DIGITRON SEMICONDUCTORS

2N2417 - 2N2422, A, B SILICON UNIJUNCTION TRANSISTOR

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Power dissipation(1)	P_D	350	mW
RMS emitter current	I_E	70	mA
Peak pulse emitter current (2)	i_e	2	Amps
Emitter reverse voltage	V_{B2E}	60	Volts
Interbase voltage	V_{B2B1}	65	Volts
Operating junction temperature range	T_J	-65 to 175	°C
Storage temperature range	T_{stg}	-65 to 175	°C

Note 1: Derate 2.33mW/°C increase in ambient temperature. The total power dissipation must be limited by the external circuitry.
Note 2: Capacitor discharge – 10µF or less, 30 volts or less.

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise specified)

Parameter			Symbol	Min	Typ	Max	Unit
Intrinsic standoff ratio (V_{B2B1} = 10V) (1)		2N2417, 2N2417A, 2N2417B 2N2418, 2N2418A, 2N2418B 2N2419, 2N2419A, 2N2419B 2N2420, 2N2420A, 2N2420B 2N2421, 2N2421A, 2N2422B 2N2422, 2N2422A, 2N2422B	η	0.51 0.51 0.56 0.56 0.62 0.62	- - - - - -	0.62 0.62 0.68 0.68 0.75 0.75	- - - - - -
Interbase resistance (V_{B2B1} = 3V, I_E = 0)		2N2417, 2N2417A, 2N2417B 2N2418, 2N2418A, 2N2418B 2N2419, 2N2419A, 2N2419B 2N2420, 2N2420A, 2N2420B 2N2421, 2N2421A, 2N2422B 2N2422, 2N2422A, 2N2422B	r_{BB}	4.7 6.2 4.7 6.2 4.7 6.2	- - - - - -	6.8 9.1 6.8 9.1 6.8 9.1	kohms
Emitter saturation voltage (V_{B2B1} = 10V, I_E = 50mA)(2)			$V_{EB1(sat)}$	-	3.5	-	Volts
Modulated interbase current (V_{B2B1} = 10V, I_E = 50mA)			$I_{B2(mod)}$	-	15	-	mA
Emitter reverse current (I_{B1} = 0)	V_{B2E} = 60V	2N2417, 2N2418, 2N2419, 2N2420, 2N2421, 2N2422	I_{EB2O}	-	-	2	µA
	V_{B2E} = 60V	2N2417A, 2N2418A, 2N2419A, 2N2420A, 2N2421A, 2N2422A		-	-	2	
	V_{B2E} = 30V	2N2417B, 2N2418B, 2N2419B, 2N2420B, 2N2421B, 2N2422B		-	-	0.2	
Peak point emitter current (V_{B2B1} = 25V)		2N2417, 2N2418, 2N2419, 2N2420, 2N2421, 2N2422	I_{EB2O}	-	-	12	µA
		2N2417A, 2N2418A, 2N2419A, 2N2420A, 2N2421A, 2N2422A		-	-	12	
		2N2417B, 2N2418B, 2N2419B, 2N2420B, 2N2421B, 2N2422B		-	-	6	
Valley point current (V_{B2B1} = 20V, R_{B2} = 100ohms)(2)			I_V	8	-	-	mA
Base-one peak pulse voltage(3)		2N2417, 2N2418, 2N2419, 2N2420, 2N2421, 2N2422	V_{OB1}	-	-	-	V
		2N2417A, 2N2418A, 2N2419A, 2N2420A, 2N2421A, 2N2422A		3	-	-	
		2N2417B, 2N2418B, 2N2419B, 2N2420B, 2N2421B, 2N2422B		3	-	-	

Note 1: Intrinsic standoff voltage: $\eta = V_P - V_F / V_{B2B1}$, where V_P = peak point emitter voltage , V_{B2B1} = interbase voltage, V_F = emitter to base one junction diode drop (≈ 0.45V @ 10µA).
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.

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D I G I T R O N S E M I C O N D U C T O R S

2N2646, 2N2647 **SILICON UNIJUNCTION TRANSISTOR**

FIGURE 1
UNIJUNCTION TRANSISTOR SYMBOL AND NOMENCLATURE

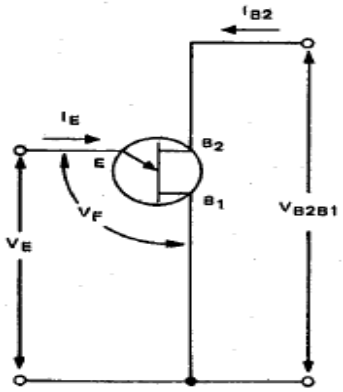


FIGURE 2
STATIC EMITTER CHARACTERISTIC CURVES
(Exaggerated to Show Details)

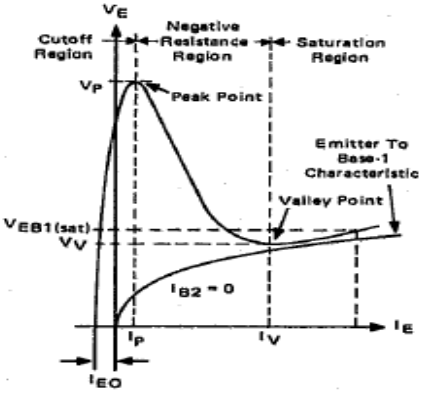
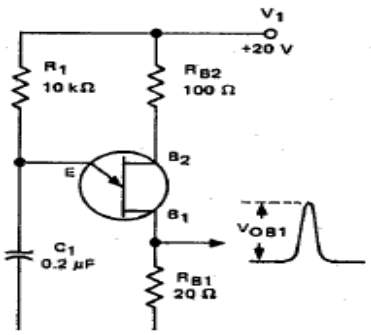
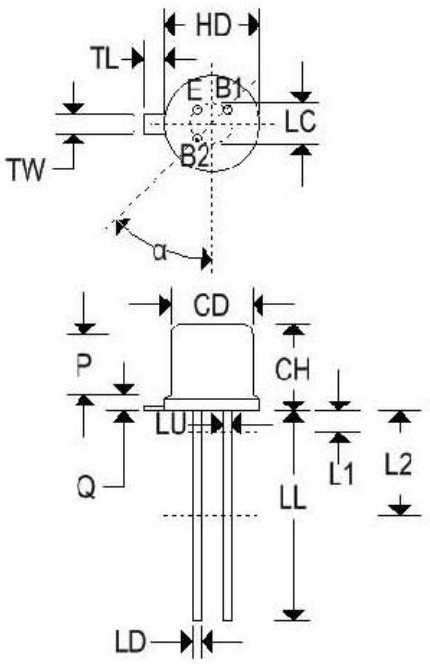


FIGURE 3 – V_{OB1} TEST CIRCUIT
(Typical Relaxation Oscillator)





Dim	TO-18			
	Inches		Millimeters	
	Min	Max	Min	Max
CD	0.178	0.195	4.520	4.950
CH	0.170	0.210	4.320	5.330
HD	0.209	0.230	5.310	5.840
LC	0.100 TP		2.540 TP	
LD	0.016	0.021	0.410	0.530
LL	0.500	0.750	12.700	19.050
LU	0.016	0.019	0.410	0.480
L_1	-	0.050	-	1.270
L_2	0.250	-	6.350	-
P	0.100	-	2.540	-
Q	-	0.040	-	1.020
TL	0.028	0.048	0.710	1.220
TW	0.036	0.046	0.910	1.170
α	45°TP		45°TP	

Available Non-RoHS (standard) or RoHS compliant (add PBF suffix).
Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.

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