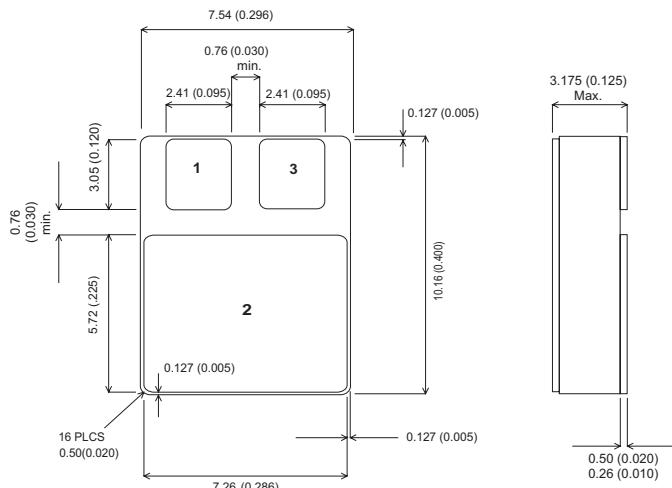


MECHANICAL DATA

Dimensions in mm (inches)



SMD05

Underside View

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

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

DESCRIPTION

The 2N5151SMD05 and the 2N5153SMD05 are silicon epitaxial planar PNP transistors in a Ceramic Surface Mount Package for use in Switching and Linear applications.

The complementary NPN types are the 2N5152SMD05 and 2N5154SMD05 respectively

ABSOLUTE MAXIMUM RATINGS $T_{CASE} = 25^\circ\text{C}$ unless otherwise stated

V_{CBO}	Collector – Base Voltage	-100V
V_{CEO}	Collector – Emitter Voltage ($I_B = 0$)	-80V
V_{EBO}	Emitter – Base Voltage ($I_C = 0$)	-5.5V
I_C	Continuous Collector Current	-5A
$I_{C(PK)}$	Peak Collector Current	-10A
I_B	Base Current	-2.5A
P_{tot}	Total Dissipation at $T_{amb} = 25^\circ\text{C}$ $T_{case} = 25^\circ\text{C}$	1W 100W
T_{stg}	Operating and Storage Temperature Range	-65 to +200°C
T_j	Junction temperature	200°C

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ELECTRICAL CHARACTERISTICS FOR 2N5151SMD05 ($T_{case} = 25^\circ C$ unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CES} Collector Cut Off Current	$V_{CE} = -60V$ $V_{BE} = 0$			-1	μA
	$V_{CE} = -100V$ $V_{BE} = 0$			-1	mA
I_{CEV} Collector Cut Off Current	$V_{CE} = -60V$ $T_{case} = 150^\circ C$			-500	μA
	$V_{BE} = 2V$				
I_{CEO} Collector Cut Off Current	$V_{CE} = -40V$ $I_B = 0$			-50	
I_{EBO} Emitter Cut Off Current	$V_{EB} = -4V$ $I_C = 0$			-1	μA
	$V_{EB} = -5.5V$ $I_C = 0$			-1	mA
$V_{CEO(sus)}$ Collector Emitter Saturation Voltage	$I_C = -100mA$ $I_B = 0$	80			V
$V_{CE(sat)}$ Collector Emitter Saturation Voltage	$I_C = -2.5A$ $I_B = -250mA$			-0.75	
	$I_C = -5A$ $I_B = -500mA$			-1.5	
$V_{BE(sat)}$ Base Emitter Saturation Voltage	$I_C = -2.5A$ $I_B = -250mA$			-1.45	
	$I_C = -5A$ $I_B = -500mA$			-2.2	
V_{BE} Base Emitter Voltage	$I_C = -2.5A$ $V_{CE} = -5V$			-1.45	
h_{FE} DC Current Gain	$I_C = -50mA$ $V_{CE} = -5V$	20			—
	$I_C = -2.5A$ $V_{CE} = -5V$	30		90	
	$I_C = -5A$ $V_{CE} = -5V$ $T_{case} = -55^\circ C$	20			
	$I_C = 2.5A$ $V_{CE} = -5V$	15			
C_{CBO} Collector Base Capacitance	$I_E = 0$ $V_{CB} = -10V$ $f = 1MHz$			250	pF
h_{FE} Small Signal Current Gain	$IC = -0.1A$ $VCE = -5V$ $f = 1KHz$	20			—
	$IC = -0.5A$ $VCE = -5V$ $f = 20MHz$	3			
t_{on} Turn On Time	$I_C = -5A$ $V_{CC} = 30V$ $I_{B1} = -0.5A$		0.5		μs
t_{off} Turn Off Time	$I_C = -5A$ $V_{CC} = 30V$ $I_{B1} = -I_{B2} = 0.5A$		1.3		μs

