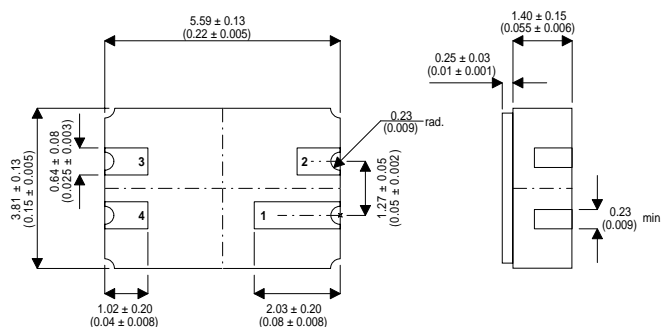


# HIGH VOLTAGE, MEDIUM POWER, NPN TRANSISTOR IN A HERMETICALLY SEALED CERAMIC SURFACE MOUNT PACKAGE FOR HIGH RELIABILITY APPLICATIONS

## MECHANICAL DATA

Dimensions in mm (inches)



## LCC3 PACKAGE Underside View

PAD 1 – Collector      PAD 3 – N/C  
PAD 2 – Emitter      PAD 4 – Base

## FEATURES

- Hermetic Ceramic 4 pin Surface Mount Package - LCC3
- High Voltage Small Signal Type
- Full Screening Options Available
- “R” Denotes Reverse Pinning

## APPLICATIONS:

The 2N3439CSM4 and 2N3440CSM4 are high voltage silicon epitaxial planar transistors mounted in the popular 4 pin ceramic surface mount hermetically sealed package. These products are specifically intended for use in High reliability systems and can be ordered with a full range of screening options from standard Military (equivalent to CECC Full Assessment Level) through all options up to full space flight level.

## ABSOLUTE MAXIMUM RATINGS

		2N3439CSM4	2N3440CSM4
$V_{CBO}$	Collector – Base Voltage ( $I_E = 0$ )	450V	300V
$V_{CEO}$	Collector – Emitter Voltage ( $I_B = 0$ )	350V	250V
$V_{EBO}$	Emitter – Base Voltage ( $I_B = 0$ )	7V	7V
$I_C$	Collector Current.	1A	1A
$I_B$	Base Current.	0.5A	0.5A
$P_{tot}$	Total Power Dissipation at $T_{amb} = 25^\circ\text{C}$ with product mounted on a suitable PCB to provide a heat path.	0.5W	0.5W
$T_{stg}$	Storage Temperature.	$-65$ to $+200^\circ\text{C}$	
$T_j$	Maximum Junction Temperature.	$+200^\circ\text{C}$	

**ELECTRICAL CHARACTERISTICS** ( $T_{\text{case}} = 25^{\circ}\text{C}$  unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_{\text{CEO(sus)}}^*$ Collector – Emitter Sustaining Voltage ( $I_{\text{B}} = 0$ )	$I_{\text{C}} = 50\text{mA}$ 2N3439CSM4R	350			V
	2N3440CSM4R	250			
$I_{\text{CEX}}^*$ Collector Cut-off Current ( $V_{\text{BE}} = -1.5\text{V}$ )	2N3439CSM4R			500	$\mu\text{A}$
	2N3440CSM4R			500	
$I_{\text{CBO}}^*$ Collector – Base Cut-off Current ( $I_{\text{E}} = 0$ )	$V_{\text{CB}} = 360\text{V}$ 2N3439CSM4R			20	$\mu\text{A}$
	$V_{\text{CB}} = 250\text{V}$ 2N3440CSM4R			20	
$I_{\text{CEO}}^*$ Collector – Cut-off Current ( $I_{\text{B}} = 0$ )	$V_{\text{CE}} = 300\text{V}$ 2N3439CSM4R			20	$\mu\text{A}$
	$V_{\text{CE}} = 200\text{V}$ 2N3440CSM4R			50	
$I_{\text{EBO}}^*$ Emitter Cut-off Current ( $I_{\text{C}} = 0$ )	$V_{\text{EB}} = 6\text{V}$			20	$\mu\text{A}$
$V_{\text{CE(sat)}}^*$ Collector – Emitter Saturation Voltage	$I_{\text{C}} = 50\text{mA}$ $I_{\text{B}} = 4\text{mA}$			0.5	V
$V_{\text{BE(sat)}}^*$ Base – Emitter Saturation Voltage	$I_{\text{C}} = 50\text{mA}$ $I_{\text{B}} = 4\text{mA}$			1.3	
$h_{\text{FE}}^*$ DC Current Gain	$I_{\text{C}} = 20\text{mA}$ $V_{\text{CE}} = 10\text{V}$ 2N3439CSM4R only	40			—
	$I_{\text{C}} = 20\text{mA}$ $V_{\text{CE}} = 10\text{V}$	30			

\* Pulse test  $t_{\text{p}} = 300\mu\text{s}$ ,  $\delta \leq 2\%$

**DYNAMIC CHARACTERISTICS** ( $T_{\text{case}} = 25^{\circ}\text{C}$  unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$f_{\text{T}}$ Transition Frequency	$I_{\text{C}} = 10\text{mA}$ $V_{\text{CE}} = 10\text{V}$ $f = 5\text{MHz}$	15			MHz
$C_{\text{ob}}$ Output Capacitance	$V_{\text{CB}} = 10\text{V}$ $f = 10\text{MHz}$			10	pF
$h_{\text{fe}}$ Small Signal Current Gain	$I_{\text{C}} = 5\text{mA}$ $V_{\text{CE}} = 10\text{V}$ $f = 1\text{kHz}$	25			