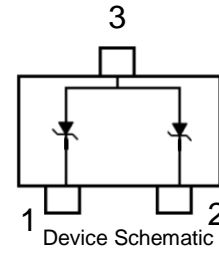


The NUP1105L has been designed to protect LIN and single line CAN transceivers from ESD and other harmful transient voltage events. This device provides bidirectional protection for the data line with a single SOT-23 package, giving the system designer a low cost option for improving system reliability .



**Features**

- SOT-23 Package Allows One Separate Bidirectional Configuration
- 350 W Peak Power Dissipation per Line (8 x 20 sec Waveform)
- Low Reverse Leakage Current (< 100 nA)
- IEC Compatibility:
  - IEC 61000-4-2 (ESD): Level 4
  - IEC 61000-4-4 (EFT): 40 A – 5/50 ns
  - IEC 61000-4-5 (Lighting) 8.0 A (8/20 μs)
- ISO 7637-1, Nonrepetitive EMI Surge Pulse TBD
- ISO 7637-3, Repetitive Electrical Fast Transient (EFT) TBD
- EMI Surge Pulses

**Applications**

- Industrial Control Networks
- DeviceNet™

## MAXIMUM RATINGS (T<sub>J</sub> = 25°C, unless otherwise specified)

Symbol	Rating	Value	Unit
PPK	Peak Power Dissipation 8 x 20 μs Double Exponential Waveform (Note 1)	350	W
T <sub>J</sub>	Operating Junction Temperature Range	-55 to 150	°C
T <sub>J</sub>	Storage Temperature Range	-55 to 150	°C
T <sub>L</sub>	Lead Solder Temperature (10 s)	260	°C
ESD	Human Body model (HBM)	16	kV
	Machine Model (MM)	400	V
	IEC 61000-4-2 Specification (Contact)	30	kV

1. Non-repetitive current pulse per Figure 1.

## ELECTRICAL CHARACTERISTICS (T<sub>J</sub> = 25°C, unless otherwise specified)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V <sub>RWM</sub>	Reverse Working Voltage	(Note 2)	24			V
V <sub>BR</sub>	Breakdown Voltage	I <sub>T</sub> = 1 mA (Note 3)	25.7		28.4	V
I <sub>R</sub>	Reverse Leakage Current	V <sub>RWM</sub> = 24 V		15	100	nA
V <sub>C</sub>	Clamping Voltage	I <sub>PP</sub> = 5 A (8 x 20 μs Waveform) (Note 4)			40	V
V <sub>C</sub>	Clamping Voltage	I <sub>PP</sub> = 8 A (8 x 20 μs Waveform) (Note 4)			44	V
I <sub>PP</sub>	Maximum Peak Pulse Current	8 x 20 μs Waveform (Note 4)			8.0	A
C <sub>J</sub>	Capacitance	V <sub>R</sub> = 0 V, f = 1 MHz (Anode to GND)			60	pF
		V <sub>R</sub> = 0 V, f = 1 MHz (Anode to Anode)			30	

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

2. TVS devices are normally selected according to the working peak reverse voltage (V<sub>RWM</sub>), which should be equal or greater than the DC or continuous peak operating voltage level.
3. V<sub>BR</sub> is measured at pulse test current I<sub>T</sub>.
4. Pulse waveform per Figure 1.

