

# Unijunction Transistor



## Description:

A PN unijunction transistor in a TO-92 type package designed for use in pulse and timing circuits, sensing circuits and thyristor trigger circuits



## Absolute maximum Ratings :

(Ta = +25°C unless otherwise specified)

Power Dissipation, P <sub>D</sub>	: 300mW
Derate Above 25°C	: 3.0mW/°C
RMS Emitter Current, I <sub>E(RMS)</sub>	: 50mA
Peak Pulse Emitter Current (Note 1) Current, i <sub>E</sub>	: 1.5A
Emitter Reverse Voltage, V <sub>B2E</sub>	: 30V
Interbase Voltage, V <sub>B2B1</sub>	: 35V
Operating Junction Temperature Range, T <sub>J</sub>	: -65°C to +125°C
Storage Temperature Range, T <sub>stg</sub>	: -65°C to +150°C

## Electrical Characteristics: (TA = +25°C Unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Intrinsic Standoff Ratio		V <sub>B2B1</sub> = 10V, Note3	0.56	-	0.75	-
Interbase Resistance	r <sub>BB</sub>		4	6	9.1	kΩ
Interbase Resistance Temperature Coefficient			0.1	-	0.9	%/°C
Emitter Saturation Voltage	V <sub>EB1(sat)</sub>	V <sub>B2B1</sub> = 10V, I <sub>E</sub> = 50mA, Note 4	-	2.5	-	V
Modulated interbase Current	I <sub>B2(mod)</sub>	V <sub>B2B1</sub> = 10V, I <sub>E</sub> = 50mA	-	15	-	mA
Emitter Reverse Current	I <sub>EB20</sub>	V <sub>B2E</sub> = 30V, I <sub>B1</sub> = 0	-	0.005	1	μA
Peak Point Emitter Current	I <sub>P</sub>	V <sub>B2B1</sub> = 25V	-	1	5	μA
Valley Point Current	I <sub>V</sub>	V <sub>B2B1</sub> = 20V, R <sub>B2</sub> = 100Ω, Note 4	2	5	-	mA
Base-One Peak Pulse Voltage	V <sub>OB1</sub>		3	6	-	V

## Notes:

1. Duty Cycle <= 1% PRR = 10PPS.
2. Based upon power dissipation at Ta = +25°C
3. Intrinsic standoff ratio is essentially constant with temperature and interbase voltage and is defined by the equation:

$$V_p - V_{bb} + V_d$$

Where: V<sub>p</sub> = Peak Point Emitter Voltage; V<sub>bb</sub> = interbase Voltage;

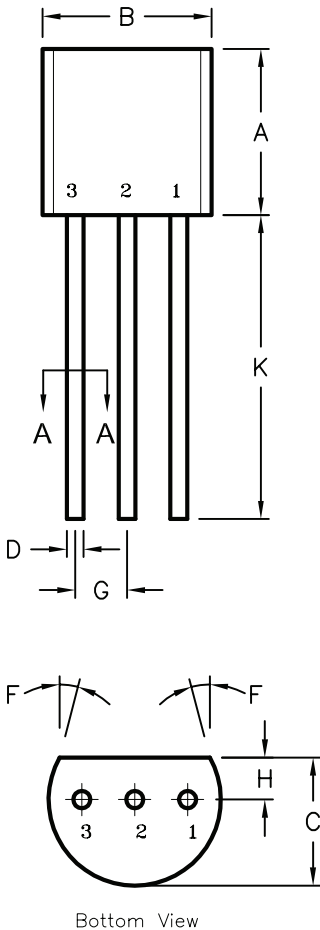
V<sub>d</sub> = Junction Diode Drop (~0.5V).

5. Use Pulse techniques: Pulse width ~ 300μS, Duty Cycle <= 2% to avoid internal heating due to interbase modulation which may result in erroneous readings

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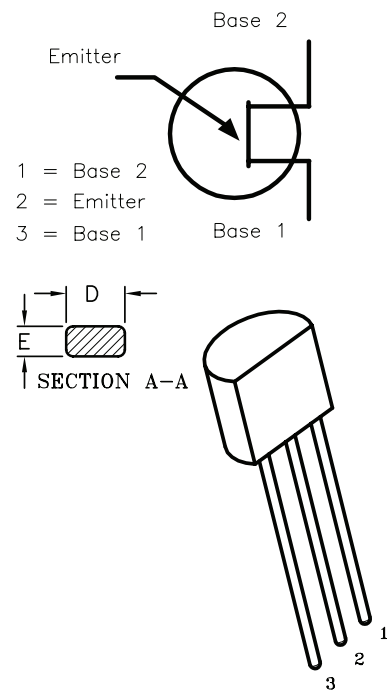


TO-92



Dim	Min	Max
A	4.3	5.33
B	4.45	5.2
C	3.18	4.19
D	0.41	0.55
E	0.35	0.5
F	5°	
G	1.14	1.4
H	1.14	1.53
K	12.7	-

Dimensions : Millimetres



## Part Number Table

Description	Part Number
Unijunction Transistor, TO-92, PN	2N4870

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