

1. Description

The ESDONCAN1L has been designed to protect the CAN transceiver from ESD and other harmful transient voltage events. This device provides bidirectional protection for each data line with a single compact SOT-23 package, giving the system designer a low cost option for improving system reliability and meeting stringent EMI requirements.

3. Features

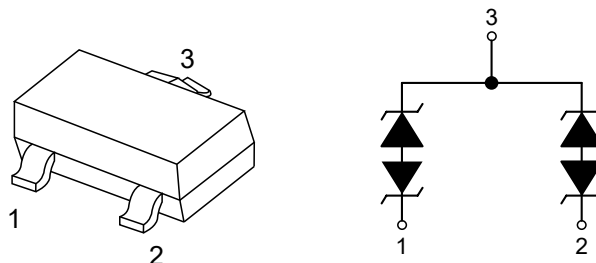
- 200W Peak Power Dissipation per Line
(8 x 20 sec Waveform)
- Diode Capacitance Matching
- Low Reverse Leakage Current (< 100 nA)
- Low Capacitance High-Speed FlexRay Data Rates
- ISO 7637-3, Repetitive Electrical Fast Transient (EFT) EMI Surge Pulses, 50 A (5 x 50 ns)
- Flammability Rating UL 94 V-0

2. Applications

- Industrial
- Smart Distribution Systems (SDS)
- DeviceNet

- IEC Compatibility:
 - IEC 61000-4-2 (ESD): Level 4
 - IEC 61000-4-4 (EFT): 50 A – 5/50 ns
 - IEC 61000-4-5 (Lighting) 3.0 A (8/20 s)
- ISO 7637-1, Nonrepetitive EMI Surge Pulse 2, 8.0 A (1 x 50 s)
- These are Pb-Free Devices

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}	200	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	8	kV
Machine Model (MM)		400	V
IEC 61000-4-2 Specification (Contact)		23	kV

Notes:

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. Non-repetitive current pulse per Figure 1.



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	$I_{PP}=1\text{A}$ (8x20 μs Waveform) (Note 4)		33.4	36.6	V
Clamping Voltage	V_C	$I_{PP}=3\text{A}$ (8x20 μs Waveform) (Note 4)		44	50	V
Maximum Peak Pulse Current	I_{PP}	8x20 μs Waveform (Note 4)			3	A
Capacitance	C_J	$V_R=0\text{V}$, $f=1\text{MHz}$ (Line to GND)			10	pF
Diode Capacitance Matching	ΔC	$V_R=0\text{V}$, 5MHz (Note 5)		0.26	2	%

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. Surge protection 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.

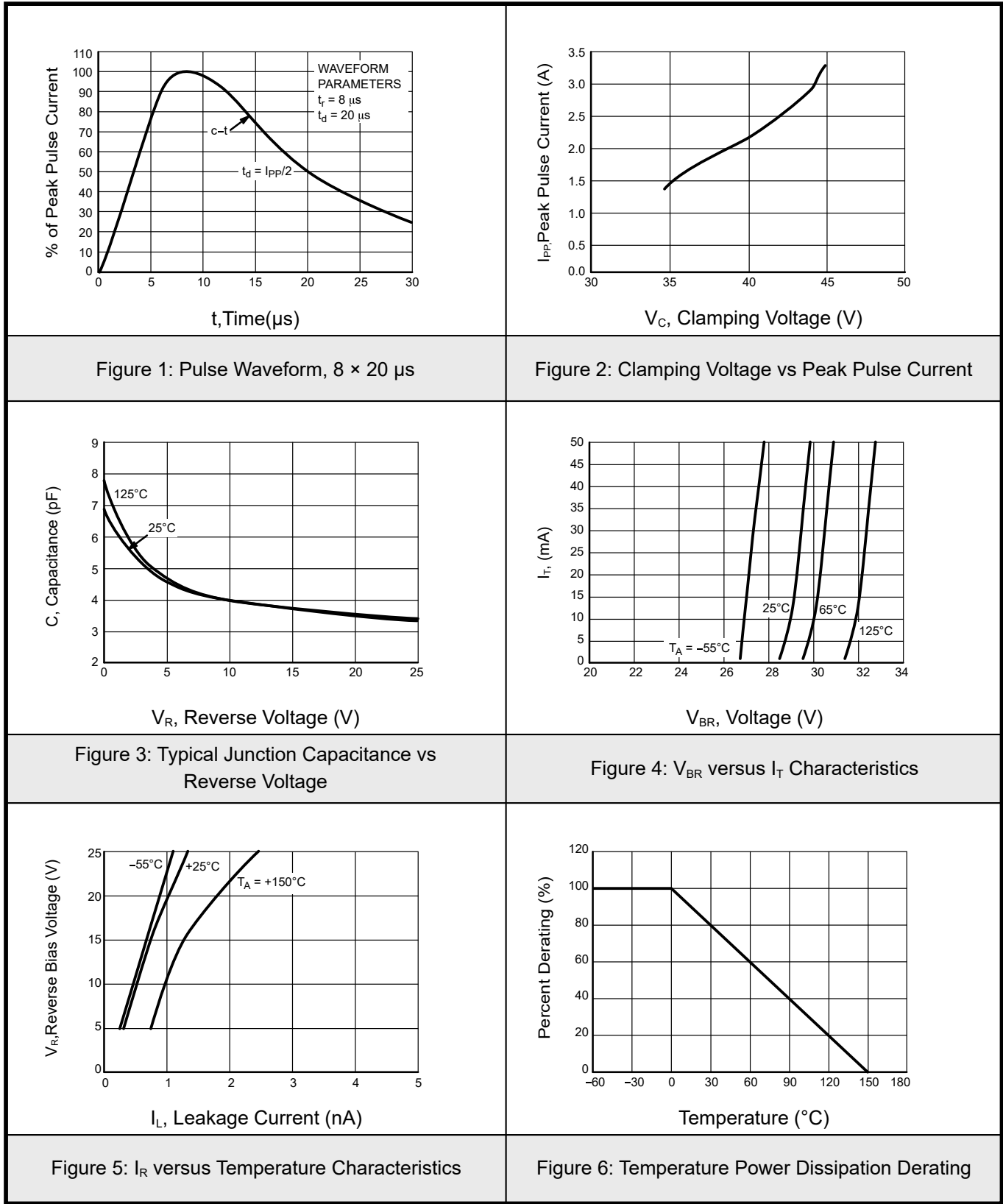
3. V_{BR} is measured at pulse test current I_T .

