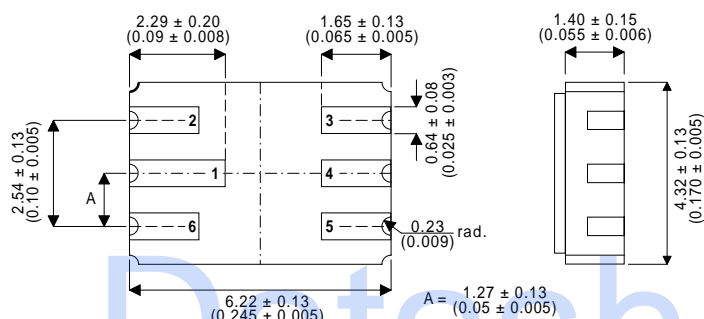


## HIGH VOLTAGE, MEDIUM POWER, NPN DUAL TRANSISTOR IN A HERMETICALLY SEALED CERAMIC SURFACE MOUNT PACKAGE FOR HIGH RELIABILITY APPLICATIONS

**MECHANICAL DATA**  
Dimensions in mm (inches)



**LCC2 PACKAGE**  
Underside View

PAD 1 – Collector 1      PAD 4 – Collector 2  
 PAD 2 – Base 1        PAD 5 – Emitter 2  
 PAD 3 – Base 2        PAD 6 – Emitter 1

**FEATURES**

- DUAL SILICON PLANAR EPITAXIAL NPN TRANSISTOR
- HERMETIC CERAMIC SURFACE MOUNT PACKAGE
- CECC SCREENING OPTIONS
- SPACE QUALITY LEVELS OPTIONS
- HIGH VOLTAGE

**APPLICATIONS:**

Dual Hermetically sealed surface mount version of the popular 2N3700 for high reliability/ space applications requiring small size and low weight devices.

**ABSOLUTE MAXIMUM RATINGS**

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

**2N3700DCSM**

$V_{CBO}$	Collector – Base Voltage	140V
$V_{CEO}$	Collector – Emitter Voltage ( $I_B = 0$ )	80V
$V_{EBO}$	Emitter – Base Voltage ( $I_B = 0$ )	7V
$I_C$	Collector Current	1A
$P_D$	Per Device Dissipation	350mW
$P_D$	Total Device Dissipation	525mW
$P_D$	Derate above $25^{\circ}C$ (Per Device)	2mW / $^{\circ}C$
	(Total)	3mW/ $^{\circ}C$
$R_{ja}$	Thermal Resistance Junction to Ambient	240 $^{\circ}C/W$
$T_{stg}$	Storage Temperature	-65 to 200 $^{\circ}C$

Semelab Plc 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.

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_{CEO}^*$ Collector – Emitter Sustaining Voltage ( $I_B = 0$ )	$I_C = 30mA$	80			V
$I_{CBO}^*$ Collector – Base Cut-off Current ( $I_E = 0$ )	$V_{CB} = 90V$			10	nA
	$V_{CB} = 90V$ $T_{amb} = 150^{\circ}C$			10	$\mu A$
$I_{EBO}^*$ Emitter Cut-off Current ( $I_C = 0$ )	$V_{EB} = 5V$			10	nA
$V_{CE(sat)}^*$ Collector – Emitter Saturation Voltage	$I_C = 150mA$ $I_B = 15mA$			0.2	V
	$I_C = 500mA$ $I_B = 50mA$			0.5	V
$V_{BE(sat)}^*$ Base – Emitter Saturation Voltage	$I_C = 150mA$ $I_B = 15mA$			1.1	V
$h_{FE}^*$ DC Current Gain ( $V_{CE} = 10V$ )	$I_C = 0.1mA$	50			-
	$I_C = 10mA$	90			-
	$I_C = 150mA$	100		300	-
	$I_C = 500mA$	50			-
	$I_C = 1A$	15			-
	$I_C = 150mA$ $T_{amb} = -55^{\circ}C$	40			-
$V_{(BR)CBO}$ Collector-base Breakdown Voltage ( $I_E = 0$ )	$I_C = 100\mu A$	140			V
$V_{(BR)EBO}$ Emitter-base Breakdown Voltage ( $I_C = 0$ )	$I_E = 100\mu A$	7			V

\* Pulse test  $t_p = 300\mu s$ ,  $\delta \leq 1\%$

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$f_T$ Transition Frequency	$I_C = 50mA$ $V_{CE} = 10V$ $f = 20MHz$		100		MHz
$h_{fe}$ Small Signal Current Gain	$I_C = 1mA$ $V_{CE} = 5V$ $f = 1kHz$	80		400	-
$C_{EBO}$ Emitter-base Capacitance	$I_C = 0$ $V_{EB} = 0.5V$ $f = 1MHz$		60		pF
$C_{CBO}$ Collector-base Capacitance	$I_C = 0$ $V_{CB} = 10V$ $f = 1MHz$		12		pF
$r_{bb} \tau_{b'c}$ Feedback time constant	$I_C = 10mA$ $V_{CB} = 10V$ $f = 4MHz$	25		400	ps

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