DIGITRON™ Semiconductors

High-reliability discrete products
and engineering services since 1977

2N4851-2N4853

PN 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
RMS power dissipation	P_D	300	mW
RMS emitter current	I_e	50	mA
Peak-pulse emitter current	i_e	1.5	Amp
Emitter reverse voltage	V_{B2E}	30	Volts
Interbase voltage	V_{B2B1}	35	Volts
Operating junction temperature range	T_J	-65 to +125	°C
Storage temperature range	T_{stg}	-65 to +200	°C

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

Rating	Part number	Symbol	Min	Typ	Max	Unit
Intrinsic standoff ratio (V_{B2B1} = 10 V)	2N4851 2N4852, 2N4853	η	0.56 0.70	- -	0.75 0.85	-
Interbase resistance (V_{B2B1} = 3 V, I_E = 0)		R_{BB}	4.7	-	9.1	kΩ
Emitter reverse current (V_{B2E} = 30 V)	2N4851, 2N4852 2N4853	I_{EB2O}	- -	- -	 100 50	nA
Peak point emitter current (V_{B2B1} = 25 V)	2N4851, 2N4852 2N4853	I_P	- -	- -	2 0.4	µA
Valley point current (V_{B2B1} = 20 V, R_{B2} = 100Ω)	2N4851 2N4852 2N4853	I_V	2.0 4.0 6.0	- - -	- - -	mA
Base one peak pulse voltage (V_1 = 20V)	2N4851 2N4852 2N4853	V_{OB1}	3.0 5.0 6.0	- - -	- - -	Volts
Maximum frequency of oscillation		$f_{(max)}$	-	0.25	-	MHz

DIGITRON™ Semiconductors

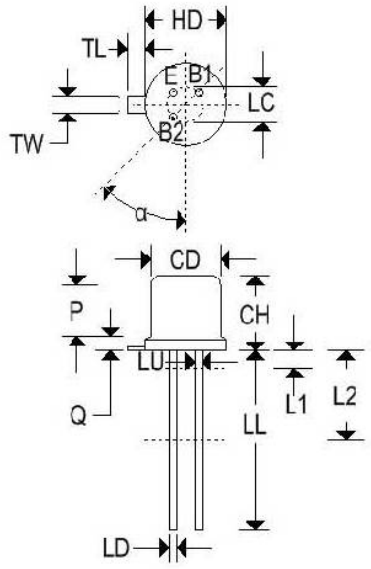
High-reliability discrete products
and engineering services since 1977

2N4851-2N4853

PN UNIJUNCTION TRANSISTOR

MECHANICAL CHARACTERISTICS

Case	TO-18
Marking	Alpha-numeric
Pin out	See below



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	

FIGURE 1 – UNIJUNCTION TRANSISTOR SYMBOL AND NOMENCLATURE

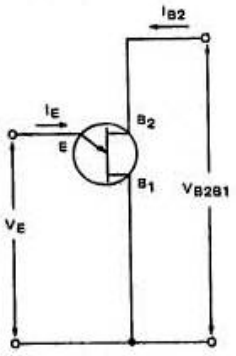
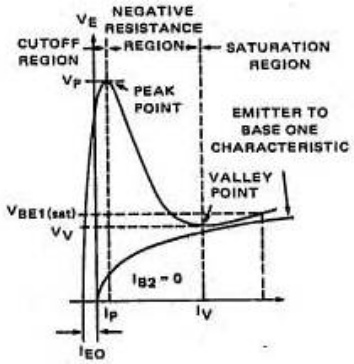


FIGURE 2 – STATIC EMITTER CHARACTERISTICS CURVES



DIGITRON™ Semiconductors

High-reliability discrete products and engineering services since 1977

2N4851-2N4853

PN UNIJUNCTION TRANSISTOR

FIGURE 3 – V_{OB1} TEST CIRCUIT

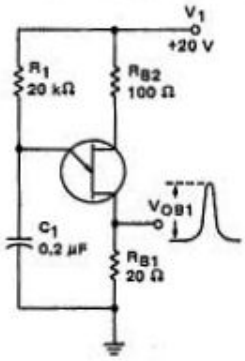
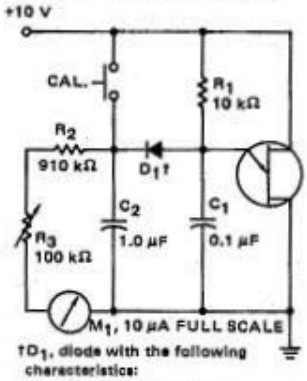


