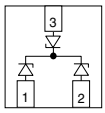
Bidirectional Symmetrical (BiSy) Low Capacitance, Dual-Line ESD Protection Diode in DFN1110-3A



DFN1110-3A

FEATURES

- For CAN FD Bus applications
- Small DFN1110-3A
- 2-line ESD protection
- Working range ± 33 V
- Low leakage current I_R < 0.05 µA
- Low load capacitance C_D < 6 pF (at V_R = 5 V)
- ESD immunity acc. IEC 61000-4-2
  ± 20 kV contact discharge
  ± 20 kV air discharge
- ESD capability according to AEC-Q101: human body model: class H3B: > 8 kV
- e3 - pins side wall plated with tin (Sn)
- AOI capable
- AEC-Q101 qualified available
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

AUTOMOTIVE GRADE Available

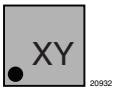
Pb-free

e3

RoHS COMPLIANT

HALOGEN FREE GREEN (5-2008)

MARKING (example only)



Dot = pin marking
X = date code
Y = type code (see table below)

LINKS TO ADDITIONAL RESOURCES

3D Models | Application Notes | SPICE Models

ORDERING INFORMATION

PART NUMBER (EXAMPLE)	ENVIRONMENTAL AND QUALITY CODE			PACKAGING CODE	ORDERING CODE (EXAMPLE)
	AEC-Q101 QUALIFIED	RoHS-COMPLIANT + LEAD (Pb)-FREE TERMINATIONS GREEN	TIN PLATED	10K PER 7" REEL (8 mm TAPE) 10K = MOQ	
VCAN33A2-HT5	-	G	3	-08	VCAN33A2-HT5-G3-08
VCAN33A2-HT5	H	G	3	-08	VCAN33A2-HT5HG3-08

PACKAGE DATA

DEVICE NAME	PACKAGE NAME	TYPE CODE	WEIGHT	MOLDING COMPOUND FLAMMABILITY RATING	MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS
VCAN33A2-HT5	DFN1110-3A	B	1.43 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	Peak temperature max. 260 °C

ABSOLUTE MAXIMUM RATINGS

PARAMETER	TEST CONDITIONS	SYMBOL	VALUE	UNIT
Peak pulse current	T_A = 25 °C, acc. IEC 61000-4-5; t_p = 8/20 µs; single shot	I_{PPM}	1.6	A
Peak pulse power	T_A = 25 °C; pin 1 or 2 to pin 3; acc. IEC 61000-4-5; t_p = 8/20 µs; single shot	P_{PP}	82	W
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses, T_A = 25 °C	V_{ESD}	± 20	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses, T_A = 25 °C		± 20	kV
Operating temperature	Junction temperature	T_J	-55 to +150	°C
Storage temperature		T_{STG}	-55 to +150	°C

ELECTRICAL CHARACTERISTICS (pin 1 to 3, 3 to 1, 2 to 3, or 3 to 2) (T_{amb} = 25 °C, unless otherwise specified)						
PARAMETER	**TEST CONDITIONS/REMARKS**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Protection paths	Number of lines which can be protected	$N_{channel}$	-	-	2	lines
Reverse stand-off voltage	Max. reverse working voltage	V_{RWM}	-	-	33	V
Reverse voltage	At I_R = 0.05 µA	V_R	33	-	-	V
Reverse current	At V_{RWM} = 33 V	I_R	-	-	0.05	µA
Reverse breakdown voltage	At I_R = 1 mA	V_{BR}	36	38	40	V
Reverse clamping voltage	At I_{PP} 1 A; t_p = 8/20 µs	V_C	-	-	48	V
	At $I_{PP} = I_{PPM}$ = 1.6 A; t_p = 8/20 µs	V_C	-	47	52	V
Capacitance	At V_R = 0 V, f = 1 MHz	C_D	-	6	8	pF
	At V_R = 5 V, f = 1 MHz		-	4.1	6	pF
	Diode capacitance matching at V_R = 5 V, C_{D13} vs. C_{D23}	dC_D	-	-	0.12	pF

