

2-Line Bi-directional TVS Diode Array

General description

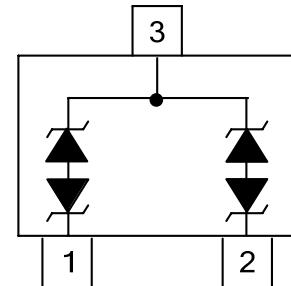
NUP2105L in small SOT23 SMD plastic package designed to protect two automotive Control Area Network (CAN) bus lines from the damage caused by ElectroStatic Discharge (ESD) and other transients.



SOT-23

Features

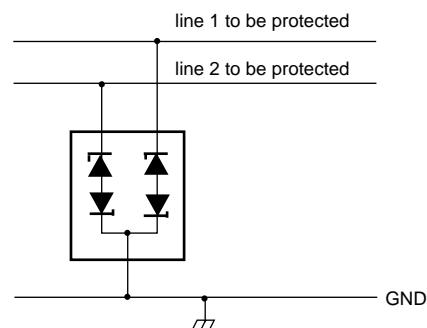
- Due to the integrated diode structure only one small SOT23 package is needed to protect two CAN bus lines
- Max. peak pulse power: $P_{pp} = 300 \text{ W}$ at $t_p = 8/20 \mu\text{s}$
- Low clamping voltage: $V_{(CL)R} = 40 \text{ V}$ at $I_{pp} = 1 \text{ A}$
- Ultra low leakage current: $I_{RM} < 1 \text{ nA}$
- ESD protection of up to 30 kV
- IEC 61000-4-2, level 4 (ESD)
- IEC 61000-4-5 (surge); $I_{pp} = 4\text{A}$ at $t_p = 8/20 \mu\text{s}$
- Small SMD plastic package



Pin Configuration

Applications

- Industrial Control Networks
 - Smart Distribution Systems (SDS[®])
 - DeviceNet[™]
- Automotive Networks
 - Low and High-Speed CAN
 - Fault Tolerant CAN



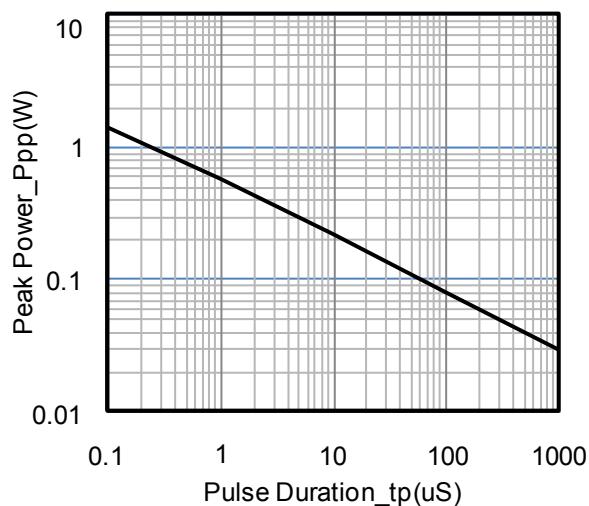
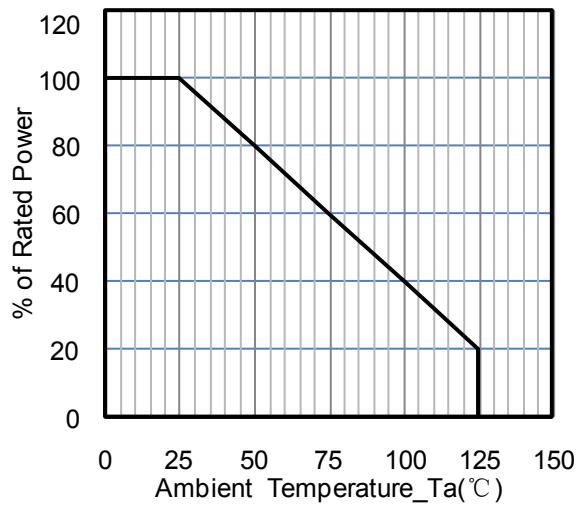
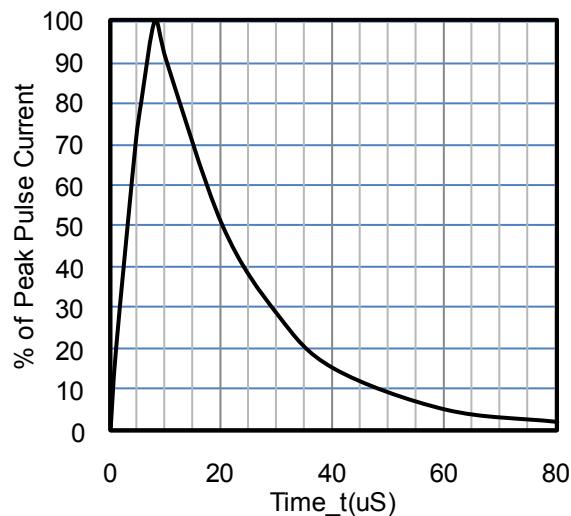
Typical application: ESD protection of two automotive CAN bus lines