4. Pulse waveform per Figure 1.

5. ΔC is the percentage difference between C_J of lines 1 and 2 measured according to the test conditions given in the electrical characteristics table.

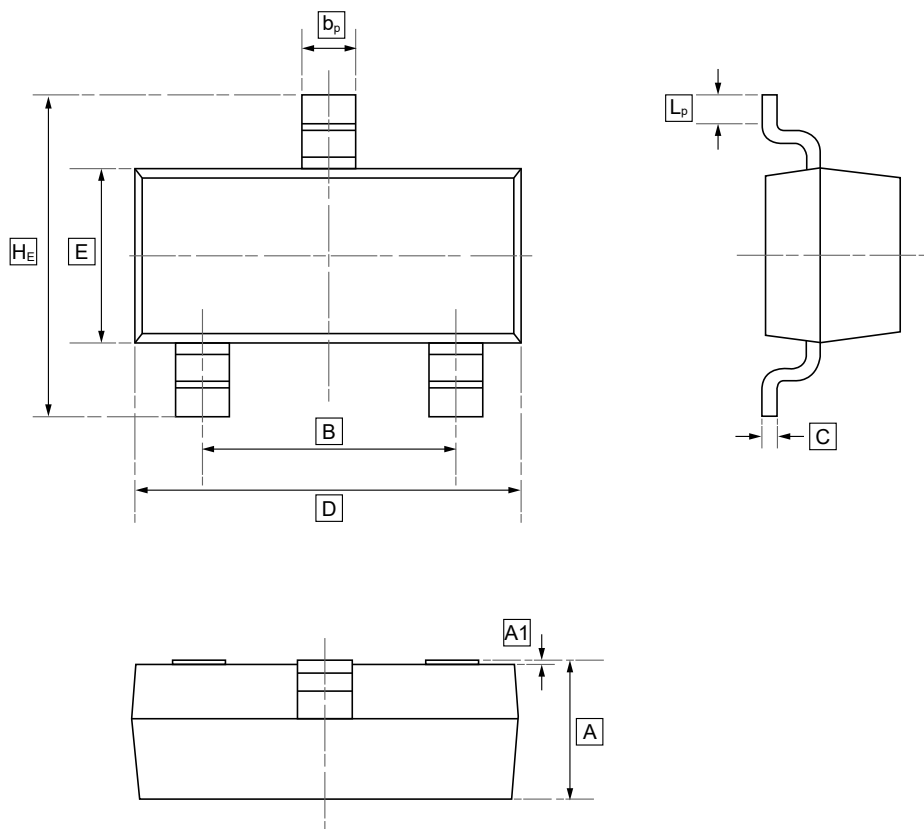


8. Typical characteristic





9.SOT-23 Package Outline Dimensions

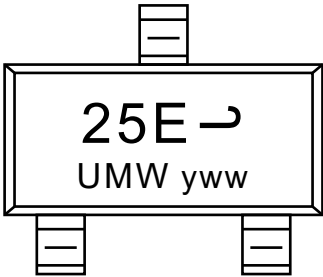


DIMENSIONS (mm are the original dimensions)

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



yww: Batch Code

Order Code	Package	Base QTY	Delivery Mode
UMW ESDONCAN1LT1G	SOT-23	3000	Tape and reel



11.Disclaimer

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