FIGURE 4 – η TEST CIRCUIT



†D_1, diode with the following characteristics:

V_F = 0.49 V @ I_F = 10 μA

I_R < 2.0 μA @ V_R = 20 V

FIGURE 5 – $f_{(max)}$ TEST CIRCUIT

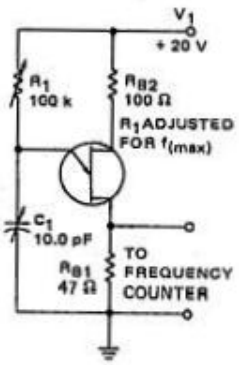
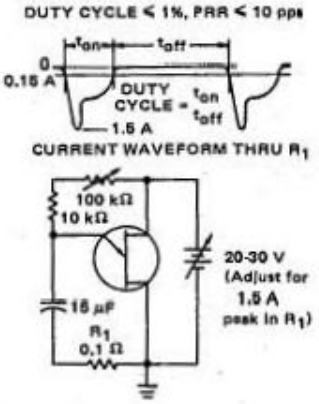


FIGURE 6 – PRR TEST CIRCUIT AND WAVEFORM



TYPICAL CHARACTERISTICS

FIGURE 7 – EMITTER REVERSE CURRENT

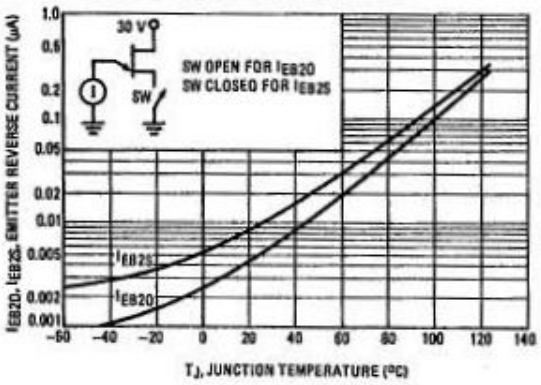
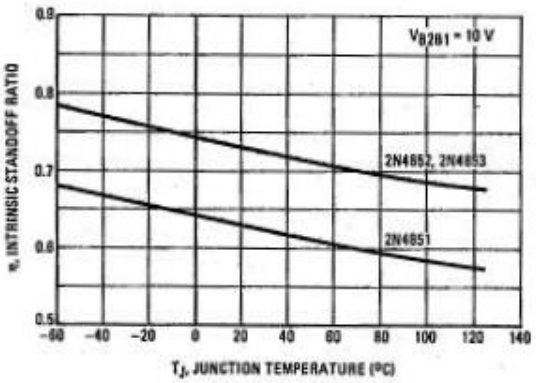


FIGURE 8 – INTRINSIC STANDOFF RATIO



DIGITRON™ Semiconductors

High-reliability discrete products
and engineering services since 1977

2N4851-2N4853

PN UNIJUNCTION TRANSISTOR

PEAK POINT CURRENT

FIGURE 9 – EFFECT OF VOLTAGE

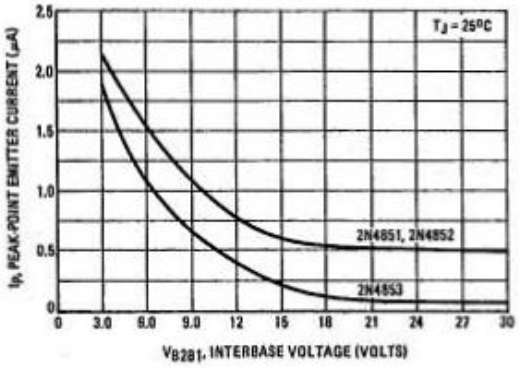
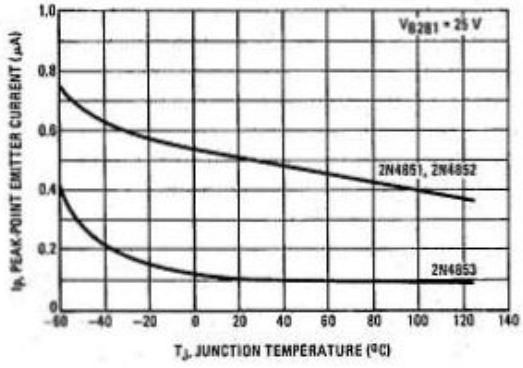


