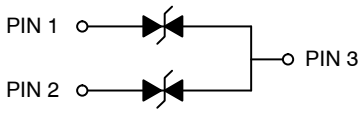
The ESDONCAN1L has been designed to protect the CAN transceiver from ESD and other harmful transient voltage events. This device provides bidirectional protection for each data line with a single compact SOT−23 package, giving the system designer a low cost option for improving system reliability and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



Features

- 200 W 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
- 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)
- ISO 7637−3, Repetitive Electrical Fast Transient (EFT) EMI Surge Pulses, 50 A (5 x 50 ns)
- Flammability Rating UL 94 V−0
- These are Pb−Free Devices

Typical Applications

- Industrial
  - Smart Distribution Systems (SDS)
  - DeviceNet

MAXIMUM RATINGS (T_J = 25°C, unless otherwise specified)

Symbol	Rating	Value	Unit
PPK	Peak Power Dissipation, 8 x 20 μs Double Exponential Waveform (Note 1)	200	W
T_J	Operating Junction Temperature Range	−55 to 150	°C
T_J	Storage Temperature Range	−55 to 150	°C
T_L	Lead Solder Temperature (10 s)	260	°C
ESD	Human Body Model (HBM) Machine Model (MM) IEC 61000−4−2 Specification (Contact)	8.0 400 23	kV V kV

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.

ELECTRICAL CHARACTERISTICS (T_J = 25°C, unless otherwise specified)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V_{RWM}	Reverse Working Voltage	(Note 2)	24	–	–	V
V_{BR}	Breakdown Voltage	I_T = 1 mA (Note 3)	26.2	–	32	V
I_R	Reverse Leakage Current	V_{RWM} = 24 V	–	15	100	nA
V_C	Clamping Voltage	I_{PP} = 1 A (8 x 20 μs Waveform) (Note 4)	–	33.4	36.6	V
V_C	Clamping Voltage	I_{PP} = 3 A (8 x 20 μs Waveform) (Note 4)	–	44	50	V
I_{PP}	Maximum Peak Pulse Current	8 x 20 μs Waveform (Note 4)	–	–	3.0	A
C_J	Capacitance	V_R = 0 V, f = 1 MHz (Line to GND)	–	–	10	pF
ΔC	Diode Capacitance Matching	V_R = 0 V, 5 MHz (Note 5)	–	0.26	2	%

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.

TYPICAL PERFORMANCE CURVES

(T_J = 25°C unless otherwise noted)

