DIGITRON™ Semiconductors

High-reliability discrete products
and engineering services since 1977

MU4891-MU4894

SILICON UNIJUNCTION TRANSISTOR

FEATURES

- Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.
- Available as non-RoHS (Sn/Pb plating), standard, and as RoHS by adding "-PBF" suffix.

MAXIMUM RATINGS.

Rating	Symbol	Value	Unit
Power dissipation(1)	P_D	300	mW
RMS emitter current	I_E	50	mA
Peak pulse emitter current (2)	i_E	1.0	Amps
Emitter reverse voltage	V_{B2E}	30	Volts
Storage temperature range	T_{stg}	-65 to 150	°C

Note 1: Derate 3mW/°C increase in ambient temperature. The total power dissipation must be limited by the external circuitry.
$V_{B2B1} = \sqrt{(R_{BB} \cdot P_D)}$
Note 2: Capacitance discharge must fall to 0.37 Amp within 3.0ms and PRR ≤ 10PPS.

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

Parameter		Symbol	Min	Typ	Max	Unit
Intrinsic standoff ratio (V_{B2B1} = 10V) (1)	MU4892	η	0.51	-	0.69	-
	MU4891, MU4893		0.55	-	0.82	
	MU4894		0.74	-	0.86	
Interbase resistance (V_{B2B1} = 3V, I_E = 0)	MU4891, MU4892	R_{BB}	4.0	7.0	9.1	kΩ
	MU4893, MU4894		4.0	7.0	12.0	
Interbase resistance temperature coefficient (V_{B2B1} = 3V, I_E = 0, T_A = -65° to 100°C)		αR_{BB}	0.1	-	0.9	%/°C
Emitter saturation voltage (V_{B2B1} = 10V, I_E = 50mA)(2)		$V_{EB1(sat)}$	-	2.5	4.0	Volts
Modulated interbase current (V_{B2B1} = 10V, I_E = 50mA)		$I_{B2(mod)}$	10	15	-	mA
Emitter reverse current (V_{B2E} = 30V, I_{B1} = 0)		I_{EB2O}	-	5.0	10	nA
Peak point emitter current (V_{B2B1} = 25V)	MU4891	I_P	-	0.6	5.0	µA
	MU4892, MU4893		-	0.6	2.0	
	MU4894		-	0.6	1.0	
Valley point current (V_{B2B1} = 20V, R_{B2} = 100ohms)(2)	MU4891, MU4893, MU4894	I_V	2.0	4.0	-	mA
	MU4892		2.0	3.0	-	
Base-one peak pulse voltage(3) Figure 3	MU4891, MU4892, MU4894	V_{OB1}	3.0	5.0	-	Volts
	MU4893		6.0	8.0	-	

Note 1: Intrinsic standoff ratio: $\eta = (V_P - V_{EB1})/V_{B2B1}$, where V_P = peak point emitter voltage , V_{B2B1} = interbase voltage, V_{EB1} = emitter to base one junction diode drop (≈ 0.5V @ 10µA).
Note 2: PW ≈ 300µs, duty cycle ≤ 2% to avoid internal heating due to interbase modulation which may result in erroneous readings
Note 3: Base one peak pulse voltage is used to ensure minimum pulse amplitude for applications in SCR firing circuits and other types of pulse circuits.

DIGITRON™ Semiconductors

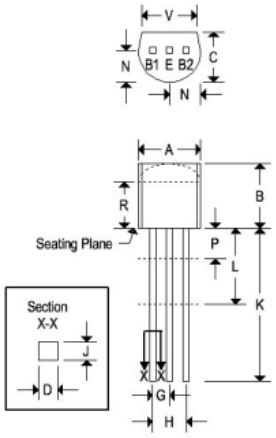
High-reliability discrete products
and engineering services since 1977

MU4891-MU4894

SILICON UNIJUNCTION TRANSISTOR

MECHANICAL CHARACTERISTICS

Case	TO-92
Marking	Alpha-numeric
Pin out:	See below



Dim	TO-92			
	Inches		Millimeters	
	Min	Max	Min	Max
A	0.175	0.205	4.450	5.200
B	0.170	0.210	4.320	5.330
C	0.125	0.165	3.180	4.190
D	0.016	0.021	0.407	0.533
G	0.045	0.055	1.150	1.390
H	0.095	0.105	2.420	2.660
J	0.015	0.020	0.390	0.500
K	0.500	-	12.700	-
L	0.250	-	6.350	-
N	0.080	0.105	2.040	2.660
P	-	0.100	-	2.540
R	0.115	-	2.930	-
V	0.135	-	3.430	-

FIGURE 1 – UNIJUNCTION TRANSISTOR SYMBOL AND NOMENCLATURE

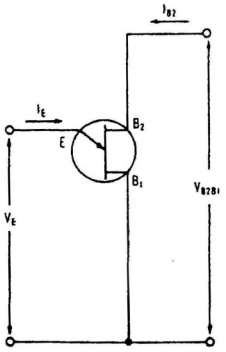


FIGURE 2 – STATIC EMITTER CHARACTERISTICS CURVES

(Exaggerated to Show Details)

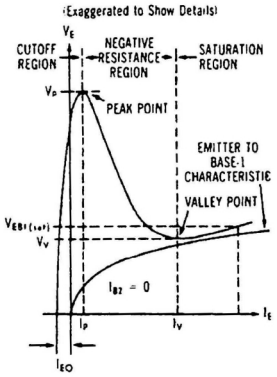


FIGURE 3 – V_{OB1} TEST CIRCUIT

(Typical Relaxation Oscillator)