FIGURE 10 – EFFECT OF TEMPERATURE



INTERBASE RESISTANCE

FIGURE 11 – EFFECT OF VOLTAGE

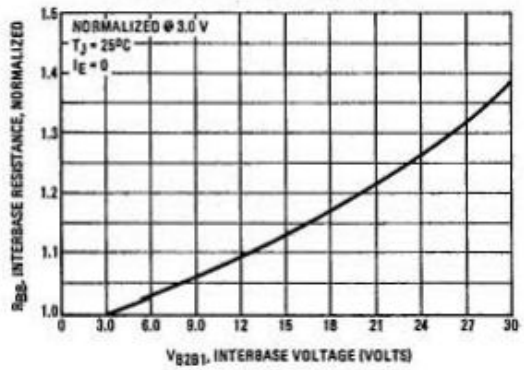
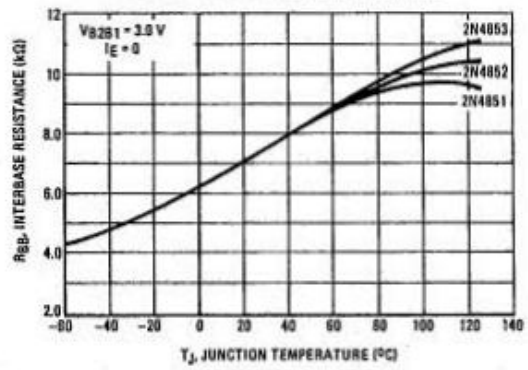


FIGURE 12 – EFFECT OF TEMPERATURE



TYPICAL CHARACTERISTICS

VALLEY CURRENT

FIGURE 13 – EFFECT OF VOLTAGE

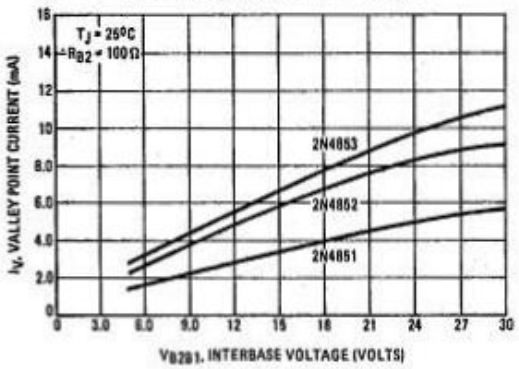
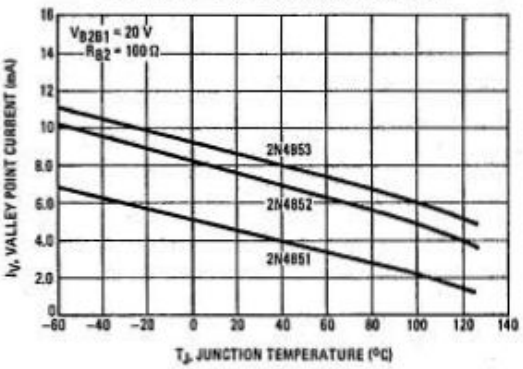


FIGURE 14 – EFFECT OF TEMPERATURE



DIGITRON™ Semiconductors

High-reliability discrete products and engineering services since 1977

2N4851-2N4853

PN UNIJUNCTION TRANSISTOR

VALLEY VOLTAGE

FIGURE 15 – EFFECT OF VOLTAGE

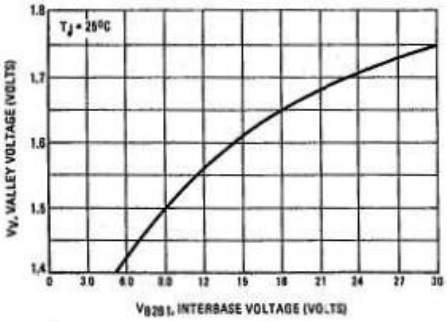


FIGURE 16 – EFFECT OF TEMPERATURE

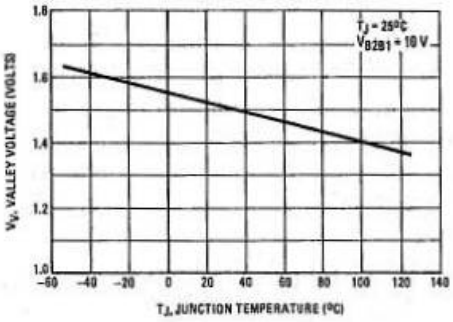


FIGURE 17 – OUTPUT VOLTAGE