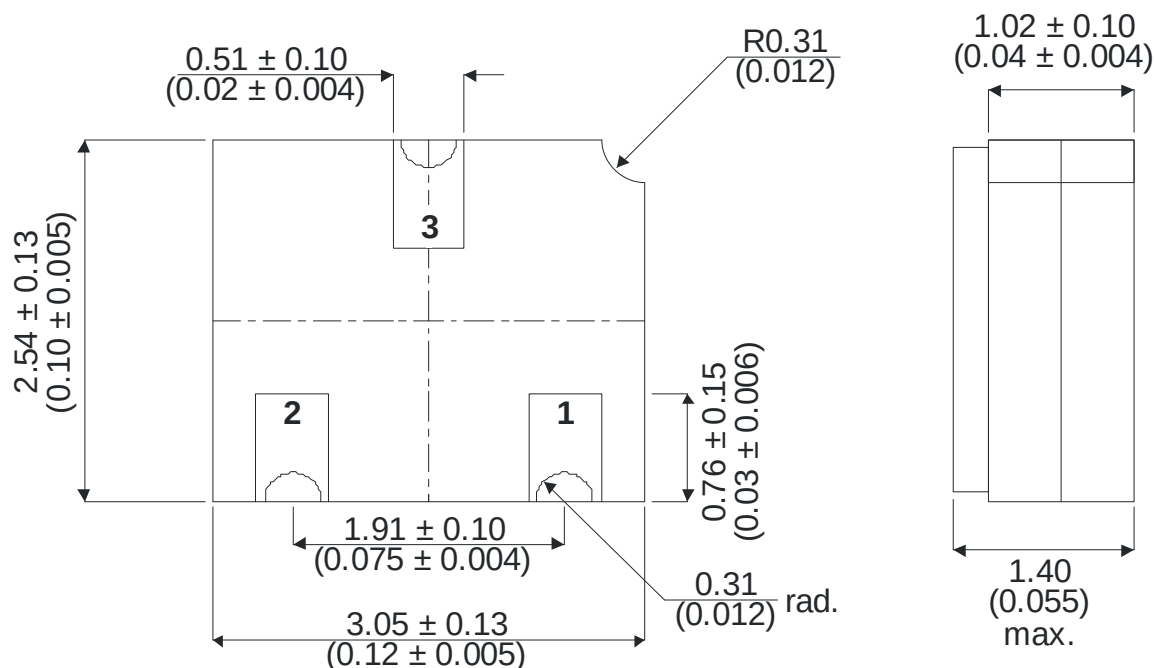
SILICON SWITCHING NPN TRANSISTOR

2N2222ACSM



MECHANICAL DATA

Dimensions in mm (inches)



LCC1

Underside View

Pad 1 - Base

Pad 2 - Emitter

Pad 3 - Collector

Semelab Limited

Coventry Road, Lutterworth, Leicestershire, LE17 4JB

SEMELAB

Telephone: +44 (0) 1455 556565
Fax: +44 (0) 1455 552612

Email: sales@semelab-tt.com

Website: <http://www.semelab-tt.com>

Document Number: 3391
Issue: 5
Page: 3 of 3

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[TT Electronics:](#)

[2N2222ACSM](#)