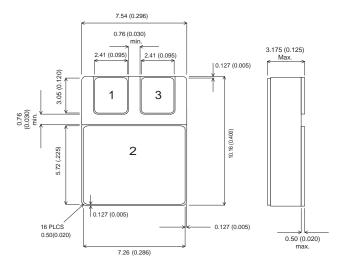


#### **MECHANICAL DATA**

Dimensions in mm (inches)



### PNP BIPOLAR TRANSISTOR IN A **CERAMIC SURFACE MOUNT** PACKAGE FOR HIGH-REL AND SPACE APPLICATIONS

#### DESCRIPTION

The 2N5151XSMD05 is a silicon expitaxial planar PNP transistor in a Ceramic Surface Mount Package for use in Switching and Linear applications.

#### SMD05 (TO-276AA)

**Underside View** 

PAD 1 = Base PAD 2 = Collector PAD = 3 - Emitter

# **ABSOLUTE MAXIMUM RATINGS** $T_{CASE} = 25$ °c unless otherwise stated

$V_{CBO}$	Collector – Base Voltage	-100V
$V_{CEO}$	Collector – Emitter Voltage (I <sub>B</sub> = 0)	-80V
$V_{EBO}$	Emitter – Base Voltage (I <sub>C</sub> = 0)	-5.5V
I <sub>C</sub>	Continuous Collector Current	-5A
I <sub>C(PK)</sub>	Peak Collector Current	-10A
IB	Base Current	-2.5A
$P_{tot}$	Total Dissipation at T <sub>amb</sub> = 25°C	1W
	$T_{case} = 25^{\circ}C$	100W
$T_{stg}$	Operating and Storage Temperature Range	−65 to +200°C
Tj	Junction temperature	200°C

Semelab PIc 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 plc.** Telephone +44(0)1455) 556565. Fax +44(0)1455) 552612.

Document Number 4453 E-mail: sales@semelab.co.uk Website: http://www.semelab.co.uk





# **ELECTRICAL CHARACTERISTICS** (T<sub>case</sub> = 25°C unless otherwise stated)

	Parameter	Test Conditi	ions	Min.	Тур.	Max.	Unit
I <sub>CES</sub>	Collector Cut Off Current	V <sub>CE</sub> = -60V	$V_{BE} = 0$			-1	μΑ
		V <sub>CE</sub> = -100V	$V_{BE} = 0$			-1	mA
I <sub>CEV</sub>	Collector Cut Off Current	V <sub>CE</sub> = -60V	T <sub>case</sub> = 150°C			-500	μA
		$V_{BE} = 2V$				-300	
I <sub>CEO</sub>	Collector Cut Off Current	V <sub>CE</sub> = -40V	I <sub>B</sub> = 0			-50	
I <sub>EBO</sub>	Emitter Cut Off Current	$V_{EB} = -4V$	I <sub>C</sub> = 0			-1	μA
		$V_{EB} = -5.5V$	I <sub>C</sub> = 0			-1	mA
V <sub>CEO(SUS)</sub>	Collector Emitter Saturation Voltage	$I_{C} = -100 \text{mA}$	$I_B = 0$	-80			-
V	Collector Emitter Saturation Voltage	$I_{C} = -2.5A$	$I_B = -250 \text{mA}$			-0.75	
V <sub>CE(sat)</sub>	Concolor Emiliar Salaration Voltage	I <sub>C</sub> = -5A	$I_B = -500 \text{mA}$			-1.5	<sub>V</sub>
Var.	Base Emitter Saturation Voltage	$I_{C} = -2.5A$	$I_B = -250 \text{mA}$			-1.45	V
V <sub>BE(sat)</sub>		I <sub>C</sub> = -5A	$I_B = -500 \text{mA}$			-2.2	
$V_{BE}$	Base Emitter Voltage	I <sub>C</sub> = -2.5A	$V_{CE} = -5V$			-1.45	
	DC Current Gain	$I_C = -50 \text{mA}$	$V_{CE} = -5V$	20			
h <sub>FE</sub>		$I_{C} = -2.5A$	$V_{CE} = -5V$	30		105	
		I <sub>C</sub> = -5A	$V_{CE} = -5v$	20			
		I <sub>C</sub> =2.5A	$V_{CE} = -5V$	15			
		$T_{case} = -55$ °C					
C <sub>CBO</sub>	Collector Base Capacitance	I <sub>E</sub> = 0	V <sub>CB</sub> = -10V			250	pF
		f = 1MHz					
h <sub>FE</sub>	Small Signal Current Gain	IC = -0.1A	VCE = -5V	20			_
		f = 1KHz					
		IC = -0.5A	VCE = -5v	3			
		f = 20MHz					
t <sub>on</sub>	Turn On Time	I <sub>C</sub> = -5A	V <sub>CC</sub> = 30v		0.5		μs
		$I_{B1} = -0.5A$					
t	Turn Off Time	I <sub>C</sub> = -5A	V <sub>CC</sub> = 30V		1.3		μs
t <sub>off</sub>		$I_{B1} = -I_{B2} = 0.5A$					

<sup>\*</sup> Pulse test  $t_p$  = 300 $\mu$ s ,  $\delta$  < 2%

### THERMAL DATA

R <sub>thj-case</sub>	Thermal Resistance Junction-case	Max	1.75	°C/W
R <sub>thj-amb</sub>	Thermal Resistance Junction-ambient	Max	150	°C/W

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.

**Semelab plc.** Telephone +44(0)1455) 556565. Fax +44(0)1455) 552612.

E-mail: sales@semelab.co.uk Website: http://www.semelab.co.uk