NUP4301MR6

Low Capacitance Diode Array

Features

- Low Capacitance Diode Array for ESD Protection in Four Data Lines
- SOT23-6 package
- Low Capacitance (1.5 pf Between I/O-I/O Lines)
- Low leakage current
- Protection one data/power line to:
- IEC 61000-4-2 ±8kV contact ±15kV air
- This is a Pb−Free Device

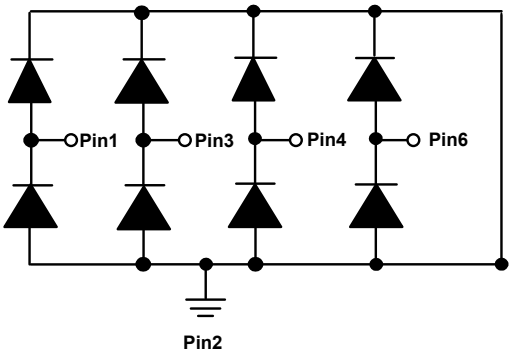
Applications

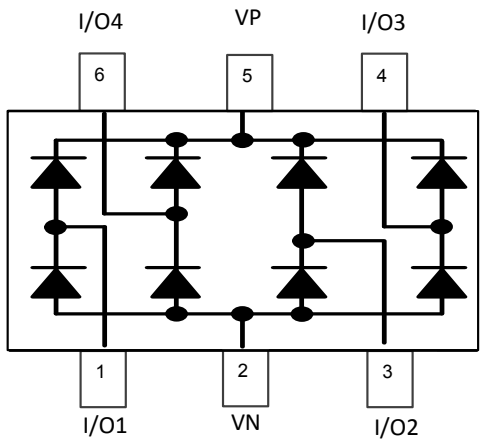
- USB 1.1 and 2.0 Data Line Protection
- HDSL, IDSL Secondary IC Protection
- Video Line Protection
- Microcontroller Input Protection

Mechanical Data

- SOT23-6 package
- Molding compound flammability rating: UL 94V-0
- Packaging: Tape and Reel
- RoHS/WEEE Compliant

Schematic & PIN Configuration





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

Rating	Symbol	Value	Unit
Reverse Voltage	V_R	70	V
Forward Current	I_F	200	mA
Peak Forward Surge Current	I_{FM}	500	mA
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

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction−to−Ambient	$R_{\theta JA}$	556	°C/W
Lead Solder Temperature, Maximum 10 Seconds Duration	T_L	260	°C
Junction Temperature	T_J	−40 to +150	°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	 –	 –	V
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	μA
Capacitance (between I/O pins) (V_R = 0 V, f = 1.0 MHz)	C_D	 –	 –	 1.5	pF
Capacitance (between I/O pin and ground) (V_R = 0 V, f = 1.0 MHz)	C_D	 –	 –	 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}

