NOT RECOMMENDED FOR NEW DESIGNS

MU4891 thru MU4894

PN Unijunction Transistors

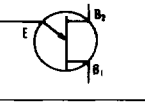
Silicon Plastic Unijunction Transistors

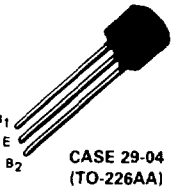
PN UJTs

. . . designed for military and industrial use in pulse, timing, triggering, sensing, and oscillator circuits. The annular process provides low leakage current, fast switching and low peak-point currents as well as outstanding reliability and uniformity.

Recommended usage includes:

- Long-time Delay Circuits — MU4894
- Silicon Controlled Rectifier Triggering Circuits — MU4893
- High-frequency Relaxation-Oscillator Circuits — MU4892
- General-Purpose Unijunction Applications — MU4891





CASE 29-04
(TO-226AA)
STYLE 9

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MAXIMUM RATINGS (T_A = 25°C unless otherwise noted.)

Rating	Symbol	Value	Unit
RMS Power Dissipation, Note 1	P_D	300	mW
RMS Emitter Current	I_e	50	mA
Peak Pulse Emitter Current, Note 2	i_e	1	Amp
Emitter Reverse Voltage	V_{B2E}	30	Volts
Storage Temperature Range	T_{stg}	−65 to +150	°C

Notes: 1. Derate 3 mW/°C increase in ambient temperature. Total power dissipation (available power to Emitter and Base-Two) must be limited by external circuitry. Interbase voltage (V_{B2B1}) limited by power dissipation,

$V_{B2B1} = \sqrt{R_{BB} \cdot P_D}$

2. Capacitance discharge current must fall to 0.37 Amp within 3 ms and PRR ≤ 10 PPS.

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted.)

Characteristic		Symbol	Min	Typ	Max	Unit
Intrinsic Standoff Ratio		η				—
(V_{B2B1} = 10 V), Note 1	MU4892		0.51	—	0.69	
	MU4891, MU4893		0.55	—	0.82	
	MU4894		0.74	—	0.86	
Interbase Resistance		R_{BB}				k ohms
(V_{B2B1} = 3 V, I_E = 0)	MU4891, MU4892		4	7	9.1	
	MU4893, MU4894		4	7	12	
Interbase Resistance Temperature Coefficient (V_{B2B1} = 3 V, I_E = 0, T_A = −65°C to +100°C)		αR_{BB}	0.1	—	0.9	%/°C
Emitter Saturation Voltage (V_{B2B1} = 10 V, I_E = 50 mA), Note 2		$V_{EB1(sat)}$	—	2.5	4	Volts
Modulated Interbase Current (V_{B2B1} = 10 V, I_E = 50 mA)		$I_{B2(mod)}$	10	15	—	mA
Emitter Reverse Current (V_{B2E} = 30 V, I_{B1} = 0)		I_{EB2O}	—	5	10	nA
Peak Point Emitter Current		I_P				μA
(V_{B2B1} = 25 V)	MU4891		—	0.6	5	
	MU4892, MU4893		—	0.6	2	
	MU4894		—	0.6	1	
Valley Point Current		I_V				mA
(V_{B2B1} = 20 V, R_{B2} = 100 Ohms), Note 2						
	MU4891, MU4893, MU4894		2	4	—	
	MU4892		2	3	—	
Base-One Peak Pulse Voltage		V_{OB1}				Volts
(Note 3, Figure 3)	MU4891, MU4892, MU4894		3	5	—	
	MU4893		6	8	—	

Notes:

1. Intrinsic standoff ratio, η, is defined by equation:

$$\eta = \frac{V_P - V_{(EB1)}}{V_{B2B1}}$$

Where V_P = Peak Point Emitter Voltage
V_{B2B1} = Interbase Voltage
$V_{(EB1)}$ = Emitter to Base-One Junction Diode Drop (≈ 0.5 V @ 10 μA)

2. Use pulse techniques: PW ≤ 300 μs, duty cycle ≤ 2% to avoid internal heating due to interbase modulation which may result in erroneous readings.
3. Base-One Peak Pulse Voltage is measured in circuit of Figure 3. This specification is used to ensure minimum pulse amplitude for applications in SCR firing circuits and other types of pulse circuits.

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FIGURE 1 — UNIJUNCTION TRANSISTOR SYMBOL AND NOMENCLATURE

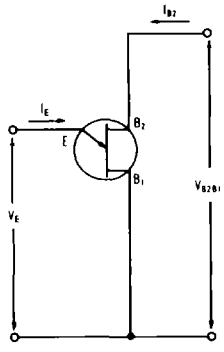

FIGURE 2 — STATIC EMITTER CHARACTERISTICS CURVES

(Exaggerated to Show Details)

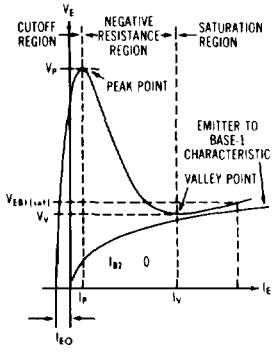

FIGURE 3 — V_{OB1} TEST CIRCUIT

(Typical Relaxation Oscillator)