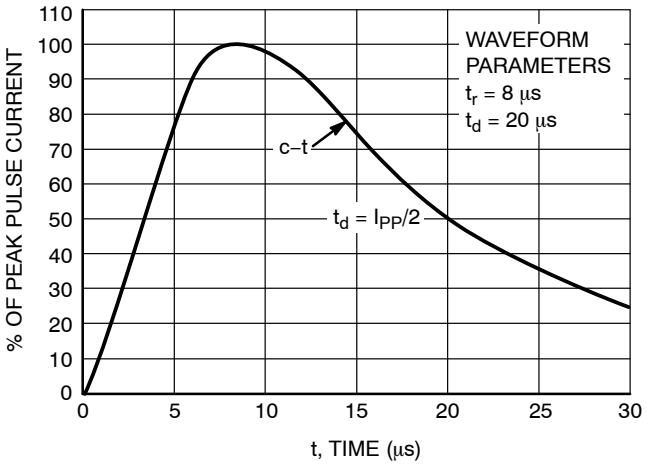


Figure 1. Pulse Waveform, 8 × 20 μs

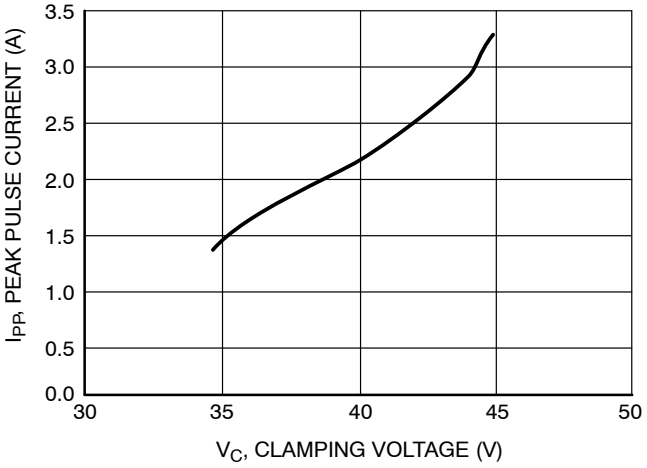


Figure 2. Clamping Voltage vs Peak Pulse Current

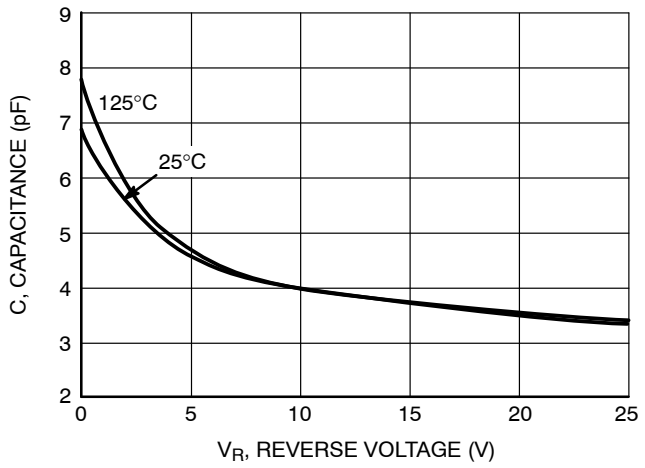


Figure 3. Typical Junction Capacitance vs Reverse Voltage

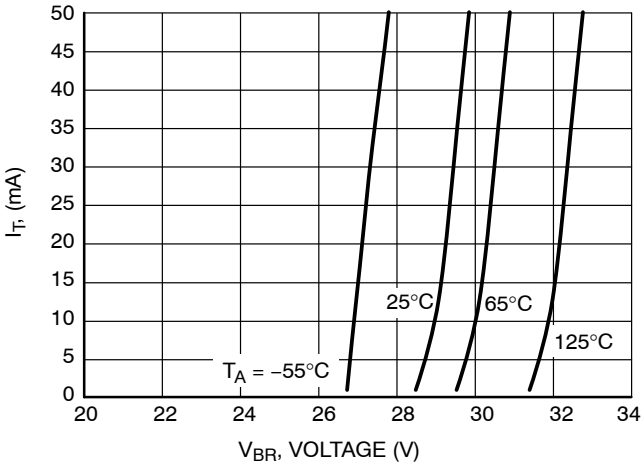


Figure 4. V_{BR} versus I_T Characteristics

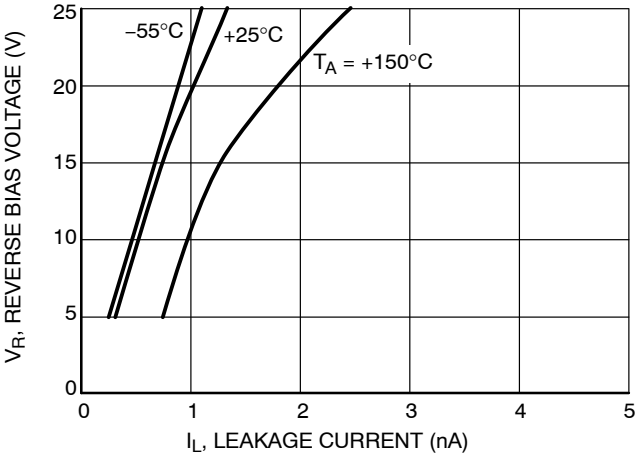


Figure 5. I_R versus Temperature Characteristics

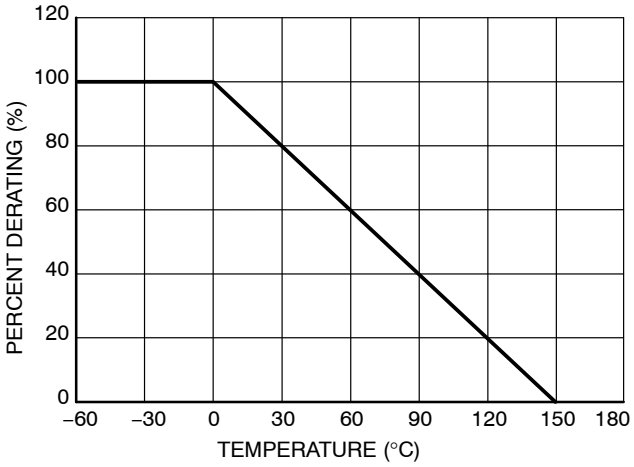
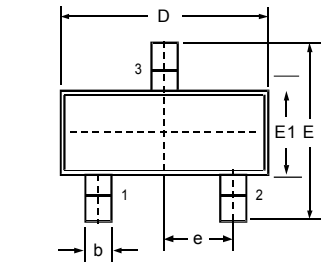
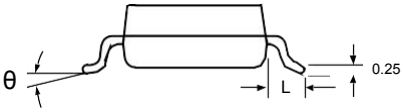
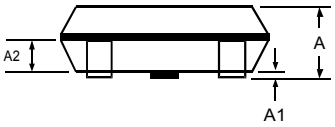


Figure 6. Temperature Power Dissipation Derating

Outline Drawing – SOT-23

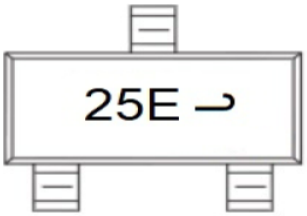






DIMENSIONS				
SYMBOL	MILLIMETER		INCHES	
	MIN	MAX	MIN	MAX
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
D	2.800	3.000	0.110	0.118
b	0.300	0.500	0.012	0.020
E	2.250	2.550	0.089	0.100
E1	1.200	1.400	0.047	0.055
e	0.950 BSC		0.037 BSC	
L	0.500	0.675	0.020	0.027
θ	0	8°	0	8°

Marking



Ordering information

Order code	Package	Baseqty	Delivery mode
UMW ESDONCAN1LT1G	SOT-23	3000	Tape and reel

Unikeyic Electronics

Global Electronic Components Distributor

Click to view pricing, inventory, delivery, and lifecycle information:

UMW:

LM2596HVS-12 LMV722IDR PESD24VL1BA FQD17P06TM HT7330-A LM2903DR SN74LVC1G32DRYR HT7550S SMBJ188CA 1N60L FDD4685 XC6206P302PR LMV612MAX SI2318A SN74AHCT1G86DBVR TSV611ILT TSV6291ILT AMS1117-1.5 LM293DR P4SMA6.8CA XC6206P362MR BAS21S LM317MDT SN74LV1T08DCKR SN74LVC1G126DRYR SN74LVC2G07DBVR TMP75AIDGKR 78M08 BAT54 LM2576HVS-ADJ