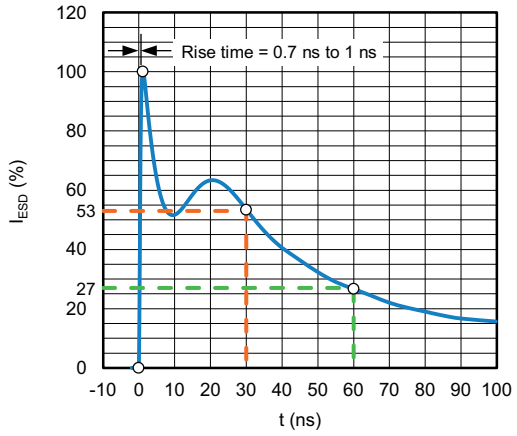


Fig. 1 - ESD Discharge Current Wave Form acc. IEC 61000-4-2 (330 Ω /150 pF)

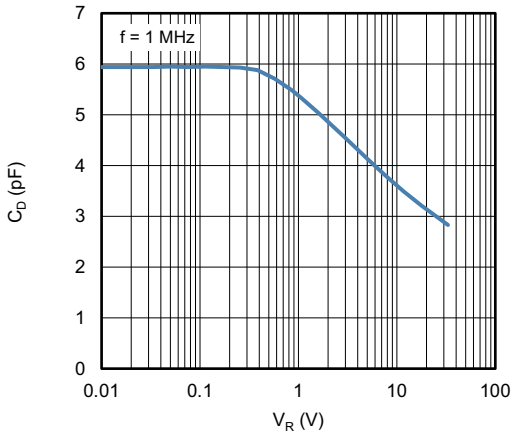


Fig. 3 - Typical Capacitance vs. Reverse Voltage

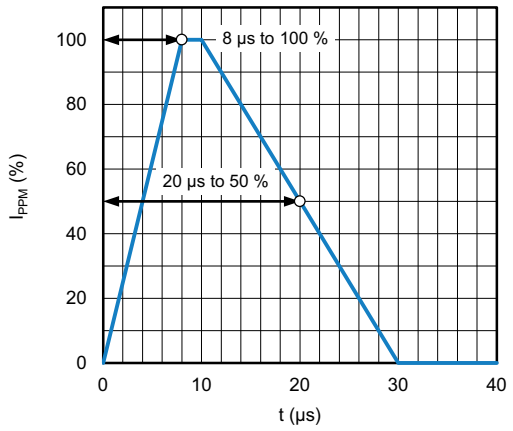


Fig. 2 - 8/20 µs Peak Pulse Current Wave Form acc. IEC 61000-4-5

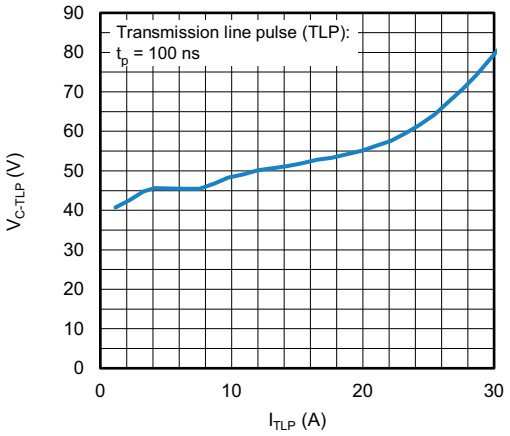


