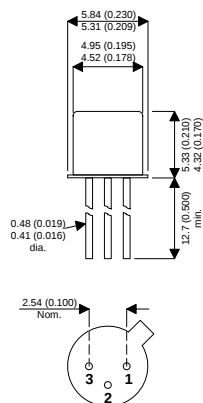


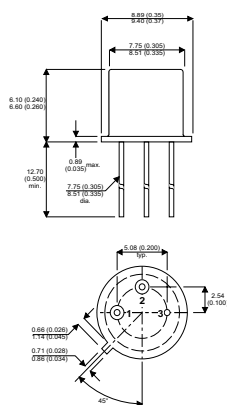
MECHANICAL DATA

Dimensions in mm (inches)



TO18 METAL PACKAGE

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



TO5 METAL PACKAGE

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

PNP SILICON PLANAR EPITAXIAL TRANSISTORS

FEATURES

- SILICON PLANAR EPITAXIAL PNP TRANSISTOR

APPLICATIONS:

These PNP silicon planar epitaxial transistors are designed for digital and analog applications at current levels up to 0.5 amps.

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

Maximum Voltages

V_{CBO}	Collector – Base Voltage
V_{CEO}	Collector – Emitter Voltage
V_{EBO}	Emitter – Base Voltage

Maximum Power Dissipation

P_D	Total Dissipation @ 25°C Case Temperature
P_D	Total Dissipation @ 25°C Free Air Temperature

T_J	Storage Temperature
	Operating Junction Temperature

2N3503	2N3502
2N3505	2N3504
- 60V	-45V
-60V	-45V
-5V	-5V
2N3502	2N3504
2N3503	2N3505
3 W	1.3 W
0.7 W	0.4 W

-65°C to +200°C
200°C

ELECTRICAL CHARACTERISTICS (25°C free air temperature unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
BV_{CBO} Collector to Base Breakdown Voltage	$I_C = 10\mu A$ $I_E = 0$ 2N3503 / 2N3505	-60			V
	2N3502 / 2N3504	-45			
BV_{EBO} Emmitter to Base Breakdown Voltage	$I_E = 10\mu A$ $I_C = 0$	-5			V
V_{CEO} Collector-Emitter Sustaining Voltage	$I_C = 10mA$ $I_B = 0$ 2N3503 / 2N3505	-60			V
	2N3502 / 2N3504	-45			
I_{CES} Collector Cutoff Current	$V_{CE} = -50V$ $V_{BE} = 0$ 2N3503 / 2N3505		0.07	10	nA
	$V_{CE} = -30V$ $V_{BE} = 0$ 2N3502 / 2N3504		0.05	10	
$I_{CBO}^{(150)}$ Collector Reverse Current	$I_E = 0$ $V_{CB} = -50V$ 2N3503 / 2N3505			10	μA
	$t = 150^\circ C$ $V_{CB} = -30V$ 2N3502 / 2N3504			10	
h_{FE} DC Current Gain	$I_C = 10mA$ $V_{CE} = -10V$	140	270		—
	$I_C = 50mA$ $V_{CE} = -1.0V$	115	160	300	
	$I_C = 1.0mA$ $V_{CE} = -10 V$	135	200		
	$I_C = 150mA$ $V_{CE} = -10V$	100	150	300	
	$I_C = 10\mu A$ $V_{CE} = -10V$	80	120		
	$I_C = 500mA$ $V_{CE} = -10 V$ $t = -55^\circ C$	50	70		
	$I_C = 50mA$ $V_{CE} = -1.0V$	50	100		
$V_{CE(sat)}$ Collector Saturation Voltage	$I_C = 50mA$ $I_B = 2.5mA$		-0.08	-0.25	V
	$I_C = 150mA$ $I_B = 15mA$		-0.18	-0.4	
	$I_C = 500mA$ $I_B = 50mA$		-0.5	-1.6	
$V_{BE(sat)}$ Base Saturation Voltage	$I_C = 50mA$ $I_B = 2.5mA$		-0.9	-1.0	V
	$I_C = 150mA$ $I_B = 15mA$		-1.0	-1.3	
	$I_C = 500mA$ $I_B = 50mA$			-2.0	
F_T Transition Frequency	$I_C = 50mA$ $V_{CE} = -20V$ $f = 100MHz$	2	2.50		—
C_{ob} Output Capacitance	$V_{CB} = -10V$ $I_E = 0$		4.5	8.0	pf
t_{on} Turn On Time	$I_C = 300mA$ $I_{B1} = 30mA$ $I_{B2} = -30mA$		30	40	ns
t_{off} Turn Off Time			65	100	