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

THERMAL DATA

$R_{thj-case}$	Thermal Resistance Junction-case	Max	1.75	$^\circ C/W$
$R_{thj-amb}$	Thermal Resistance Junction-ambient	Max	150	$^\circ C/W$

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ELECTRICAL CHARACTERISTICS FOR 2N5153SMD05 ($T_{case} = 25^\circ C$ unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CES} Collector Cut Off Current	$V_{CE} = -60V$ $V_{BE} = 0$			-1	μA
	$V_{CE} = -100V$ $V_{BE} = 0$			-1	mA
I_{CEV} Collector Cut Off Current	$V_{CE} = -60V$ $T_{case} = 150^\circ C$			-500	μA
	$V_{BE} = 2V$				
I_{CEO} Collector Cut Off Current	$V_{CE} = -40V$ $I_B = 0$			-50	
I_{EBO} Emitter Cut Off Current	$V_{EB} = -4V$ $I_C = 0$			-1	μA
	$V_{EB} = -5.5V$ $I_C = 0$			-1	mA
$V_{CEO(SUS)}$ Collector Emitter Saturation Voltage	$I_C = -100mA$ $I_B = 0$	80			V
$V_{CE(sat)}$ Collector Emitter Saturation Voltage	$I_C = -2.5A$ $I_B = -250mA$			-0.75	
	$I_C = -5A$ $I_B = -500mA$			-1.5	
$V_{BE(sat)}$ Base Emitter Saturation Voltage	$I_C = -2.5A$ $I_B = -250mA$			-1.45	
	$I_C = -5A$ $I_B = -500mA$			-2.2	
V_{BE} Base Emitter Voltage	$I_C = -2.5A$ $V_{CE} = -5V$			-1.45	
h_{FE} DC Current Gain	$I_C = -50mA$ $V_{CE} = -5V$	50			—
	$I_C = -2.5A$ $V_{CE} = -5V$	70		200	
	$I_C = -5A$ $V_{CE} = -5V$ $T_{case} = -55^\circ C$	40			
	$I_C = 2.5A$ $V_{CE} = -5V$	35			
C_{CBO} Collector Base Capacitance	$I_E = 0$ $V_{CB} = -10V$ $f = 1MHz$			250	pF
h_{FE} Small Signal Current Gain	$I_C = -0.1A$ $V_{CE} = -5V$ $f = 1KHz$	20			—
	$I_C = -0.5A$ $V_{CE} = -5V$ $f = 20MHz$	3			
t_{on} Turn On Time	$I_C = -5A$ $V_{CC} = 30V$ $I_{B1} = -0.5A$		0.5		μs
t_{off} Turn Off Time	$I_C = -5A$ $V_{CC} = 30V$ $I_{B1} = -I_{B2} = 0.5A$		1.3		μs

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

THERMAL DATA

$R_{thj-case}$	Thermal Resistance Junction-case	Max	1.75	$^\circ C/W$
$R_{thj-amb}$	Thermal Resistance Junction-ambient	Max	150	$^\circ C/W$

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