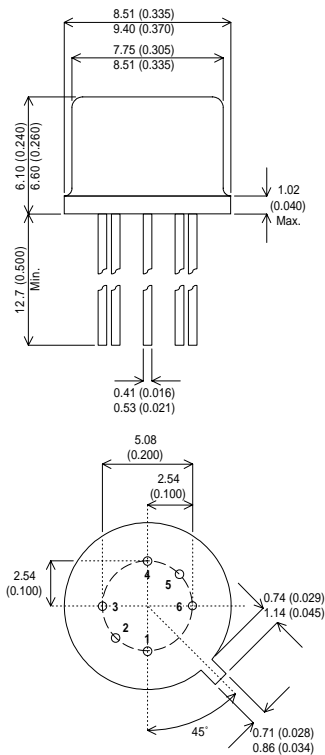


MECHANICAL DATA

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 4 – Emitter**
PIN 2 – Base **PIN 5 – Base**
PIN 3 – Emitter **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					
$V_{\text{CER(sus)}}^*$	Collector – Emitter Breakdown Voltage $I_C = 100\text{mA}$ $R_{\text{BE}} \leq 10\Omega$	80			V
$V_{\text{CEO(sus)}}^*$	Collector – Emitter Sustaining Voltage $I_C = 30\text{mA}$ $I_B = 0$	60			V
$V_{\text{(BR)CBO}}$	Collector – Base Breakdown Voltage $I_C = 100\mu\text{A}$ $I_E = 0$	100			V
$V_{\text{(BR)EBO}}$	Emitter – Base Breakdown Voltage $I_E = 100\mu\text{A}$ $I_C = 0$	7			V
I_{CBO}	Collector Cut-off Current $V_{\text{CB}} = 80\text{V}$ $I_E = 0$ $T_A = 150^\circ\text{C}$			0.01 15	μA
I_{EBO}	Emitter Cut-off Current $V_{\text{BE}} = 5\text{V}$ $I_C = 0$			10	nA
ON CHARACTERISTICS					
h_{FE}	DC Current Gain $I_C = 10\mu\text{A}$ $V_{\text{CE}} = 5\text{V}$ $I_C = 100\mu\text{A}$ $V_{\text{CE}} = 5\text{V}$ $I_C = 10\text{mA}$ $V_{\text{CE}} = 5\text{V}$	15			—
		25		150	
		50		200	
$V_{\text{CE(sat)}}$	Collector – Emitter Saturation Voltage $I_C = 50\text{mA}$ $I_B = 5\text{mA}$			1.2	V
$V_{\text{BE(sat)}}$	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 $I_C = 50\text{mA}$ $V_{\text{CE}} = 10\text{V}$ $f = 20\text{MHz}$	50			MHz
C_{ob}	Output Capacitance $I_E = 0$ $V_{\text{CB}} = 10\text{V}$ $f = 1\text{MHz}$			15	pF
C_{ib}	Input Capacitance $I_C = 0$ $V_{\text{BE}} = 0.5\text{V}$ $f = 1\text{MHz}$			85	pF
h_{ib}	Input Impedance $I_C = 1\text{mA}$ $V_{\text{CB}} = 5\text{V}$ $f = 1\text{kHz}$	20		30	Ω
h_{fe}	Small Signal Current Gain $I_C = 1\text{mA}$ $V_{\text{CE}} = 5\text{V}$	40		200	—
h_{oe}	Output Admittance $f = 1\text{kHz}$.05	μmhos
MATCHING CHARACTERISTICS					
$h_{\text{FE1}}/h_{\text{FE2}}$	DC Current Gain Ratio ¹ $I_C = 100\mu\text{A}$ $V_{\text{CE}} = 5\text{V}$	0.9		1.0	—
$ V_{\text{BE1}} - V_{\text{BE2}} $	Base – Emitter Voltage Differential $I_C = 100\mu\text{A}$ $V_{\text{CE}} = 5\text{V}$		5.0		mV
$\frac{\Delta(V_{\text{BE1}} - V_{\text{BE2}})}{\Delta T}$	Base – Emitter Voltage Differential Change Due To Temperature $T_A = -55$ 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.