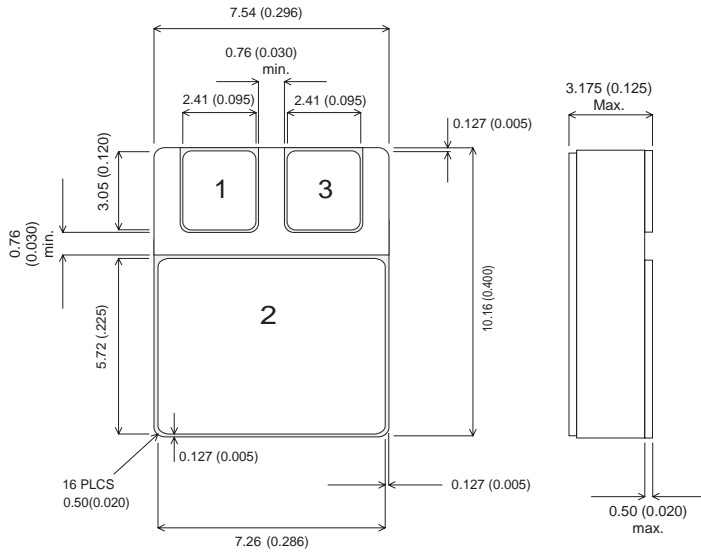


MECHANICAL DATA

Dimensions in mm (inches)



**NPN BIPOLAR TRANSISTOR
IN A CERAMIC SURFACE MOUNT
PACKAGE FOR
HIGH REL APPLICATIONS**

FEATURES

- HIGH VOLTAGE
- FAST SWITCHING
- CERAMIC SURFACE MOUNT PACKAGE
- SCREENING OPTIONS AVAILABLE

SMD05 (TO-276AA)

Underside View

PIN 1 – Base PIN 2 – Collector PIN 3 – Emitter

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

V_{CBO}	Collector– Base Voltage ($I_E = 0$)	100V
V_{CEO}	Collector– Emitter Voltage ($I_B = 0$)	80V
V_{EBO}	Emitter– Base Voltage ($I_B = 0$)	6V
I_B	Base Current	2A
I_C	Collector Current	4A
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150°C
P_D	Total Device Dissipation @ $T_C = 25^{\circ}C$	25W
	Derate above 25°C	5°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.

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS					
$V_{(BR)CEO}$	Collector Emitter Breakdown Voltage ¹	$I_C = 100\text{mA}$ $I_B = 0$	80		V
I_{CEX}	Collector Cutoff Current	$V_{CE} = 100\text{V}$ $V_{BE} = 1.5\text{V}$		100	μA
		$V_{CE} = 70\text{V}$ $V_{BE} = 1.5\text{V}$ $T_A = 150^\circ\text{C}$		1.0	
I_{EBO}	Emitter Base Cutoff Current	$V_{EB} = 6\text{V}$ $I_C = 0$		0.75	mA
I_{CEO}	Collector Emitter Cutoff Current	$V_{CE} = 80\text{V}$ $I_B = 0$		0.7	
I_{CBO}	Collector Base Cutoff Current	$V_{CB} = 100\text{V}$ $I_E = 0$		0.1	
ON CHARACTERISTICS					
h_{FE}	DC Current Gain	$I_C = 50\text{mA}$ $V_{CE} = 5\text{V}$	30		—
		$I_C = 500\text{mA}$ $V_{CE} = 5\text{V}$	40	160	
		$I_C = 1.0\text{A}$ $V_{CE} = 10\text{V}$	20		
$V_{CE(sat)}$	Collector Emitter Saturation Voltage	$I_C = 1.0\text{A}$ $I_B = 0.1\text{A}$		2.5	V
V_{BE}	Base Emitter Voltage	$I_C = 1.0\text{A}$ $V_{CE} = 10\text{V}$		1.5	
TRANSIENT CHARACTERISTICS					
f_T	Transistion Frequency	$V_{CE} = 10\text{V}$ $I_C = 500\text{mA}$ $f = 10\text{MHz}$		10	MHz
C_{OB}	Common Base Output Capacitance	$V_{CB} = 10\text{V}$ $I_C = 0\text{A}$ $f = 100\text{KHz}$		50	pF
h_{fe}	Small Signal Current Gain	$V_{CE} = 10\text{V}$ $I_C = 100\text{mA}$ $f = 1.0\text{kHz}$	40		—

- 1) Pulse test : Pulse Width < 100 μs ,Duty Cycle <1%
- 2) f_t is defined as the frequency at which $|h_{fe}|$ extrapolates to unity.

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