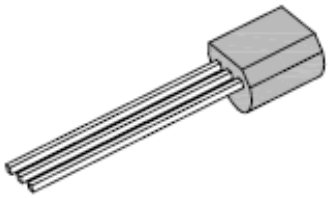
Small Signal Low Noise Transistors (PNP)

Features



- PNP silicon epitaxial transistor for switching and amplifier applications
- This device is designed for low level, high gain, low noise general purpose applications at collector currents to 50mA
- RoHS compliance

TO-92

RoHS Compliant

Mechanical Data

Case:	TO-92, Plastic Package
Terminals:	Solderable per MIL-STD-202G, Method 208
Weight:	0.18 gram

Absolute Maximum Ratings * *($T_{Ambient}$=25ºC unless noted otherwise)*

Symbol	Description	2N5086	2N5087	Unit
V_{CEO}	Collector-Emitter Voltage	50		V
V_{CBO}	Collector-Base Voltage	50		V
V_{EBO}	Emitter-Base Voltage	3.0		V
I_C	Collector Current Continuous	100		mA
T_J ,T_{STG}	Operation and Storage Junction Temperature Range	-55 to +150		° C

* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

Notes

1. These ratings are based on a maximum junction temperature of 150 degrees C.

2. These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

3. All voltages (V) and currents (A) are negative polarity for PNP transistors.

Thermal Characteristics *($T_{Ambient}$=25ºC unless noted otherwise)*

Symbol	Description	2N5086	2N5087	Unit
P_D	Power Dissipation at T_A=25°C	625		mW
	Derate above 25°C	5.0		mW/° C
P_D	Power Dissipation at T_C=25°C	1.5		W
	Derate above 25°C	12		mW/° C
$R_{\theta JA}$	Thermal Resistance Junction to Ambient Air	200		° C/W
$R_{\theta JC}$	Thermal Resistance Junction to Case	83.3		° C/W

Electrical Characteristics *($T_{Ambient}$=25ºC unless noted otherwise)*

Off Characteristics

Symbol	Description	Min.	Max.	Unit	Conditions
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	50	-	V	I_C=100µA, I_E=0
$V_{(BR)CEO}$*	Collector-Emitter Breakdown Voltage	50	-	V	I_C=1mA, I_B=0
I_{CBO}	Collector Cut–Off Current	-	10	nA	V_{CB}=10V, I_E=0
		-	50		V_{CB}=35V, I_E=0
I_{EBO}	Emitter Cut–Off Current	-	50	nA	V_{EB}=3V, I_C=0

On Characteristics

Symbol	Description		Min.	Max.	Unit	Conditions
h_{FE}	D.C. Current Gain	2N5086	150	500		V_{CE}=5V, I_C=100μA
		2N5087	250	800		
		2N5086	150	-		V_{CE}=5V, I_C=1mA
		2N5087	250	-		
		2N5086	150	-		*V_{CE}=5V, I_C=10mA
		2N5087	250	-		
$V_{CE(sat)}$	Collector Emitter Saturation Voltage		-	0.3	V	I_C=10mA, I_B=1mA
$V_{BE(on)}$	Base Emitter Saturation Voltage		-	0.85	V	I_C=1mA, V_{CE}=5V

