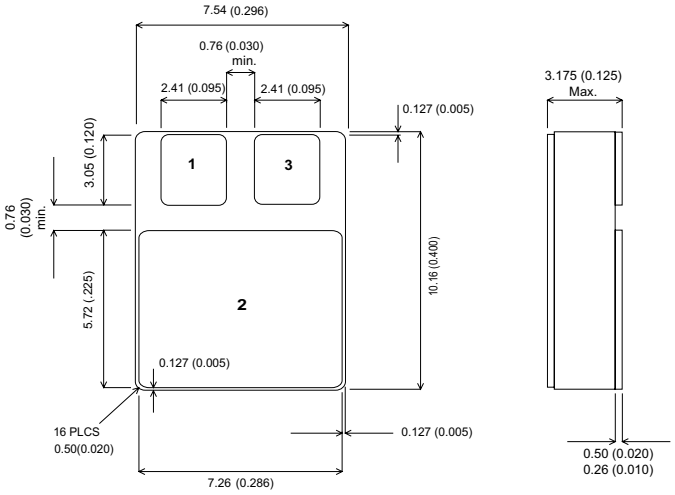
2N5152SMD05
2N5154SMD05

MECHANICAL DATA
Dimensions in mm (inches)



SMD05

Underside View

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

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

DESCRIPTION

The 2N5152SMD05 and the 2N5154SMD05 are silicon expitaxial planar NPN transistors in a Ceramic Surface Mount Package for use in Switching and Linear applications.

The complementary NPN types are the 2N5151SMD05 and 2N5153SMD05 respectively

ABSOLUTE MAXIMUM RATINGS

T_{CASE} = 25°c unless otherwise stated		2N5152SMD05 | 2N5154SMD05
V_{CBO}	Collector – Base Voltage	100V
V_{CEO}	Collector – Emitter Voltage (I_B = 0)	75V
V_{EBO}	Emitter – Base Voltage (I_C = 0)	6V
I_C	Continuous Collector Current	5A
$I_{C(PK)}$	Peak Collector Current	10A
I_B	Base Current	1A
P_{tot}	Total Dissipation at T_{amb} = 25°C	1W
	T_{case} = 50°C	10W
	T_{case} = 100°C	6.7W
T_{stg}	Operating and Storage Temperature Range	–65 to +200°C
T_j	Junction temperature	200°C

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2N5152SMD05
2N5154SMD05

ELECTRICAL CHARACTERISTICS FOR 2N5152SMD05 (T_{case} = 25°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 V_{BE} = -2V	T_{case} = 150°C			500	µA
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} = 6V	I_C = 0			1	mA
$V_{CEO(SUS)}$	Collector Emitter Saturation Voltage	I_C = 100mA	I_B = 0	75			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 T_{case} = -55°C	V_{CE} = 5v	20			
		I_C = 2.5A	V_{CE} = 5V	15			
C_{CBO}	Collector Base Capacitance	I_E = 0 f = 1MHz	V_{CB} = 10V			250	pF
h_{FE}	Small Signal Current Gain	I_C = 0.1A f = 1KHz	V_{CE} = 5V	20			—
		I_C = 0.5A f = 20MHz	V_{CE} = 5v	3			
t_{on}	Turn On Time	I_C = 5A I_{B1} = 0.5A	V_{CC} = 30v		0.5		µs
t_{off}	Turn Off Time	I_C = 5A I_{B1}=-I_{B2} = 0.5A	V_{CC} = 30V		1.3		µs

* Pulse test t_p = 300µs , δ < 2%

THERMAL DATA

$R_{thj\text{-}case}$	Thermal Resistance Junction-case			15	°C/W
$R_{thj\text{-}amb}$	Thermal Resistance Junction-ambient			175	°C/W

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ELECTRICAL CHARACTERISTICS FOR 2N5154SMD05 (T_{case} = 25°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 V_{BE} = -2V	T_{case} = 150°C			500	µA
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} = 6V	I_C = 0			1	mA
$V_{CEO(SUS)}$	Collector Emitter Saturation Voltage	I_C = 100mA	I_B = 0	75			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 T_{case} = -55°C	V_{CE} = 5v	40			
		I_C = 2.5A	V_{CE} = 5V	35			
C_{CBO}	Collector Base Capacitance	I_E = 0 f = 1MHz	V_{CB} = 10V			250	pF
h_{FE}	Small Signal Current Gain	I_C = 0.1A f = 1KHz	V_{CE} = 5V	20			—
		I_C = 0.5A f = 20MHz	V_{CE} = 5v	3			
t_{on}	Turn On Time	I_C = 5A I_{B1} = 0.5A	V_{CC} = 30v		0.5		µs
t_{off}	Turn Off Time	I_C = 5A I_{B1}=-I_{B2} = 0.5A	V_{CC} = 30V		1.3		µs

* Pulse test t_p = 300µs , δ < 2%

THERMAL DATA

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