2N5271 (SILICON)

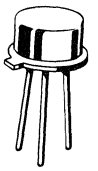
NPN SILICON ANNULAR AVALANCHE TRANSISTOR

. . . designed for AVALANCHE mode operation for the generation of high-current pulses with nanosecond rise times. Ideal for applications such as laser diodes, high-current pulse generators, vacuum tube driver and other applications requiring ultra high-speed, high-voltage or high-current pulses.

- Rise Time – t_r = 1.0 ns (Max)
- Delay Time – t_d = 5.0 ns (Max)
- Output Pulse Amplitude – V_O = 130 Vdc (Typ) @ R_L = 50 Ohms

NPN SILICON AVALANCHE SWITCHING TRANSISTOR

$t_r < 1.0$ ns

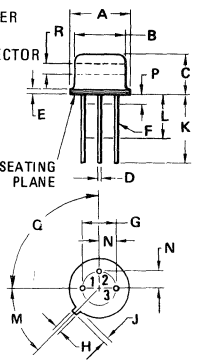


*MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Emitter-Base Voltage	V_{EB}	7.0	Vdc
Collector Current – Peak	I_C	5.0	Adc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	600 3.43	mW mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200	°C

*Indicates JEDEC Registered Data

STYLE 1:
PIN 1. EMITTER
2. BASE
3. COLLECTOR



DIM	MILLIMETERS MIN	MILLIMETERS MAX	INCHES MIN	INCHES MAX
A	8.89	9.40	0.350	0.370
B	8.00	8.51	0.315	0.335
C	6.10	6.60	0.240	0.260
D	0.406	0.533	0.016	0.021
E	0.229	3.18	0.009	0.125
F	0.406	0.483	0.016	0.019
G	4.83	5.33	0.190	0.210
H	0.711	0.864	0.028	0.034
J	0.737	1.02	0.029	0.040
K	12.70	–	0.500	–
L	6.35	–	0.250	–
M	45° NOM		45° NOM	
P	–	1.27	–	0.050
Q	90° NOM		90° NOM	
R	2.54	–	0.100	–

All JEDEC dimensions and notes apply.
CASE 79-02
TO-39

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage (I_C = 500 μAdc, R_{BE} = 100 Ohms)	BV_{CER}	200	280	Vdc
Emitter-Base Breakdown Voltage (I_E = 10 μAdc, I_C = 0)	BV_{EBO}	7.0	–	Vdc
Collector Cutoff Current (V_{CE} = 160 Vdc, R_{BE} = 100 Ohms)	I_{CER}	–	20	nAdc
Collector Holdoff Current(1) (R_{BE} = 100 Ohms, T_A = +55°C)	$I_{CER(H)}$	0.5	–	mAdc
Emitter Cutoff Current (V_{EB} = 5.0 Vdc, I_C = 0)	I_{EBO}	–	10	nAdc
DYNAMIC CHARACTERISTICS				
Collector-Base Capacitance (V_{CB} = 20 Vdc, I_E = 0, f = 140 kHz)	C_{cb}	–	6.0	pF
Emitter-Base Capacitance (V_{EB} = 0.5 Vdc, I_C = 0, f = 140 kHz)	C_{eb}	–	16	pF
SWITCHING CHARACTERISTICS (Figure 1)				
Delay Time	t_d	–	5.0	ns
Rise Time	t_r	–	1.0	ns
Output Pulse Amplitude (Figure 1)	V_o	100	–	Vdc

*Indicates JEDEC Registered Data.

(1)Collector Holdoff Current is that value of collector cutoff current above which the reverse voltage-current characteristic exhibits negative resistance.

FIGURE 1 – SWITCHING TIME TEST CIRCUIT