

DIGITRON ELECTRONIC CORP.

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2N2646 (SILICON)**SILICON ANNULAR PN UNIJUNCTION TRANSISTORS**

...designed for use in pulse and timing circuits, sensing circuits and thyristor trigger circuits. These devices feature:

- Low Peak Point Current - 2.0 μ A (Max)
- Low Emitter Reverse Current - 200 nA (Max)
- Passivated Surface for Reliability and Uniformity.

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

Characteristic	Symbol	Min	Typ	Max	Unit
Intrinsic Standoff Ratio ($V_{B281} = 10 \text{ V}$) (Note 1)	η	0.56	—	0.75	—
Interbase Resistance ($V_{B281} = 3.0 \text{ V}, I_E = 0$)	r_{BB}	4.7	7.0	9.1	k ohms
Interbase Resistance Temperature Coefficient ($V_{B281} = 3.0 \text{ V}, I_E = 0, T_A = -55^\circ\text{C}$ to $+125^\circ\text{C}$)	α_{rBB}	0.1	—	0.9	%/ $^\circ\text{C}$
Emitter Saturation Voltage ($V_{B281} = 10 \text{ V}, I_E = 50 \text{ mA}$) (Note 2)	$V_{EB1(\text{sat})}$	—	3.5	—	Volts
Modulated Interbase Current ($V_{B281} = 10 \text{ V}, I_E = 50 \text{ mA}$)	$I_{B2(\text{mod})}$	—	15	—	mA
Emitter Reverse Current ($V_{B281} = 30 \text{ V}, I_B1 = 0$)	I_{EB20}	—	0.005	12	μA
Peak Point Emitter Current ($V_{B281} = 25 \text{ V}$)	I_p	—	1.0	5.0	μA
Valley Point Current ($V_{B281} = 20 \text{ V}, R_B2 = 100 \text{ ohms}$) (Note 2)	I_V	4.0	6.0	—	mA
Base One Peak Pulse Voltage (Note 3, Figure 3)	V_{OB1}	3.0	5.0	—	Volts

(2) Use pulse techniques: $PW \approx 300 \mu\text{s}$, duty cycle $< 2\%$ to avoid internal heating due to interbase modulation which may result in erroneous readings.

(3) Base-On Peak Pulse Voltage is measured in circuit of Figure 3. This specification is used to ensure minimum pulse amplitude for application in SCR firing circuits and other types of pulse circuits.

Notes:

(1) Intrinsic standoff ratio, η , is defined by equation:

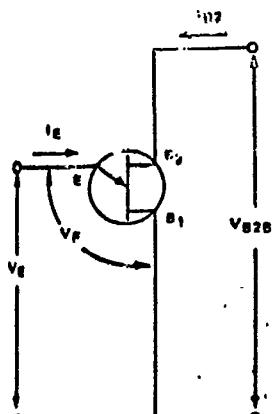
$$\eta = \frac{V_p - V_F}{V_{B281}}$$

Where V_p = Peak Point Emitter Voltage

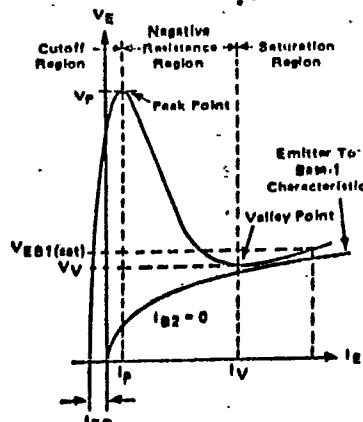
V_{B281} = Interbase Voltage

V_F = Emitter To Base-On Junction Diode Drop
($\approx 0.5 \text{ V} @ 10 \mu\text{A}$)

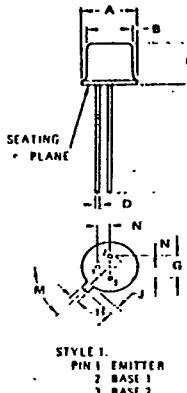
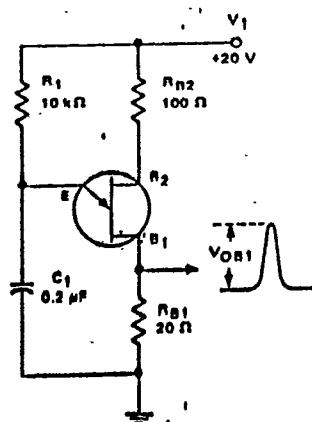
FIGURE 1
**UNIJUNCTION TRANSISTOR SYMBOL
AND NOMENCLATURE**



**STATIC Emitter Characteristic
Curves
(Exaggerated to Show Details)**



**FIGURE 3 - V_{OB1} TEST CIRCUIT
(Typical Relaxation Oscillator)**



DIM	IN MILLIMETERS		IN INCHES	
	MIN	MAX	MIN	MAX
A	5.31	5.64	0.209	0.230
B	4.57	4.95	0.180	0.195
C	0.32	0.35	0.012	0.014
D	0.41	0.48	0.016	0.019
E	2.64	2.94	0.104	0.115
H	0.91	1.17	0.036	0.046
J	0.11	0.27	0.004	0.010
K	1.70	—	0.067	—
M	4.57	4.95	0.180	0.195
N	1.72	2.07	0.067	0.082