

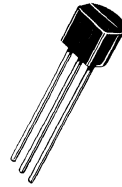
# 2N5225 (SILICON)

## NPN SILICON ANNULAR TRANSISTOR

... designed for general purpose amplifier applications and for complementary circuitry with types 2N5226.

- Collector-Emitter Breakdown Voltage –  $BV_{CEO} = 25$  Volts (Min)
- Current Gain Specified at 10 mA and 50 mA
- Collector-Base Capacitance –  $C_{cb} = 20$  pF (Max)

## NPN SILICON AMPLIFIER TRANSISTOR



### \*MAXIMUM RATINGS

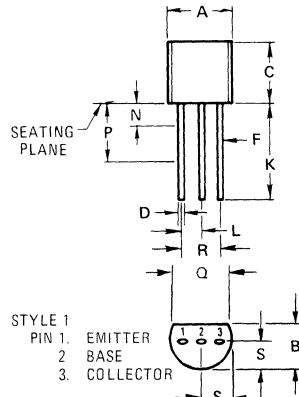
Rating	Symbol	Value	Unit
Collector-Emitter Voltage	$V_{CEO}$	25	Vdc
Collector-Base Voltage	$V_{CB}$	25	Vdc
Emitter-Base Voltage	$V_{EB}$	4.0	Vdc
Collector Current – Continuous	$I_C$	200	mA <sub>dc</sub>
Total Power Dissipation @ $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	350 2.8	mW mW/ $^\circ\text{C}$
Total Power Dissipation @ $T_C = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	1.0 8.0	Watt mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	$T_J, T_{stg}$	-55 to +150	$^\circ\text{C}$

### \*THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$ (1)	357	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	125	$^\circ\text{C}/\text{W}$

\*Indicates JEDEC Registered Data.

(1)  $R_{\theta JA}$  is measured with the device soldered into a typical printed circuit board.



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.450	5.200	0.175	0.205
B	3.180	4.190	0.125	0.165
C	4.320	5.330	0.170	0.210
D	0.407	0.533	0.016	0.021
F	0.407	0.482	0.016	0.019
K	12.700	–	0.500	–
L	1.150	1.390	0.045	0.055
N	–	1.270	–	0.050
P	6.350	–	0.250	–
Q	3.430	–	0.135	–
R	2.410	2.670	0.095	0.105
S	2.030	2.670	0.080	0.105

CASE 29-02  
TO-92

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

Characteristic	Symbol	Min	Max	Unit
<b>OFF CHARACTERISTICS</b>				
Collector-Emitter Breakdown Voltage (1) ( $I_C = 10 \text{ mA}$ , $I_B = 0$ )	$V_{CEO}$	25	-	Vdc
Collector-Base Breakdown Voltage ( $I_C = 100 \mu\text{A}$ , $I_E = 0$ )	$V_{CBO}$	25	-	Vdc
Emitter-Base Breakdown Voltage ( $I_E = 100 \mu\text{A}$ , $I_C = 0$ )	$V_{EBO}$	4.0	-	Vdc
Collector Cutoff Current ( $V_{CB} = 15 \text{ Vdc}$ , $I_E = 0$ )	$I_{CBO}$	-	300	nA
Emitter Cutoff Current ( $V_{BE} = 4.0 \text{ Vdc}$ , $I_C = 0$ )	$I_{EBO}$	-	500	nA
<b>ON CHARACTERISTICS (1)</b>				
DC Current Gain ( $I_C = 10 \text{ mA}$ , $V_{CE} = 10 \text{ Vdc}$ ) ( $I_C = 50 \text{ mA}$ , $V_{CE} = 10 \text{ Vdc}$ )	$h_{FE}$	25 30	- 600	-
Collector-Emitter Saturation Voltage ( $I_C = 100 \text{ mA}$ , $I_B = 10 \text{ mA}$ )	$V_{CE(sat)}$	-	0.8	Vdc
Base-Emitter Saturation Voltage ( $I_C = 100 \text{ mA}$ , $I_B = 10 \text{ mA}$ )	$V_{BE(sat)}$	-	1.0	Vdc
<b>DYNAMIC CHARACTERISTICS</b>				
Current-Gain-Bandwidth Product ( $I_C = 20 \text{ mA}$ , $V_{CE} = 10 \text{ Vdc}$ , $f = 20 \text{ MHz}$ )	$f_T$	50	-	MHz
Collector-Base Capacitance ( $V_{CB} = 5.0 \text{ Vdc}$ , $I_E = 0$ , $f = 1.0 \text{ MHz}$ )	$C_{cb}$	-	20	pF
Small-Signal Current Gain ( $I_C = 50 \text{ mA}$ , $V_{CE} = 10 \text{ Vdc}$ , $f = 1.0 \text{ kHz}$ )	$h_{fe}$	30	1800	-

\*Indicates JEDEC Registered Data

(1) Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle = 2.0%.