DIGITRON™ Semiconductors

High-reliability discrete products
and engineering services since 1977

D13T1-D13T2

PROGRAMMABLE UNIJUNCTION TRANSISTORS

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	P_F	300	mW
DC forward anode current	I_T	150	mA
DC gate current	I_G	±20	mA
Repetitive peak forward current 100µs pulse width, 1.0% duty cycle 20µs pulse width, 1.0% duty cycle	I_{TRM}	 1.0 2.0	Amp
Non-repetitive peak forward current **10µs pulse width**	I_{TSM}	 5.0	Amp
Gate to cathode forward voltage	V_{GKF}	40	Volts
Gate to cathode reverse voltage	V_{GKR}	-5.0	Volts
Gate to anode reverse voltage	V_{GAR}	40	Volts
Anode to cathode voltage (1)	V_{AK}	±40	Volts
Operating junction temperature range	T_J	-50 to 100	°C
Storage temperature range	T_{stg}	-55 to 150	°C

Note 1: Anode positive: R_{GA} = 1000ohms, Anode negative: R_{GA} = open

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

Characteristic		Symbol	Min	Typ	Max	Unit
Peak current						
(V_S = 10Vdc, R_G = 1.0MΩ)	D13T1		-	-	2.0	
	D13T2	I_P	-	-	0.15	µA
(V_S = 10Vdc, R_G = 10kΩ)	D13T1		-	-	5.0	
	D13T2		-	-	1.0	
Off set voltage						
(V_S = 10Vdc, R_G = 1.0MΩ)	D13T1	V_T	0.2	-	1.6	Volts
	D13T2		0.2	-	0.6	
(V_S = 10Vdc, R_G = 10kΩ)	(both)		0.2	-	0.6	
Valley current						
(V_S = 10Vdc, R_G = 1.0MΩ)	D13T1		-	-	50	µA
	D13T2		-	-	25	
(V_S = 10Vdc, R_G = 10kΩ)	D13T1	I_V	70	-	-	
	D13T2		25	-	-	
(V_S = 10Vdc, R_G = 200Ω)	D13T1		1.5	-	-	mA
	D13T2		1.0	-	-	
Gate to anode leakage current						
(V_S = 40Vdc, T_A = 25°C, cathode open)		I_{GAO}	-	-	10	nA
(V_S = 40Vdc T_A = 75°C, cathode open)			-	-	100	
Gate to cathode leakage current (V_S = 40Vdc, anode to cathode shorted)		I_{GKS}	-	-	100	nAdc

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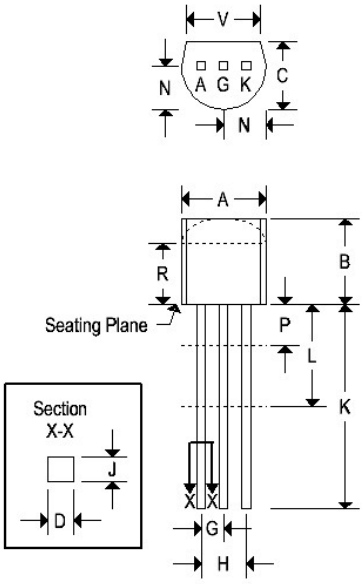
Characteristic	Symbol	Min	Typ	Max	Unit
Forward voltage (I_F = 50mA peak)	V_F	-	-	1.5	Volts
Peak output voltage	V_O	6.0	-	-	Volts
Pulse voltage rise time	t_r	-	-	80	ns

