

Silicon Transistors

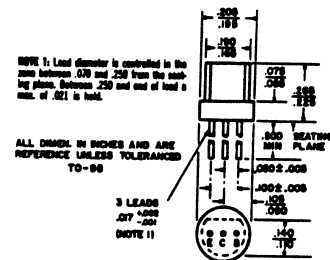
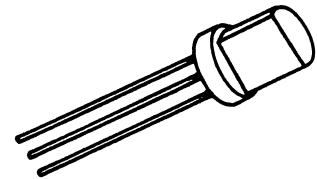


This series of transistors are NPN silicon, planar, epitaxial, passivated devices. These units feature low collector saturation voltage, good current gain near unity over a wide collector current range, high gain-bandwidth product, and low noise. These characteristics make these units excellent for use in general purpose consumer and industrial amplifier and switching applications.

absolute maximum ratings: (25°C) (unless otherwise specified)

voltages			
Collector to Emitter	V_{CE0}	25	Volts
Emitter to Base	V_{EB0}	4	Volts
Collector to Base	V_{CB0}	25	Volts
Current			
Collector (Continuous)	I_C	500	mA
Dissipation			
Total Power (Free Air at 25°C) *	P_T	400	mW
Temperature			
Storage	T_{stg}	-65 to +150	°C
Operating	T_j	+125	°C
Lead temperature, $\frac{1}{16}$ " $\pm$ $\frac{1}{32}$ " from case for ten seconds maximum	T_L	+260	°C

* Rate 4.0 mW/°C increase in ambient temperature above 25°C.



Electrical characteristics: (25°C) (unless otherwise specified)

STATIC CHARACTERISTICS

			Min.	Max.
Collector Cutoff Current				
$V_{CE} = 25V$		I_{CBO}		100 nA
$V_{CE} = 25V, T_A = 100^\circ C$		I_{CBO}		10 μA
$V_{CE} = 25V$		I_{CES}		100 nA
Emitter Cutoff Current				
$V_{EB} = 5V$		I_{EBO}		10 μA
Forward Current Transfer Ratio				
$V_{CE} = 10V, I_C = 2 mA$	2N5418	h_{FE}	25	
$V_{CE} = 1V, I_C = 50 mA$	2N5418	h_{FE}	40	120
$V_{CE} = 5V, I_C = 300 mA$	2N5418	h_{FE}	20	
$V_{CE} = 10V, I_C = 2 mA$	2N5419	h_{FE}	70	
$V_{CE} = 1V, I_C = 50 mA$	2N5419	h_{FE}	100	300
$V_{CE} = 5V, I_C = 300 mA$	2N5419	h_{FE}	40	
$V_{CE} = 10V, I_C = 2 mA$	2N5420	h_{FE}	150	
$V_{CE} = 1V, I_C = 50 mA$	2N5420	h_{FE}	250	500
$V_{CE} = 5V, I_C = 300 mA$	2N5420	h_{FE}	75	
Collector Emitter Breakdown Voltage				
$I_C = 10 mA$		$V_{(BR) CBO}$	25	Volts
Collector Saturation Voltage				
$I_C = 50 mA, I_B = 2.5 mA$		$V_{CE(SAT)}$	.250	Volts
$I_C = 100 mA, I_B = 30 mA$		$V_{CE(SAT)}$	1.0	Volts
Base Saturation Voltage				
$I_C = 50 mA, I_B = 2.5 mA$		$V_{BE(SAT)}$	1.1	Volts
$I_C = 100 mA, I_B = 30 mA$		$V_{BE(SAT)}$	2.0	Volts

2N5418,19,20

Base Emitter Voltage

($V_{CE} = 10V$, $I_C = 2\text{ mA}$)

V_{BE}

Min.

Typ.

Max.

0.5

0.8

Volts

DYNAMIC CHARACTERISTICS

Forward Current Transfer Ratio

($V_{CE} = 10V$, $I_C = 2\text{ mA}$, $f = 1\text{ kHz}$)

2N5418

h_{fe}

25

150

($V_{CE} = 10V$, $I_C = 2\text{ mA}$, $f = 1\text{ kHz}$)

2N5419

h_{fe}

70

400

($V_{CE} = 10V$, $I_C = 2\text{ mA}$, $f = 1\text{ kHz}$)

2N5420

h_{fe}

150

650

Output Capacitance, Common Base

($V_{CB} = 10V$, $I_E = 0$, $f = 1\text{ MHz}$)

C_{cb}

4

6

pF

Input Capacitance, Common Base

($V_{EB} = 0.5V$, $I_C = 0$, $f = 1\text{ MHz}$)

C_{cb}

35

pF

Gain Bandwidth Product

($V_{CE} = 10V$, $I_C = 2\text{ mA}$)

f_T

250

MHz