



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:

($T_A = +25^\circ\text{C}$ unless otherwise specified)

Power Dissipation, P_D	: 300mW
Derate Above 25°C	: $3.0\text{mW}/^\circ\text{C}$
RMS Emitter Current, $I_{E(RMS)}$: 50mA
Peak Pulse Emitter Current (Note 1) Current, i_E	: 1.5A
Emitter Reverse Voltage, V_{B_2E}	: 30V
Interbase Voltage, $V_{B_2B_1}$: 35V
Operating Junction Temperature Range, T_J	: -65°C to $+125^\circ\text{C}$
Storage Temperature Range, T_{stg}	: -65°C to $+150^\circ\text{C}$

Electrical Characteristics: ($T_A = +25^\circ\text{C}$ Unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Intrinsic Standoff Ratio		$V_{B_2B_1} = 10\text{V}$, Note3	0.70	-	0.85	-
Interbase Resistance	r_{BB}		4.0	6.0	9.1	k Ω
Interbase Resistance Temperature Coefficient			0.1	-	0.9	%/ $^\circ\text{C}$
Emitter Saturation Voltage	$V_{EB_1(sat)}$	$V_{B_2B_1} = 10\text{V}$, $I_E = 50\text{mA}$, Note 4	-	2.5	-	V
Modulated interbase Current	$I_{B_2(mod)}$	$V_{B_2B_1} = 10\text{V}$, $I_E = 50\text{mA}$	-	15	-	mA
Emitter Reverse Current	I_{EB_2}	$V_{B_2E} = 30\text{V}$, $I_{B_1} = 0$	-	0.005	1	μA
Peak Point Emitter Current	I_P	$V_{B_2B_1} = 25\text{V}$	-	1	5	μA
Valley Point Current	I_V	$V_{B_2B_1} = 20\text{V}$, $R_{B_2} = 100\Omega$, Note 4	4	7	-	mA
Base-One Peak Pulse Voltage	V_{OB_1}		5	8	-	V

Notes:

- Duty Cycle $\leq 1\%$ PRR = 10PPS.
- Based upon power dissipation at $T_A = +25^\circ\text{C}$
- Intrinsic standoff ratio is essentially constant with temperature and interbase voltage and is defined by the equation:

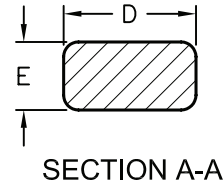
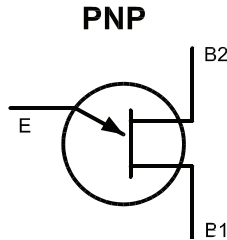
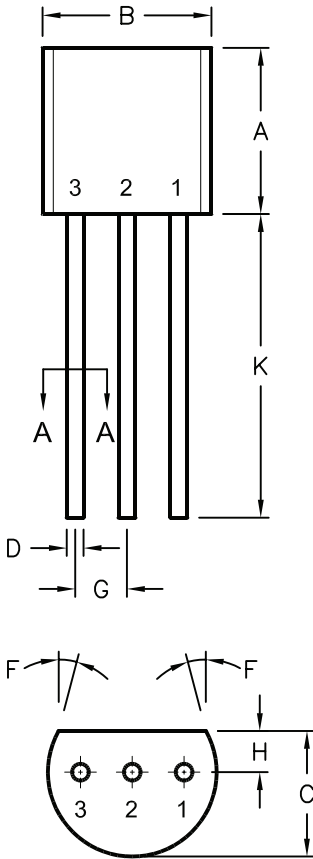
$$V_P - V_{BB} + V_D$$

Where: V_P = Peak Point Emitter Voltage; V_{BB} = interbase Voltage;

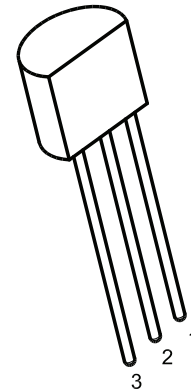
V_D = Junction Diode Drop ($\sim 0.5\text{V}$).

- Use Pulse techniques: Pulse width $\sim 300\mu\text{s}$, Duty Cycle $\leq 2\%$ to avoid internal heating due to interbase modulation which may result in erroneous readings.

Unijunction Transistor



TO-92



1 Base 2
2 Emitter
3 Base 1

Dim	Min	Max
A	4.32	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	2N4871

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