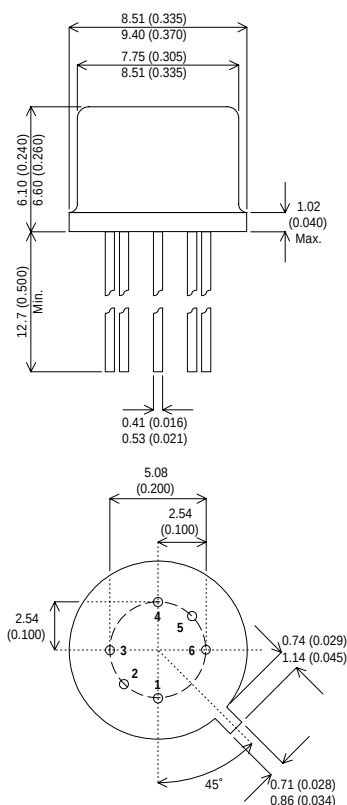


MECHANICAL DATA

Dimensions in mm (inches)



DUAL AMPLIFIER TRANSISTOR

**Small Signal Dual Transistor
in a TO-77 Hermetic Package.**

TO-77 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 @ $T_C = 25^{\circ}C$	1.5W	3.0W
	Derate above 25°C	8.61mW/°C	17.2mW/°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 = 100mA	R _{BE} ≤ 10Ω	80			V
V _{CEO(sus)*}	Collector – Emitter Sustaining Voltage	I _C = 30mA	I _B = 0	60			V
V _{(BR)CBO}	Collector – Base Breakdown Voltage	I _C = 100μA	I _E = 0	100			V
V _{(BR)EBO}	Emitter – Base Breakdown Voltage	I _E = 100μA	I _C = 0	7			V
I _{CBO}	Collector Cut-off Current	V _{CB} = 80V				0.002	μA
		I _E = 0	T _A = 150°C			10	
I _{EBO}	Emitter Cut-off Current	V _{BE} = 5V	I _C = 0			2.0	nA
ON CHARACTERISTICS							
h _{FE}	DC Current Gain	I _C = 10μA	V _{CE} = 5V	25		75	—
		I _C = 100μA	V _{CE} = 5V	30		90	
		I _C = 1mA	V _{CE} = 5V	40		120	
		I _C = 10mA	V _{CE} = 5V	50		150	
V _{CE(sat)}	Collector – Emitter Saturation Voltage	I _C = 50mA	I _B = 5mA			0.6	V
V _{BE(sat)}	Base – Emitter Saturation Voltage	I _C = 50mA	I _B = 5mA			0.9	
SMALL SIGNAL CHARACTERISTICS							
f _T	Current Gain Bandwidth Product	I _C = 50mA f = 20MHz	V _{CE} = 10V	60			MHz
C _{ob}	Output Capacitance	I _E = 0 f = 1MHz	V _{CB} = 10V			15	pF
C _{ib}	Input Capacitance	I _C = 0 f = 1MHz	V _{BE} = 0.5V			85	pF
h _{ie}	Input Impedance	I _C = 1mA f = 1kHz	V _{CE} = 5V	1000		4000	Ω
h _{ib}	Input Impedance	I _C = 1mA f = 1kHz	V _{CB} = 10V	20		30	Ω
h _{fe}	Small Signal Current Gain	I _C = 1mA	V _{CE} = 5V	50		150	—
h _{oe}	Output Admittance	f = 1kHz				16	μmhos
MATCHING CHARACTERISTICS							
h _{FE1} /h _{FE2}	DC Current Gain Ratio ¹	I _C = 100μA	V _{CE} = 5V	0.9		1.0	—
		I _C = 1mA	V _{CE} = 5V	0.9		1.0	
V _{BE1} -V _{BE2}	Base – Emitter Voltage Differential	I _C = 100μA	V _{CE} = 5V			3.0	mV
		I _C = 1mA	V _{CE} = 5V			5.0	
$\frac{\Delta(V_{BE1}-V_{BE2})}{\Delta T}$	Base – Emitter Voltage Differential Change Due To Temperature	I _C = 100μA	V _{CE} = 5V T _A = –55 to +125°C			5.0	μV/°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.