UMW NUP1105LT1G

1.Description

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 .

2.Applications

- Industrial Control Networks
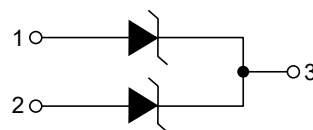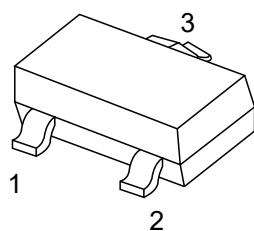- DeviceNet™

3.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)
- ISO 7637-1, Nonrepetitive EMI Surge Pulse TBD

- 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 7637-3, Repetitive Electrical Fast Transient (EFT) TBDEMI Surge Pulses

4.Pinning information

SOT-23

5.Absolute Maximum Ratings (T$_J$=25°C, unless otherwise specified)

Parameter	Symbol	Value	Units
Peak Power Dissipation,8x20μs Double Exponential Waveform (Note 1)	P$_{PK}$	350	W
Junction Temperature Range	T$_J$	-55 to 150	°C
Storage Temperature Range	T$_J$	-55 to 150	°C
Lead Solder Temperature (10 s)	T$_L$	260	°C
Human Body Model (HBM)	ESD	16	kV
Machine Model (MM)		400	V
IEC 61000−4−2 Specification (Contact)		30	kV

Notes:

1. Non-repetitive current pulse per Figure 1.

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6.Electrical Characteristic (T$_J$=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Reverse Working Voltage	V$_{RWM}$	(Note 2)	24			V
Breakdown Voltage	V$_{BR}$	I$_T$=1mA (Note 3)	25.7		28.4	V
Reverse Leakage Current	I$_R$	V$_{RWM}$=24V		15	100	nA
Clamping Voltage	V$_C$	I$_{PP}$=5A(8x20µs Waveform) (Note 4)			40	V
Clamping Voltage	V$_C$	I$_{PP}$=8A(8x20µs Waveform) (Note 4)			44	V
Maximum Peak Pulse Current	I$_{PP}$	8x20µs Waveform (Note 4)			8	A
Capacitance	C$_J$	V$_R$=0V, f=1MHz (Line to GND)			60	pF
		V$_R$=0V, f=1MHz (Anode to Anode)			30	pF

Notes:

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.
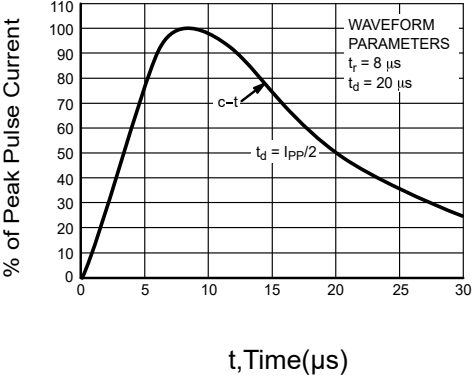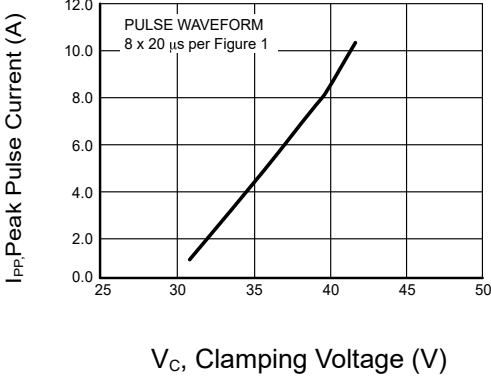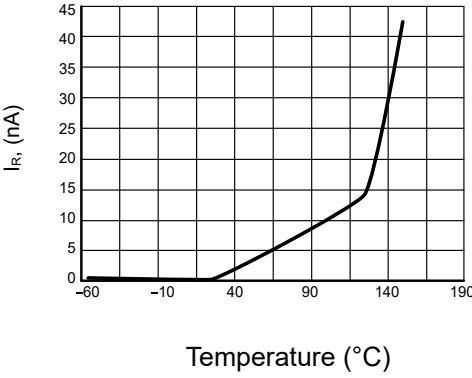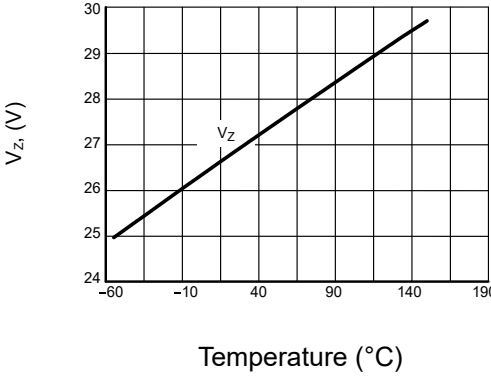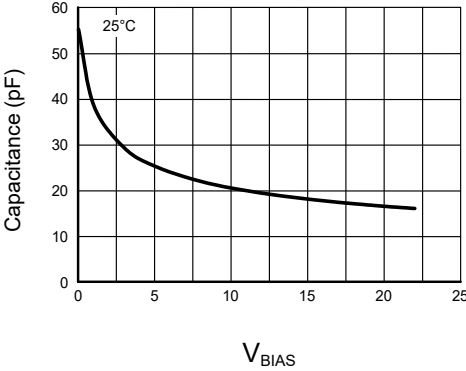
2. TVS devices are normally selected according to the working peak reverse voltage (V$_{RWM}$), which should be equal or greater than the DC or continuous peak operating voltage level.

