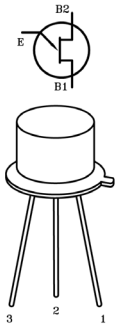
Transistor
Unijunction



1. Emitter
2. Base 1
3. Base 2

Description:

A PN Unijunction Transistor designed for use in pulse and timing circuits, sensing circuits, and thyristor trigger circuits.

Features:

- Low peak point current: 2μA (Max.)
- Low emitter reverse current: 200nA (Max.)
- Passivated surface for reliability and uniformity

Maximum Ratings

Characteristic	Symbol	Rating	Unit
Power Dissipation (Note 1)	P_D	300	mW
RMS Emitter Current	$I_{E(RMS)}$	50	mA
Peak Pulse Emitter Current (Note 2)	I_E	2	A
Emitter Reverse Voltage	V_{B2E}	30	V
Interbase Voltage	V_{B2B1}	35	
Operation and Storage Junction Temperature Range	T_J, T_{STG}	-65 to +150	°C

Notes:

1. Derate 3mW/°C increase in ambient temperature. The total power dissipation (available power to Emitter and Base-Tow) must be limited by the external circuitry.
2. Capacitor discharge – 10μF or less, 30V or less.

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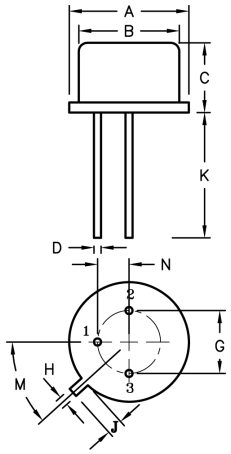
Electrical Characteristics (T_C = 25°C unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
OFF Characteristics						
Intrinsic Standoff Ratio		V_{B2B1} = 10V (Note 3)	0.68	-	0.82	-
Interbase Resistance	r_{BB}	V_{B2B1} = 3V, I_E = 0	4.7	7	9.1	kΩ
Interbase Resistance Temperature Coefficient			0.1	-	0.9	%/°C
Emitter Saturation Voltage	$V_{EB1(sat)}$	V_{B2B1} = 10V, I_E = 50mA (Note 4)	-	3.5	-	V
Modulated Interbase Current	$I_{B2(mod)}$	V_{B2B1} = 10V, I_E = 50mA	-	15	-	mA
Emitter Reverse Current	I_{EB20}	V_{B2E} = 30V, I_{B1} = 0	-	0.005	0.2	µA
Peak Point Emitter Current	I_P	V_{B2B1} = 25V	-	1	2	
Valley Point Current	I_V	V_{B2B1} = 20V, R_{B2} = 100Ω	8	10	18	mA
Base-One Peak Pulse Voltage	V_{OB1}		6	7	-	V

Notes:

3. Intrinsic standoff ration is defined by the equation: $V_P - V_F / V_{B2B1}$
   Where: V_P = peak Point Emitter Voltage: V_{B2B1} = Interbase Voltage; V_F = Emitter to Base-One Junction Diode Drop (~0.45V @ 10µA)
4. Use pulse techniques: Pulse Width ~300µS, Duty Cycle ≦2% to avoid internal heating due to interbase modulation which may result in erroneous readings.



Dimensions	A	B	C	D	G	H	J	K	M	N
Min.	5.31	4.52	4.32	0.41	2.54	0.91	0.71	12.7	45°	1.27
Max.	5.84	4.95	5.33	0.48		1.17	1.22			

Dimensions : Millimetres

1. Emitter
2. Base 1
3. Base 2

Part Number Table

Description	Part Number
Transistor, Unijunction, TO-18, PN	2N2647