Fig. 4 - Typical Clamping Voltage vs. Peak Pulse Current

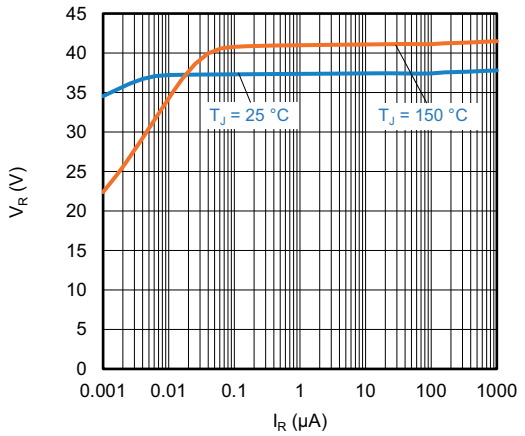


Fig. 5 - Typical Reverse Voltage vs. Reverse Current

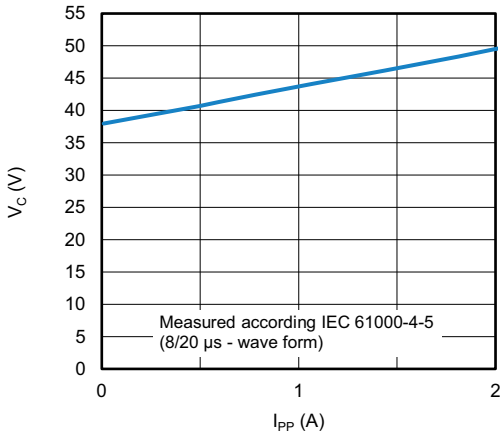
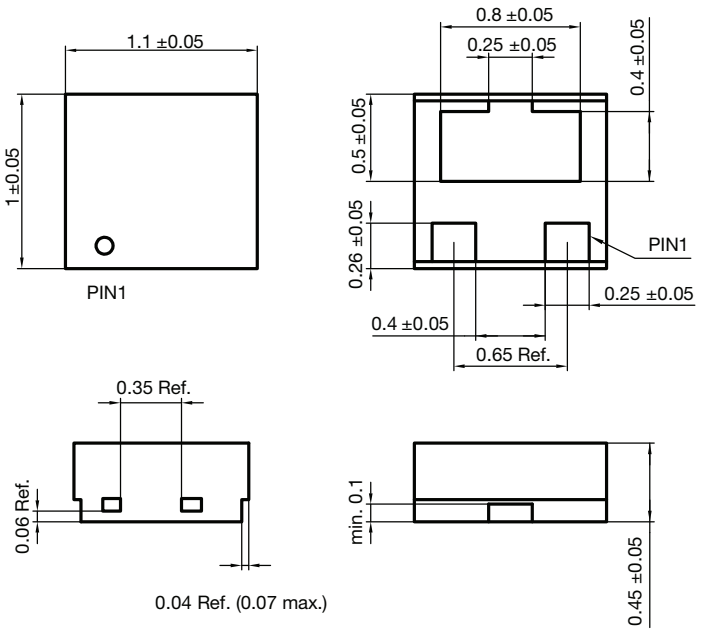
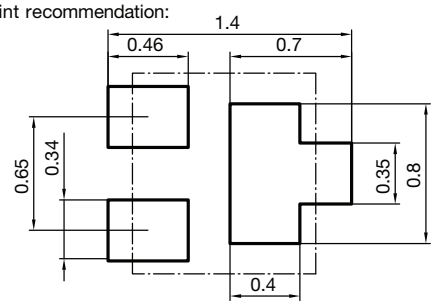


Fig. 6 - Typical Peak Clamping Voltage vs. Peak Pulse Current

PACKAGE DIMENSIONS in millimeters (inches)