**TYPICAL PERFORMANCE CURVES** ( $T_J = 25^\circ\text{C}$  unless otherwise noted)

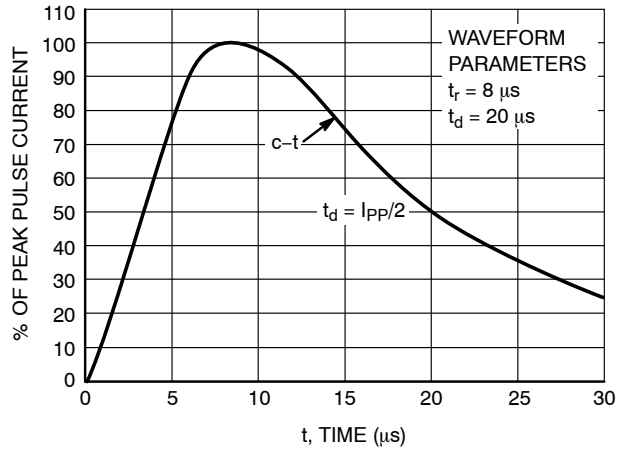


Figure 1. Pulse Waveform, 8 x 20  $\mu\text{s}$

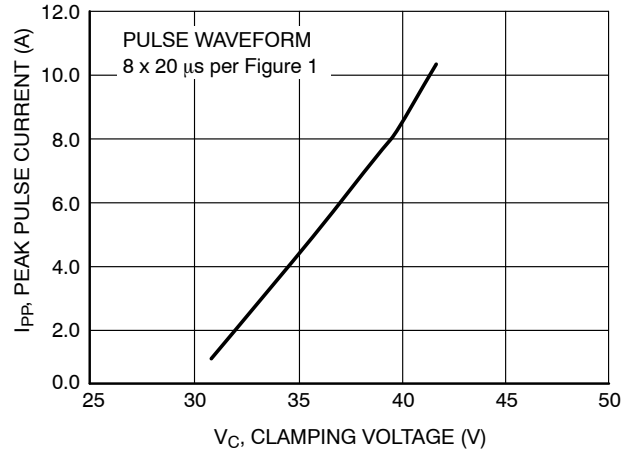


Figure 2. Clamping Voltage vs Peak Pulse Current

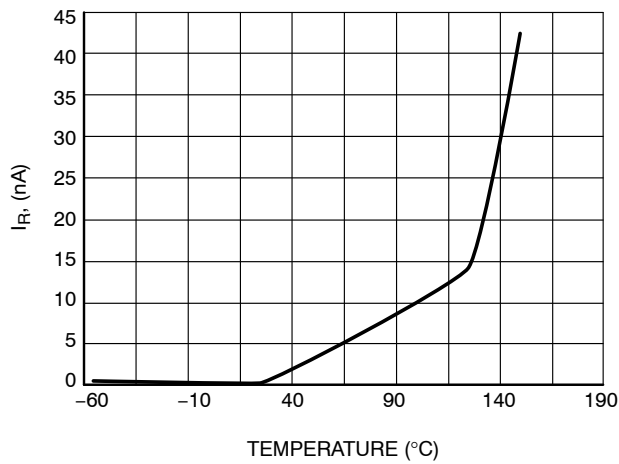


Figure 3. Typical Leakage vs. Temperature

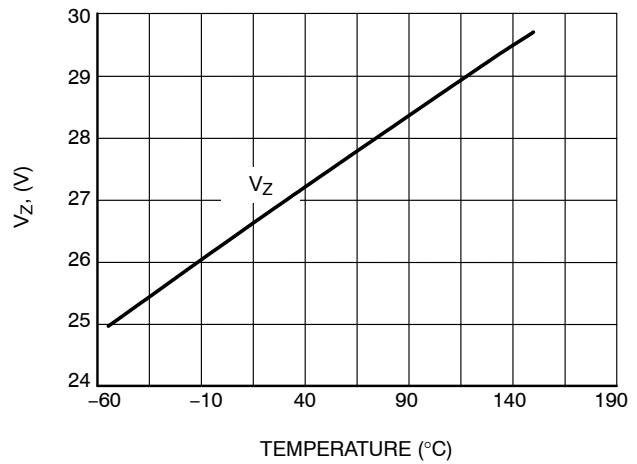


Figure 4. Typical  $V_Z$  @ 1.0 mA vs. Temperature

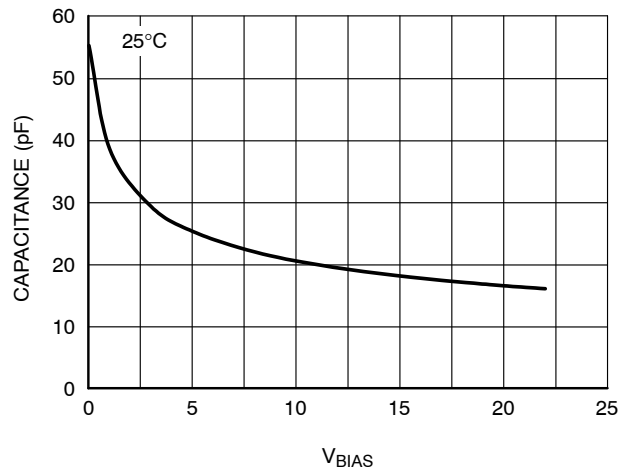
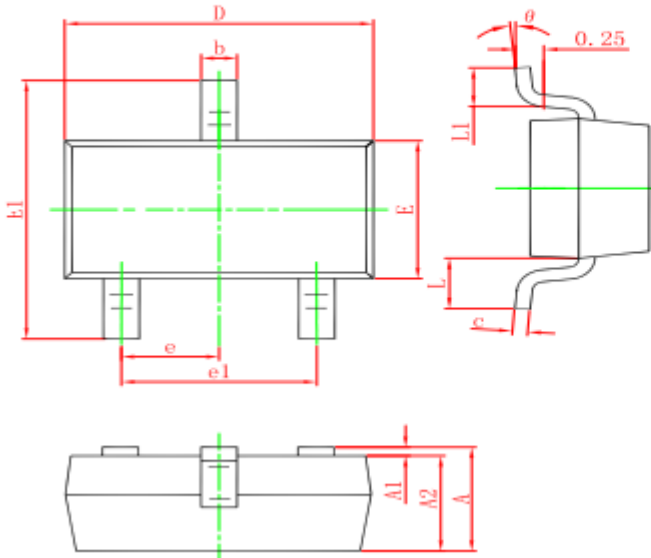


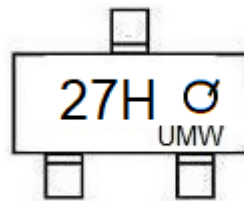
Figure 5. Capacitance vs.  $V_{BIAS}$

**SOT-23 PACKAGE OUTLINE DIMENSIONS**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

**Marking**



**Ordering information**

Order code	Package	Baseqty	Deliverymode
UMW NUP1105LT1G	SOT-23	3000	Tape and reel