Typical Characteristic Curves

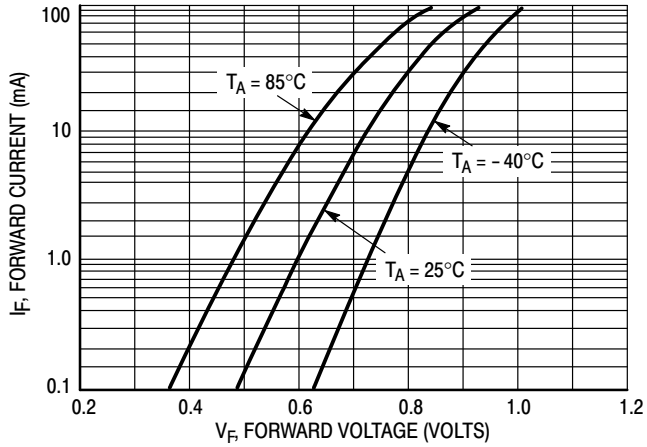


Figure 1. Forward Voltage

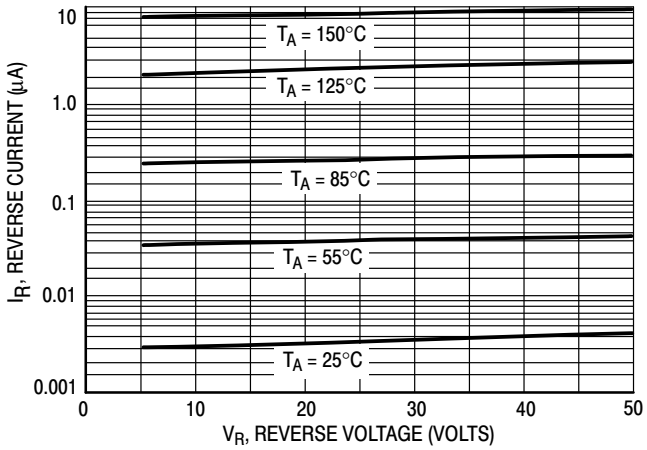


Figure 2. Leakage Current

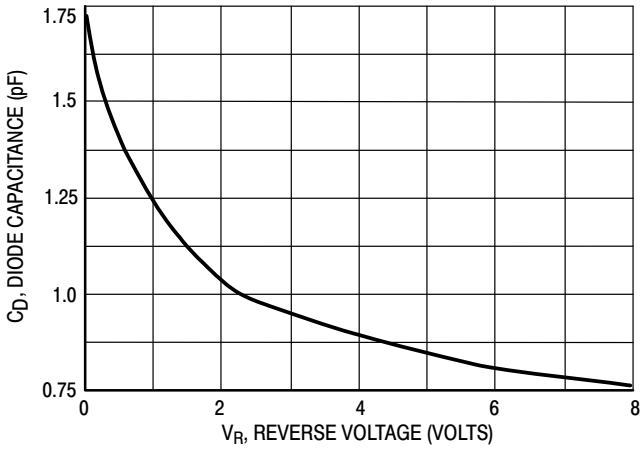
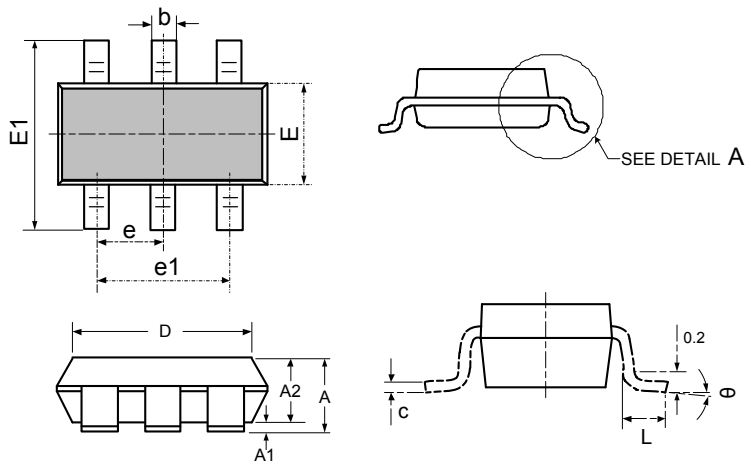
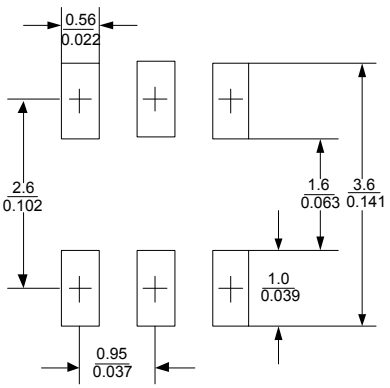


Figure 3. Capacitance

Outline Drawing – SOT23-6



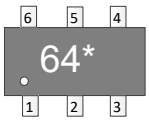
DIMENSIONS				
SYMBOL	INCHES		MILLIMETER	
	MIN	MAX	MIN	MAX
A	0.041	0.049	1.050	1.250
A1	0.000	0.004	0.000	0.100
A2	0.041	0.045	1.050	1.150
D	0.111	0.119	2.820	3.020
E	0.059	0.067	1.500	1.700
E1	0.104	0.116	2.650	2.950
b	0.012	0.020	0.300	0.500
e	0.037(BSC)		0.950(BSC)	
e1	0.071	0.079	1.800	2.000
L	0.012	0.024	0.300	0.600
θ	0°	8°	0°	8°



Notes

1. This land pattern is for reference purposes only consult your manufacturing group to ensure your company's manufacturing guidelines are met.

Marking



Ordering information

Order code	Package	Base qty	Delivery mode
NUP4301MR6	SOT23-6	3k	Tape and reel