

1.Description

The NUP2105L has been designed to protect the CAN transceiver in high-speed and fault tolerant networks from ESD and other harmful transient voltage events.

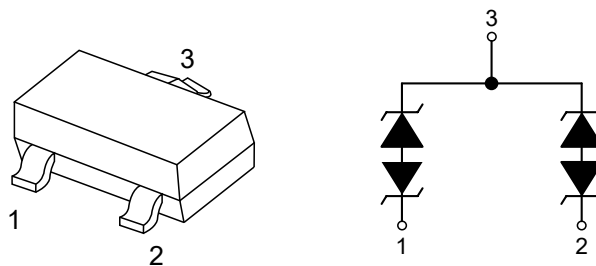
3.Features

- 350 W Peak Power Dissipation per Line
(8 x 20sec Waveform)
- Low Reverse Leakage Current (< 100 nA)
- Low Capacitance High-Speed CAN Data Rates
- IEC Compatibility:
 - IEC 61000-4-2 (ESD): Level 4
 - IEC 61000-4-4 (EFT): 40 A – 5/50ns
 - IEC 61000-4-5 (Lighting) 8.0 A (8/20μs)
- ISO 7637-1, Nonrepetitive EMI Surge Pulse
2, 9.5 A(1 x 50μs)

2.Applications

- Industrial Control Networks
- Automotive Networks
- Low and High-Speed CAN
- Fault Tolerant CAN
- ISO 7637-3, Repetitive Electrical Fast Transient (EFT)
EMI Surge Pulses, 50 A (5 x 50 ns)
- Flammability Rating UL 94 V-0
- AEC-Q101 Qualified and PPAP Capable
- SZ Prefix for Automotive and Other Applications
Requiring Unique
Site and Control Change Requirements
- Pb-Free Packages are Available*

4.Pinning information



SOT-23



5. Absolute Maximum Ratings ($T_J=25^{\circ}\text{C}$, unless otherwise specified)

Parameter	Symbol	Value	Units
Peak Power Dissipation, 8x20 μs Double Exponential Waveform (Note 1)	P_{PK}	350	W
Junction Temperature Range	T_J	-55 to 150	$^{\circ}\text{C}$
Storage Temperature Range	T_J	-55 to 150	$^{\circ}\text{C}$
Lead Solder Temperature (10 s)	T_L	260	$^{\circ}\text{C}$
Human Body Model (HBM)	ESD	16	kV
Machine Model (MM)		400	V
IEC 61000-4-2 Specification (Contact)		30	kV

Notes:

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

6. Electrical Characteristic ($T_J=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Reverse Working Voltage	V_{RWM}	(Note 2)	24			V
Breakdown Voltage	V_{BR}	$I_T=1\text{mA}$ (Note 3)	26.2		32	V
Reverse Leakage Current	I_R	$V_{RWM}=24\text{V}$		15	100	nA
Clamping Voltage	V_C	$I_{PP}=5\text{A}$ (8x20 μs Waveform) (Note 4)			40	V
Clamping Voltage	V_C	$I_{PP}=8\text{A}$ (8x20 μs Waveform) (Note 4)			44	V
Maximum Peak Pulse Current	I_{PP}	8x20 μs Waveform (Note 4)			8	A
Capacitance	C_J	$V_R=0\text{V}$, $f=1\text{MHz}$ (Line to GND)			30	pF

Notes:

1. Non-repetitive current pulse per Figure 1.
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.



7. Typical Characteristic

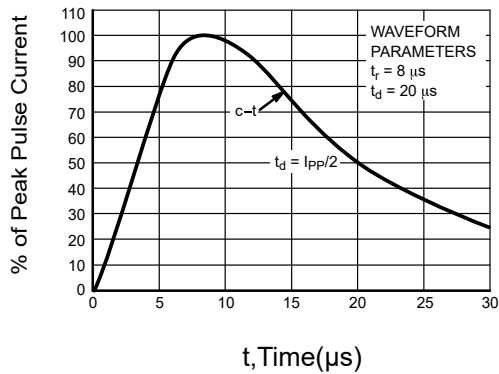
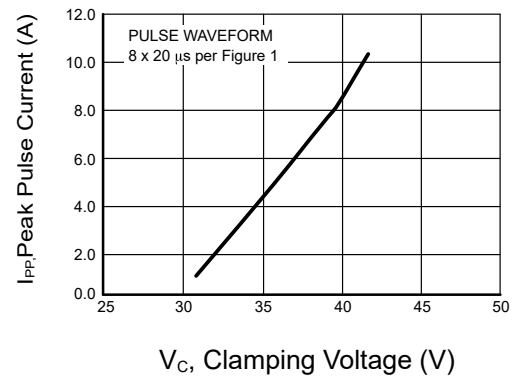
Figure 1: Pulse Waveform, 8 × 20 μs 

