NUP2301MW6T1

Low Capacitance Diode Array for ESD Protection in Two Data Lines

NUP2301MW6T1 is a MicroIntegration™ device designed to provide protection for sensitive components from possible harmful electrical transients; for example, ESD (electrostatic discharge).

Features

- Low Capacitance (2.0 pf Maximum Between I/O Lines)
- Single Package Integration Design
- Provides ESD Protection for JEDEC Standards JESD22
  - Machine Model = Class C
  - Human Body Model = Class 3B
- Protection for IEC61000-4-2 (Level 4)
  - 8.0 kV (Contact)
  - 15 kV (Air)
- Ensures Data Line Speed and Integrity
- Fewer Components and Less Board Space
- Direct the Transient to Either Positive Side or to the Ground

Applications

- T1/E1 Secondary IC Protection
- T3/E3 Secondary IC Protection
- HDSL, IDSL Secondary IC Protection
- Video Line Protection
- Microcontroller Input Protection
- Base Stations
- I^2C Bus Protection

MAXIMUM RATINGS (Each Diode) (T_J = 25°C unless otherwise noted)

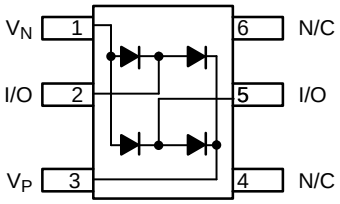
Rating	Symbol	Value	Unit
Reverse Voltage	V_R	70	Vdc
Forward Current	I_F	200	mAdc
Peak Forward Surge Current	$I_{FM(surge)}$	500	mAdc
Repetitive Peak Reverse Voltage	V_{RRM}	70	V
Average Rectified Forward Current (Note 1) (averaged over any 20 ms period)	$I_{F(AV)}$	715	mA
Repetitive Peak Forward Current	I_{FRM}	450	mA
Non-Repetitive Peak Forward Current t = 1.0 μs t = 1.0 ms t = 1.0 S	I_{FSM}	 2.0 1.0 0.5	A

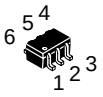
1. FR-5 = 1.0 × 0.75 × 0.062 in.

ON Semiconductor®

http://onsemi.com

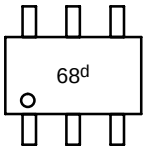
PIN CONFIGURATION AND SCHEMATIC





SC-88
CASE 419B
STYLE 23

MARKING DIAGRAM



68 = Specific Device Code
d = Date Code
O = Pin 1 Indicator

ORDERING INFORMATION

Device	Package	Shipping
NUP2301MW6T1	SC-88	3000/Tape & Reel

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance Junction-to-Ambient	$R_{\theta JA}$	625	°C/W
Lead Solder Temperature Maximum 10 Seconds Duration	T_L	260	°C
Junction Temperature	T_J	-40 to +85	°C
Storage Temperature	T_{stg}	-55 to +150	°C

ELECTRICAL CHARACTERISTICS (T_J = 25°C unless otherwise noted) (Each Diode)

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Reverse Breakdown Voltage ($I_{(BR)}$ = 100 μA)	$V_{(BR)}$	70	-	-	Vdc
Reverse Voltage Leakage Current (V_R = 70 Vdc) (V_R = 25 Vdc, T_J = 150°C) (V_R = 70 Vdc, T_J = 150°C)	I_R	- - -	- - -	2.5 30 50	μAdc
Capacitance (between I/O pins) (V_R = 0 V, f = 1.0 MHz)	C_D	-	1.0	2.0	pF
Capacitance (between I/O pin and ground) (V_R = 0 V, f = 1.0 MHz)	C_D	-	1.6	3	pF
Forward Voltage (I_F = 1.0 mAdc) (I_F = 10 mAdc) (I_F = 50 mAdc) (I_F = 150 mAdc)	V_F	- - - -	- - - -	715 855 1000 1250	mV_{dc}