3. V$_{BR}$ is measured at pulse test current I$_T$.

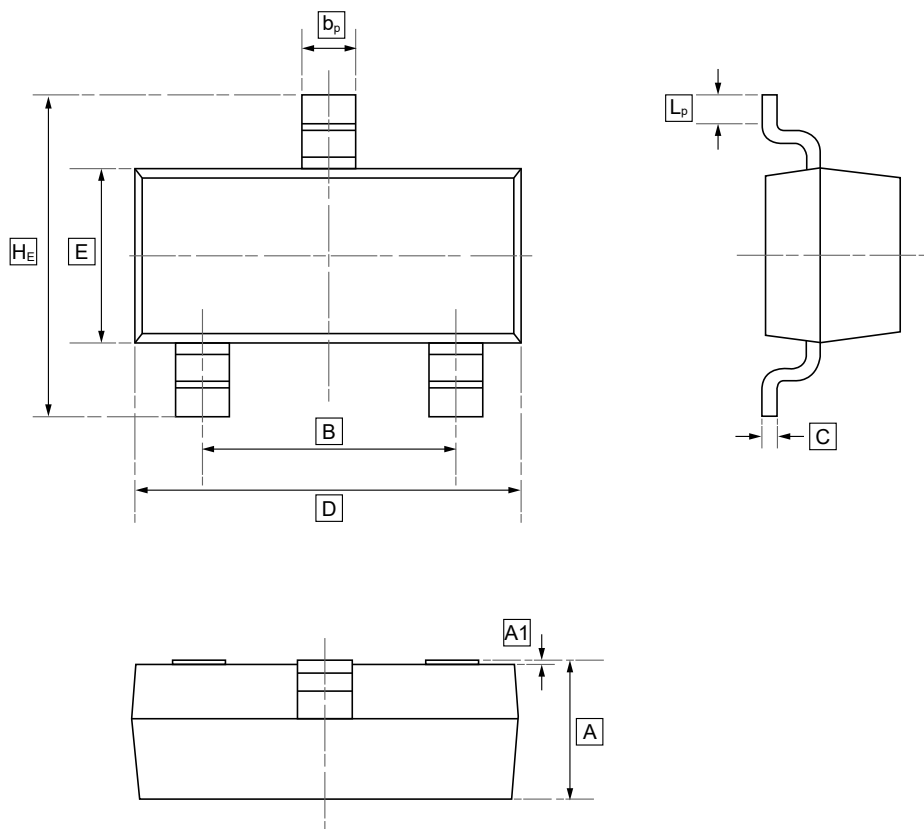4. Pulse waveform per Figure 1.

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8.Typical characteristic

Figure 1: Pulse Waveform, 8 × 20 μs

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}

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9.SOT-23 Package Outline Dimensions

DIMENSIONS (mm are the original dimensions)

Symbol	A	B	b_p	C	D	E	H_E	A1	L_p
Min	0.95	1.78	0.35	0.08	2.70	1.20	2.20	0.013	0.20
Max	1.40	2.04	0.50	0.19	3.10	1.65	3.00	0.100	0.50

10.Ordering information

27HＱ
UMW yww

yww: Batch Code

Order Code	Package	Base QTY	Delivery Mode
UMW NUP1105LT1G	SOT-23	3000	Tape and reel

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11.Disclaimer

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