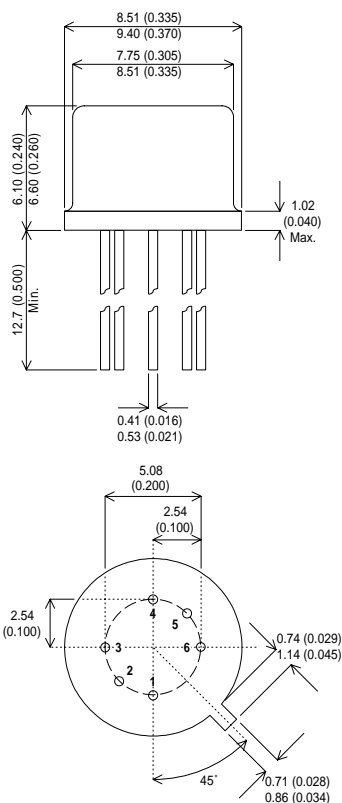


MECHANICAL DATA

Dimensions in mm (inches)



**DUAL NPN TRANSISTOR
IN TO77 HERMETIC PACKAGE**

FEATURES

- Silicon Planar Epitaxial NPN Transistor
- High Rel and Screening Options Available.

TO77 METAL PACKAGE

- PIN 1 – Collector**
- PIN 2 – Base**
- PIN 3 – Emitter**
- PIN 4 – Emitter**
- PIN 5 – Base**
- PIN 6 – Collector**

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

V_{CEO}	Collector – Emitter Voltage	60V	
V_{CER}	Collector – Emitter Voltage	80V	
V_{CBO}	Collector – Base Voltage	100V	
V_{EBO}	Emitter – Base Voltage	7V	
I_C	Collector Current	500mA	
T_J, T_{stg}	Operating and Storage Junction Temperature Range	-65 to +200°C	
		Per Side	Total Device
P_D	Total Device Dissipation @ $T_A = 25^{\circ}C$	0.5W	0.6W
	Derate above 25°C	2.86mW/°C	3.43mW/°C
P_D	Total Device Dissipation @ $T_C = 25^{\circ}C$	1.6W	3.0W
	Derate above 25°C	9.1mW/°C	11.4mW/°C

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS					
$V_{CER(sus)*}$ Collector – Emitter Breakdown Voltage	$I_C = 100\text{mA}$ $R_{BE} \leq 10\Omega$	80			V
$V_{CEO(sus)*}$ Collector – Emitter Sustaining Voltage	$I_C = 30\text{mA}$ $I_B = 0$	60			V
$V_{(BR)CBO}$ Collector – Base Breakdown Voltage	$I_C = 100\mu\text{A}$ $I_E = 0$	100			V
$V_{(BR)EBO}$ Emitter – Base Breakdown Voltage	$I_E = 100\mu\text{A}$ $I_C = 0$	7			V
I_{CBO} Collector Cut-off Current	$V_{CB} = 80\text{V}$ $I_E = 0$			0.01	μA
				15	
I_{EBO} Emitter Cut-off Current	$V_{BE} = 5\text{V}$ $I_C = 0$			10	nA
ON CHARACTERISTICS					
h_{FE} DC Current Gain	$I_C = 10\mu\text{A}$ $V_{CE} = 5\text{V}$	15			—
	$I_C = 100\mu\text{A}$ $V_{CE} = 5\text{V}$	25		150	
	$I_C = 10\text{mA}$ $V_{CE} = 5\text{V}$	50		200	
$V_{CE(sat)}$ Collector – Emitter Saturation Voltage	$I_C = 50\text{mA}$ $I_B = 5\text{mA}$			1.2	V
$V_{BE(sat)}$ Base – Emitter Saturation Voltage	$I_C = 50\text{mA}$ $I_B = 5\text{mA}$			0.9	
SMALL SIGNAL CHARACTERISTICS					
f_T Current Gain Bandwidth Product	$I_C = 50\text{mA}$ $V_{CE} = 10\text{V}$ $f = 20\text{MHz}$	50			MHz
C_{ob} Output Capacitance	$I_E = 0$ $V_{CB} = 10\text{V}$ $f = 1\text{MHz}$			15	pF
C_{ib} Input Capacitance	$I_C = 0$ $V_{BE} = 0.5\text{V}$ $f = 1\text{MHz}$			85	pF
h_{ib} Input Impedance	$I_C = 1\text{mA}$ $V_{CB} = 5\text{V}$ $f = 1\text{kHz}$	20		30	Ω
h_{fe} Small Signal Current Gain	$I_C = 1\text{mA}$ $V_{CE} = 5\text{V}$ $f = 1\text{kHz}$	40		200	—
h_{oe} Output Admittance	$f = 1\text{kHz}$.05	μmhos
MATCHING CHARACTERISTICS					
h_{FE1}/h_{FE2} DC Current Gain Ratio ¹	$I_C = 100\mu\text{A}$ $V_{CE} = 5\text{V}$	0.9		1.0	—
$ V_{BE1} - V_{BE2} $ Base – Emitter Voltage Differential	$I_C = 100\mu\text{A}$ $V_{CE} = 5\text{V}$		5.0		mV
$\frac{\Delta(V_{BE1} - V_{BE2})}{\Delta T}$ Base – Emitter Voltage Differential Change Due To Temperature	$I_C = 100\mu\text{A}$ $V_{CE} = 5\text{V}$ $T_A = -55$ to $+125^\circ\text{C}$			25	$\mu\text{V}/^\circ\text{C}$

* Pulse Test: $t_p \leq 300\mu\text{s}$, $\delta \leq 2\%$.

1) The lowest h_{FE} reading is taken as h_{FE1} for this ratio.