2-Line Bi-directional TVS Diode Array
Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	300	W
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V _{ESD}	±15 ± 8	kV
Operating Temperature Range	T _J	-55 to +125	°C
Storage Temperature Range	T _{stg}	-55 to +150	°C

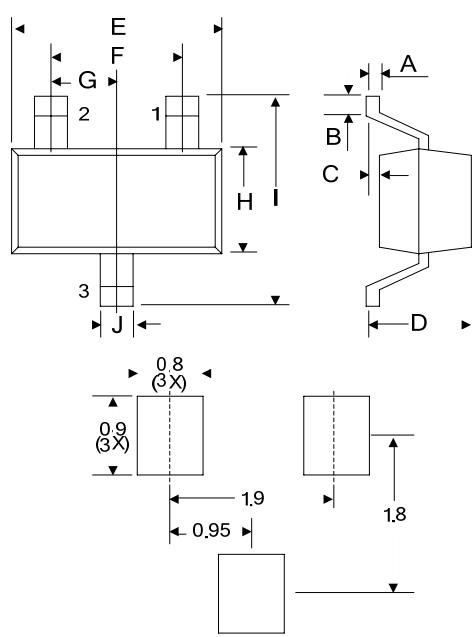
Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise specified)

NUP2105L						
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V _{RWM}			24	V	
Breakdown Voltage	V _{BR}	27			V	I _T = 1mA
Reverse Leakage Current	I _R			0.2	uA	V _{RWM} = 24V
Clamping Voltage	V _C			42	V	I _{PP} = 1A (8 x 20μs pulse)
Clamping Voltage	V _C			70	V	I _{PP} = 4A (8 x 20μs pulse)
Peak Pulse Current	I _{PP}			4	A	t _p = 8/20μs
Junction Capacitance	C _J		20		pF	VR = 0V, f = 1MHz, Pin 1 to Pin 3 or Pin 2 to Pin 3

Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)

Peak Pulse Power vs. Pulse Time

Power Derating Curve

8 X 20 μs Pulse Waveform

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PACKAGE DIMENSIONS

Symbol	Dimension SOT23			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.08	0.18	0.003	0.007
B	0.15	-	0.006	-
C	-	0.13	-	0.005
D	0.89	1.09	0.035	0.043
E	2.80	3.05	0.110	0.120
F	1.90		0.075	
G	0.95		0.037	
H	1.19	1.40	0.047	0.055
I	2.10	2.49	0.083	0.098
J	0.35	0.50	0.014	0.020


Packaging

Tape	Symbol	Dimension (mm)
	W	8.00±0.30
	P0	4.00±0.10
	P1	4.00±0.10
	P2	2.00±0.10
	D0	Φ1.55±0.10
	D1	Φ1.00±0.05
	E	1.75±0.10
	F	3.50±0.10
	A	3.10±0.10
	A0	2.10±0.10
	B	2.75±0.10
	B0	0.65±0.10
	K	1.10±0.10
	t	0.20±0.05
Reel	D	Φ178.0±2.0
	D2	Φ13.0
	W1	9.5
	Quantity: 3000PCS	