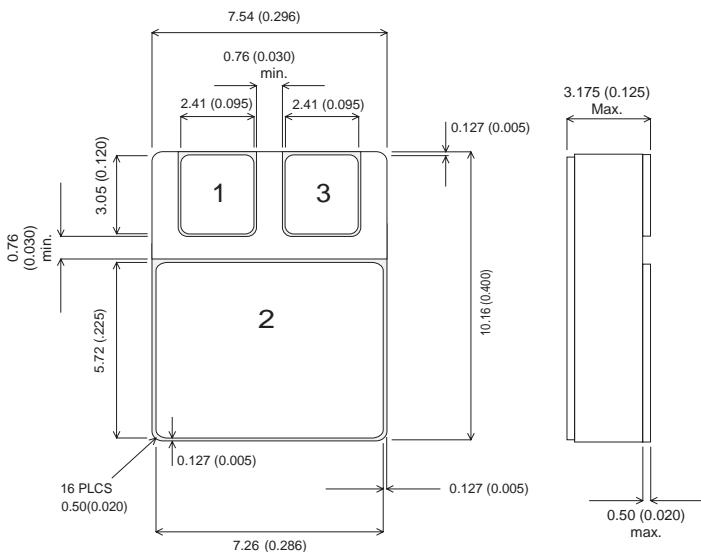


## MECHANICAL DATA

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 ( $T_{case} = 25^\circ\text{C}$ 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 @ $T_C = 25^\circ\text{C}$	25W
	Derate above 25°C	5°C/W

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
<b>OFF CHARACTERISTICS</b>					
$V_{(\text{BR})\text{CEO}}$	$I_C = 100\text{mA}$ $I_B = 0$	80			V
	$V_{\text{CE}} = 100\text{V}$ $V_{\text{BE}} = 1.5\text{V}$			100	$\mu\text{A}$
	$V_{\text{CE}} = 70\text{V}$ $V_{\text{BE}} = 1.5\text{V}$ $T_A = 150^\circ\text{C}$			1.0	mA
$I_{\text{EBO}}$	$V_{\text{EB}} = 6\text{V}$ $I_C = 0$			0.75	
$I_{\text{CEO}}$	$V_{\text{CE}} = 80\text{V}$ $I_B = 0$			0.7	
$I_{\text{CBO}}$	$V_{\text{CB}} = 100\text{V}$ $I_E = 0$			0.1	
<b>ON CHARACTERISTICS</b>					
$h_{\text{FE}}$	$I_C = 50\text{mA}$ $V_{\text{CE}} = 5\text{V}$	30			—
	$I_C = 500\text{mA}$ $V_{\text{CE}} = 5\text{V}$	40		160	
	$I_C = 1.0\text{A}$ $V_{\text{CE}} = 10\text{V}$	20			
$V_{\text{CE}(\text{sat})}$	$I_C = 1.0\text{A}$ $I_B = 0.1\text{A}$			2.5	V
$V_{\text{BE}}$	$I_C = 1.0\text{A}$ $V_{\text{CE}} = 10\text{V}$			1.5	
<b>TRANSIENT CHARACTERISTICS</b>					
$f_T$	$V_{\text{CE}} = 10\text{V}$ $I_C = 500\text{mA}$ $f = 10\text{MHz}$			10	MHz
$C_{\text{OB}}$	$V_{\text{CB}} = 10\text{V}$ $I_C = 0\text{A}$ $f = 100\text{KHz}$			50	pF
$h_{\text{fe}}$	$V_{\text{CE}} = 10\text{V}$ $I_C = 100\text{mA}$ $f = 1.0\text{kHz}$	40			—

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

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