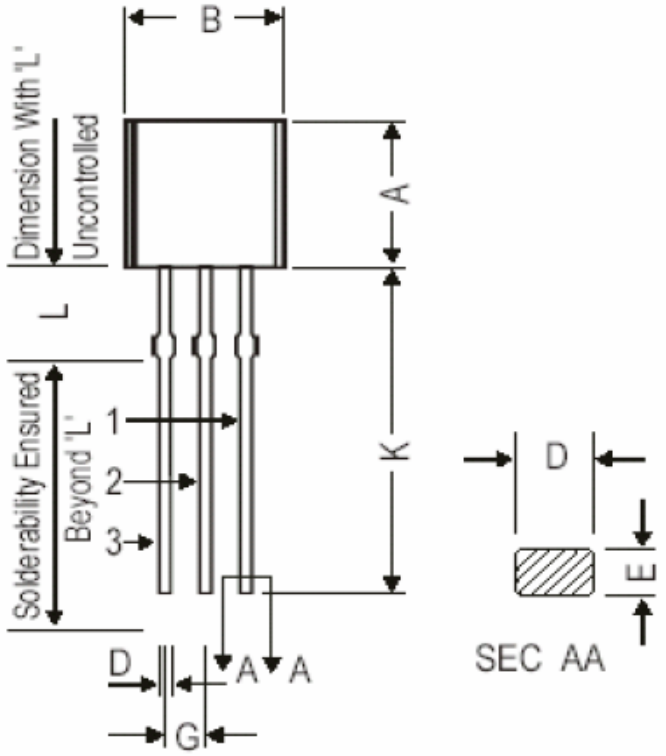
Small signal Characteristics

Symbol	Description		Min.	Max.	Unit	Conditions
f_T	Current Gain-Bandwidth Product		40	-	MHz	V_{CE}=5V, I_C=500μA, f=20MHz
C_{cb}	Collector-Base Capacitance		-	4.0	pF	V_{CB}=5V, I_E=0, f=1KHz
h_{fe}	Small Signal Current Gain	2N5086	150	600		V_{CE}=5V, I_C=1mA f=1KHz
		2N5087	250	900		
NF	Noise Figure	2N5086	-	3	dB	V_{CE}=5V, I_C=20μA, Rs=10KΩ, f=10Hz to 15.7KHz
		2N5087	-	2		
		2N5086	-	3		V_{CE}=5V, I_C=100μA, Rs=3KΩ, f=1KHz
		2N5087	-	2		

*Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%

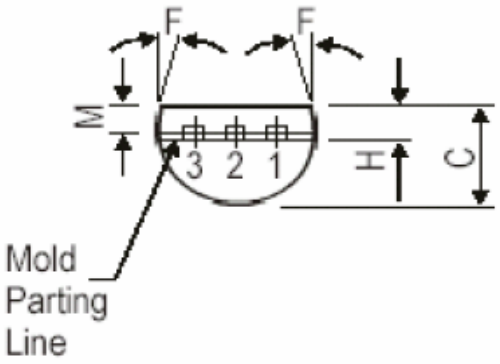
Dimensions in mm

TO-92

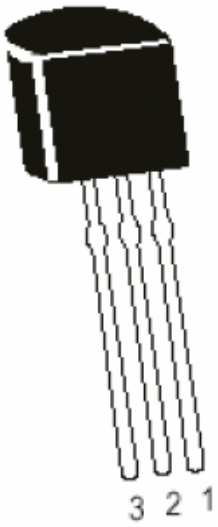


DIM	MIN.	MAX.
A	4.32	5.33
B	4.45	5.20
C	3.18	4.19
D	0.41	0.55
E	0.35	0.55
F	5 DEG	
G	1.14	1.40
H	1.20	1.80
K	12.50	—
L	1.982	2.082
M	1.03	1.53

All dimensions are in mm



PIN CONFIGURATION
1. COLLECTOR
2. BASE
3. EMITTER



How to contact us:

US HEADQUARTERS

28040 WEST HARRISON PARKWAY, VALENCIA, CA 91355-4162
Tel: (800) TAITRON (800) 824-8766 (661) 257-6060
Fax: (800) TAITFAX (800) 824-8329 (661) 257-6415
Email: taitron@taitroncomponents.com
Http://www.taitroncomponents.com

TAITRON COMPONENTS MEXICO, S.A .DE C.V.

BOULEVARD CENTRAL 5000 INTERIOR 5 PARQUE INDUSTRIAL ATITALAQUIA, HIDALGO C.P. 42970 MEXICO
Tel: +52-55-5560-1519
Fax: +52-55-5560-2190

TAITRON COMPONENTS INCORPORATED REPRESENTAÇÕES DO BRASIL LTDA

RUA DOMINGOS DE MORAIS, 2777, 2.ANDAR, SALA 24 SAÚDE - SÃO PAULO-SP 04035-001 BRAZIL
Tel: +55-11-5574-7949
Fax: +55-11-5572-0052

TAITRON COMPONENTS INCORPORATED, SHANGHAI REPRESENTATIVE OFFICE

METROBANK PLAZA, 1160 WEST YAN' AN ROAD, SUITE 1503, SHANGHAI, 200052, CHINA
Tel: +86-21-5424-9942
Fax: +86-21-5424-9931