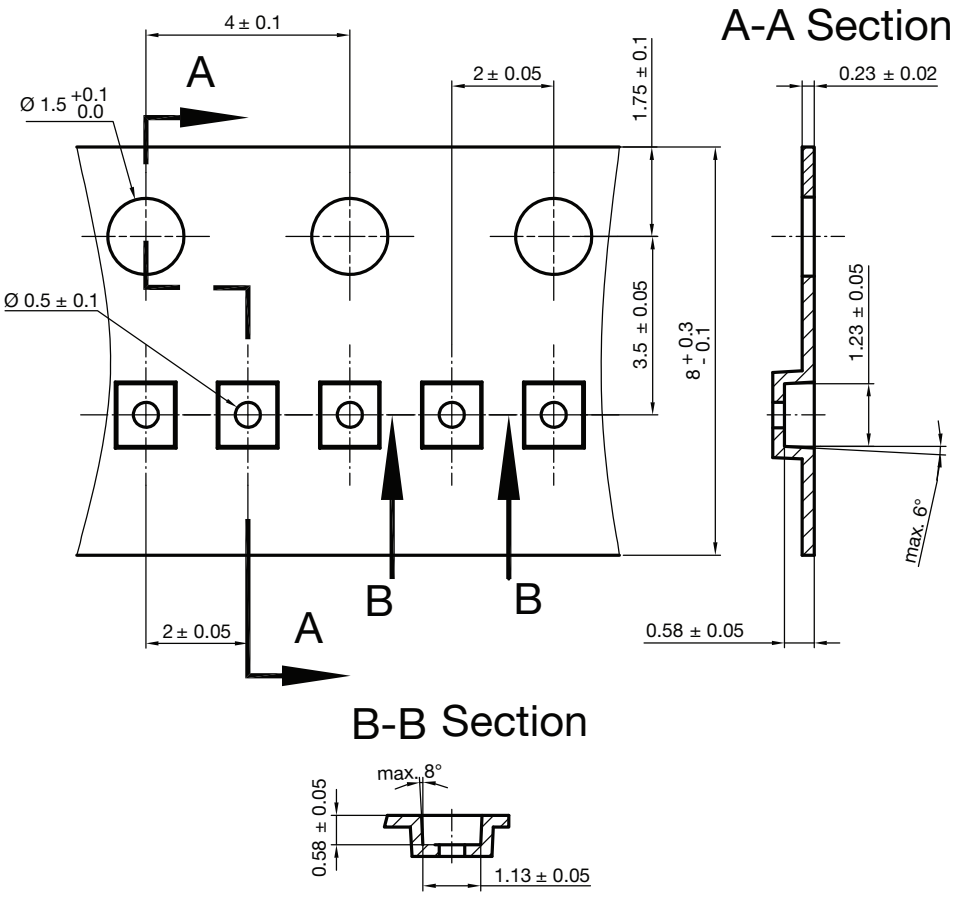


foot print recommendation:



Document no.: S8-V-3906.04-062 (4)
Package name: DFN1110-3A
Created - Date: 04-Apr-2019

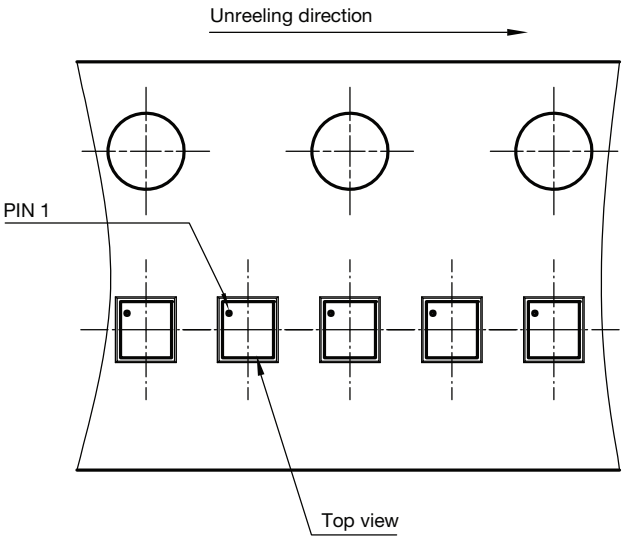
CARRIER TAPE DFN1110-3A



Document no: S8-V-3906.04-065 (4)
Package name: DFN1110-3A
Created date: 28.10.2019

surface resistance: 10^5 - 10^{11} $\frac{OHMS}{SQ}$
Cummulative tolerances of 10 sprocket holes is ± 0.2 mm

ORIENTATION IN CARRIER TAPE DFN1110-3A



Document no: S8-V-3906.04-066 (4)
Package name: DFN1110-3A
Created date: 28.10.2019

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