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	-

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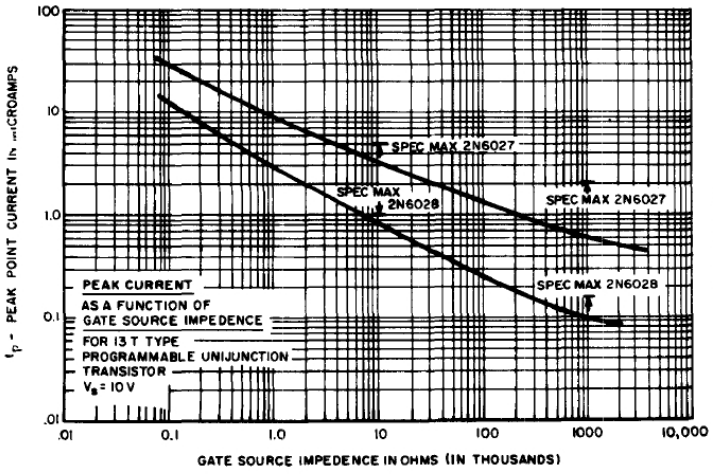
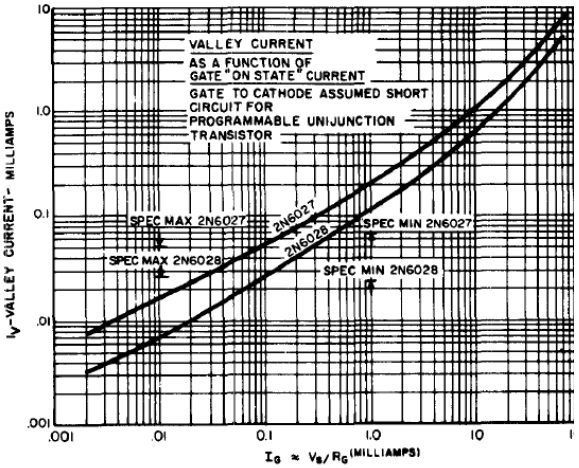
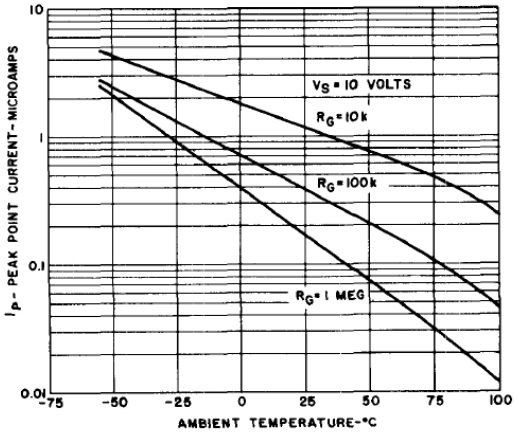


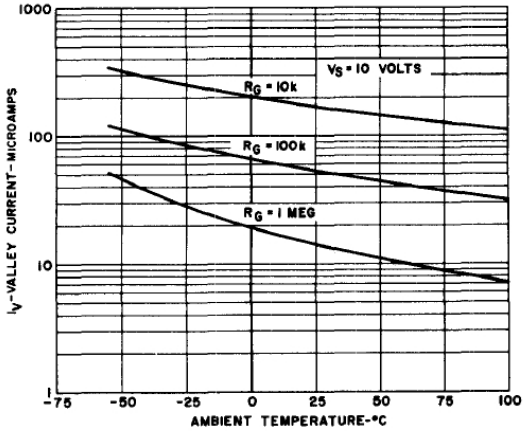
I_p vs Gate Source Impedance



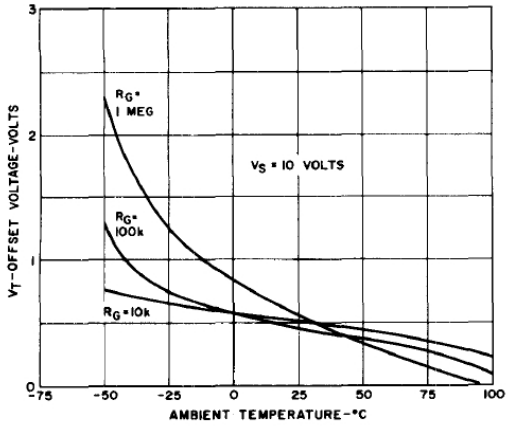
I_V vs Gate "on state" Current



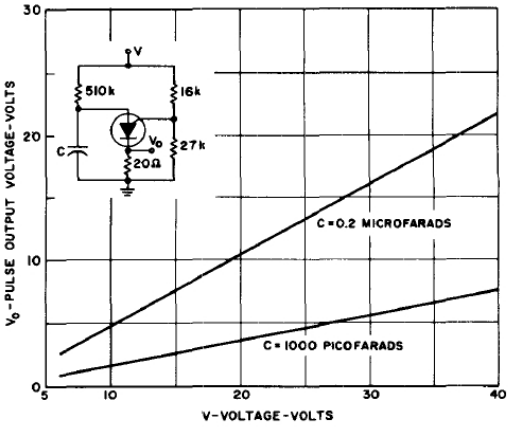
I_p vs Temperature and R_G



I_V vs Temperature and R_G



V_T vs Temperature and R_G



Peak Output Voltage