2. FR-5 = 1.0 × 0.75 × 0.062 in.
3. Alumina = 0.4 × 0.3 × 0.024 in. 99.5% alumina.

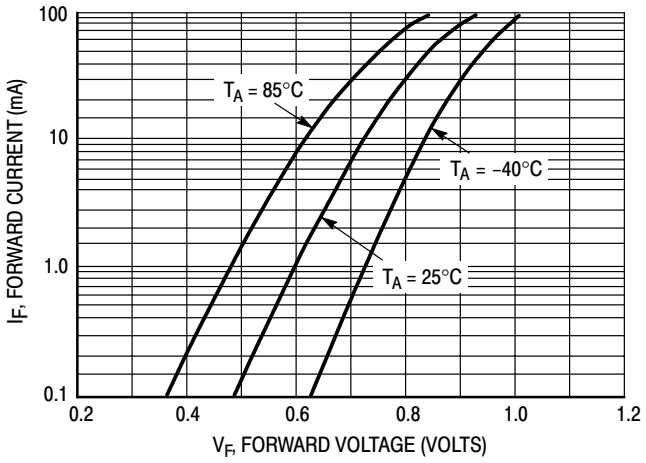


Figure 1. Forward Voltage

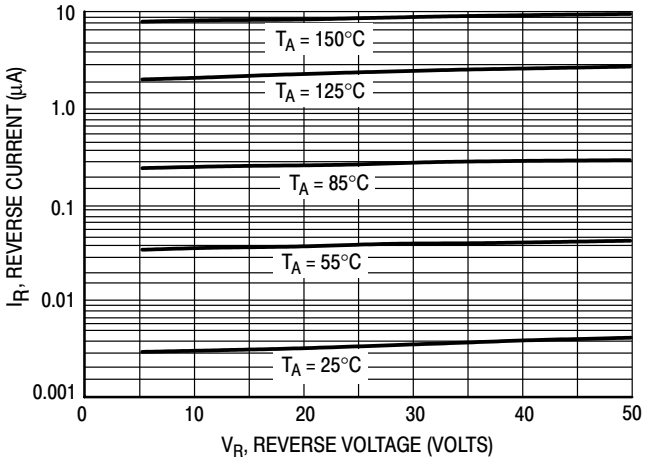


Figure 2. Leakage Current

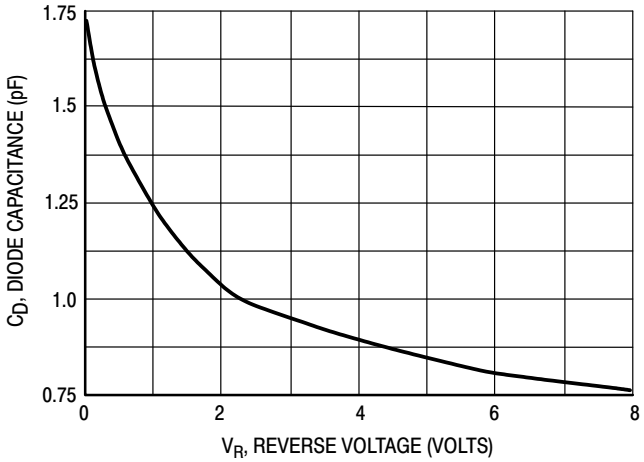
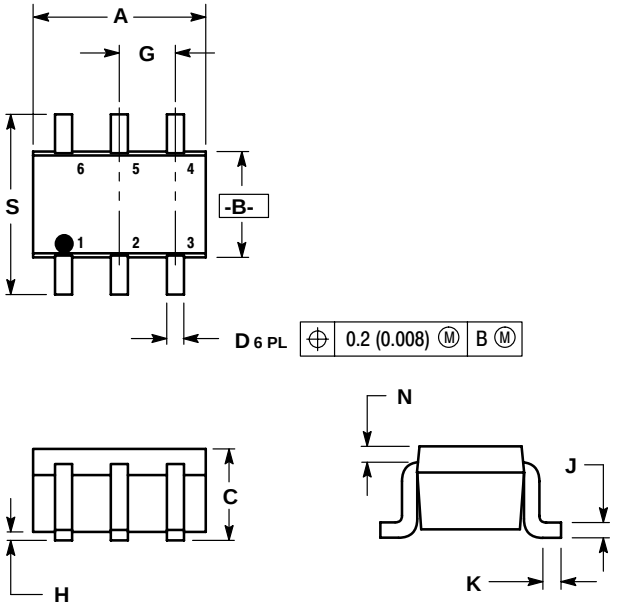


Figure 3. Capacitance

PACKAGE DIMENSIONS

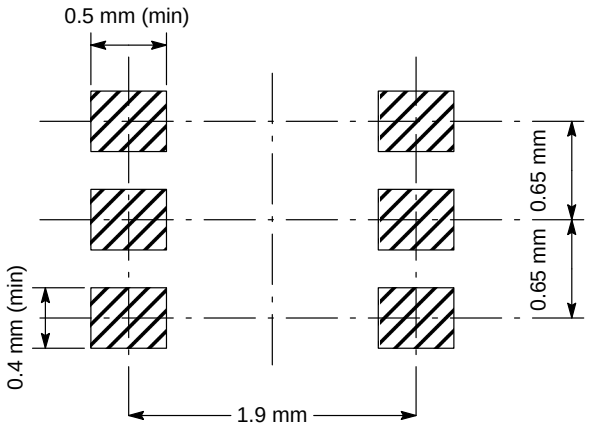
SC-88 (SOT-363)
CASE 419B-02
ISSUE N



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. 419B-01 OBSOLETE, NEW STANDARD 419B-02.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.071	0.087	1.80	2.20
B	0.045	0.053	1.15	1.35
C	0.031	0.043	0.80	1.10
D	0.004	0.012	0.10	0.30
G	0.026 BSC		0.65 BSC	
H	---	0.004	---	0.10
J	0.004	0.010	0.10	0.25
K	0.004	0.012	0.10	0.30
N	0.008 REF		0.20 REF	
S	0.079	0.087	2.00	2.20

STYLE 23:
PIN 1. Vn
2. I/O
3. Vp
4. N/C
5. I/O
6. N/C



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