Figure 2: Clamping Voltage vs Peak Pulse Current

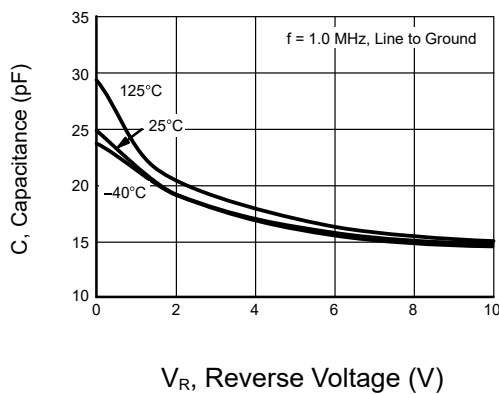


Figure 3: Typical Junction Capacitance vs Reverse Voltage

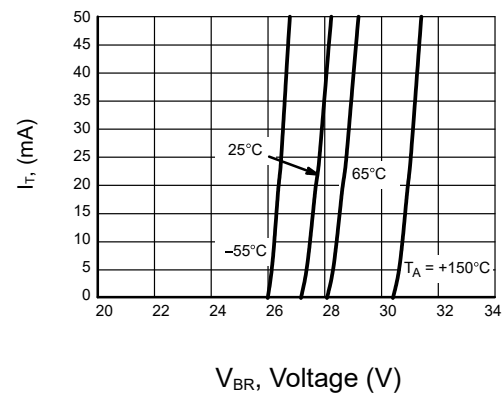
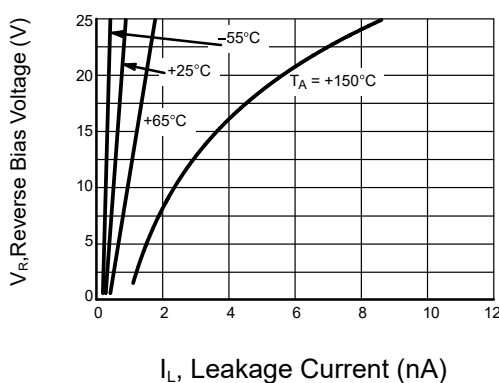
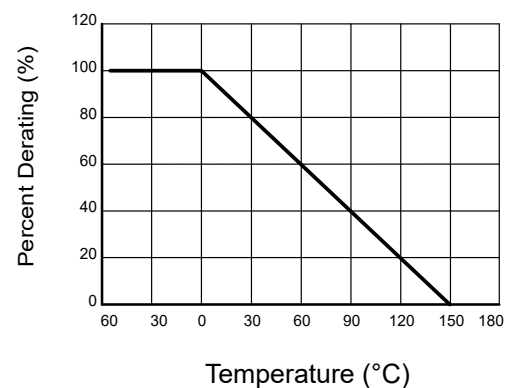
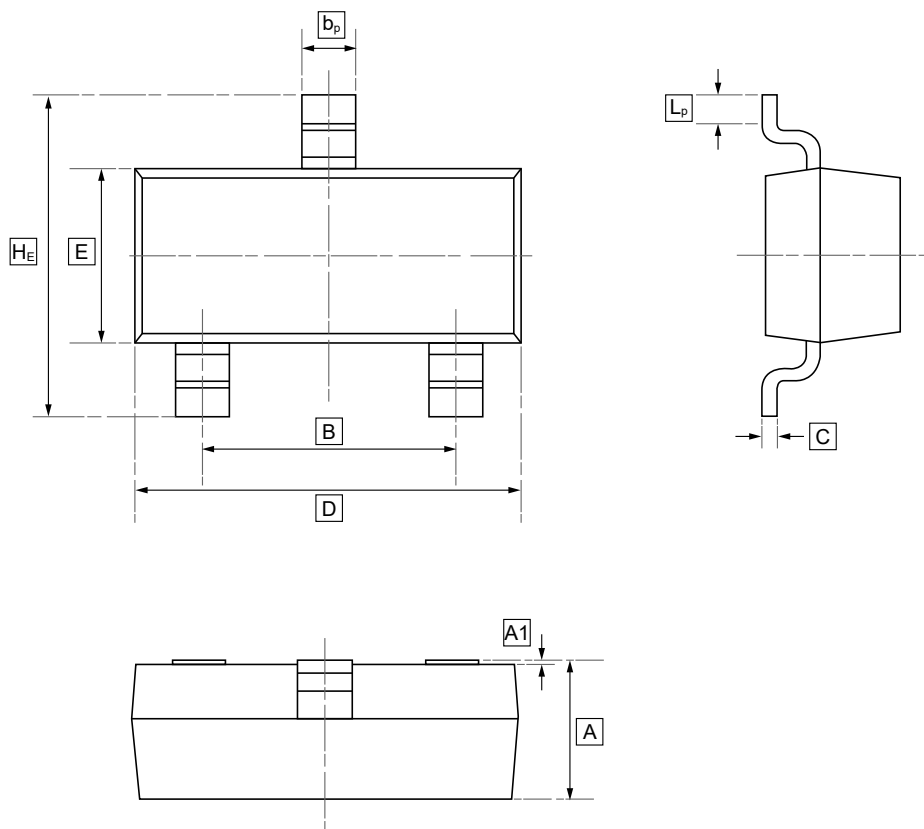
Figure 4: V_{BR} versus I_T CharacteristicsFigure 5: I_R versus Temperature Characteristics

Figure 6: Temperature Power Dissipation Derating



8.SOT-23 Package Outline Dimensions

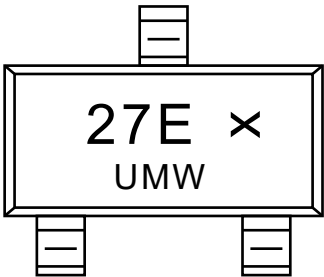


DIMENSIONS (mm are the original dimensions)

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



9.Ordering information



x: Batch Code

Order Code	Package	Base QTY	Delivery Mode
UMW NUP2105L	SOT-23	3000	Tape and reel



10.Disclaimer

UMW reserves the right to make changes to all products, specifications. Customers should obtain the latest version of product documentation and verify the completeness and currency of the information before placing an order.

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