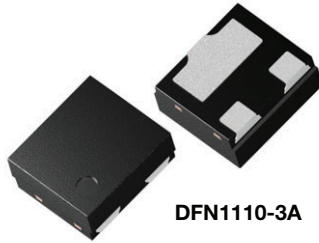
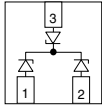
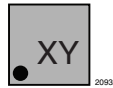


## Bidirectional Symmetrical (BiSy) Low Capacitance, Dual-Line ESD Protection Diode in DFN1110-3A


**DFN1110-3A**
**MARKING** (example only)


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

**FEATURES**

- For CAN FD Bus applications
- Small DFN1110-3A
- 2-line ESD protection
- Working range  $\pm 33$  V
- Low leakage current  $I_R < 0.05 \mu\text{A}$
- Low load capacitance  $C_D < 6 \text{ pF}$  (at  $V_R = 5 \text{ V}$ )
- ESD immunity acc. IEC 61000-4-2  $\pm 20 \text{ kV}$  contact discharge  $\pm 20 \text{ kV}$  air discharge
- ESD capability according to AEC-Q101: human body model: class H3B:  $> 8 \text{ kV}$
- 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](http://www.vishay.com/doc?99912)


**LINKS TO ADDITIONAL RESOURCES**


3D Models



Application Notes



Models

ORDERING INFORMATION						
PART NUMBER (EXAMPLE)	ENVIRONMENTAL AND QUALITY CODE			PACKAGING CODE		ORDERING CODE (EXAMPLE)
	AEC-Q101 QUALIFIED	RoHS-COMPLIANT + LEAD (Pb)-FREE TERMINATIONS	TIN PLATED	10K PER 7" REEL (8 mm TAPE) 10K = MOQ		
		GREEN				
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	$T_A = 25 \text{ }^\circ\text{C}$ , acc. IEC 61000-4-5; $t_p = 8/20 \mu\text{s}$ ; single shot		$I_{PPM}$	1.6	A
Peak pulse power	$T_A = 25 \text{ }^\circ\text{C}$ ; pin 1 or 2 to pin 3; acc. IEC 61000-4-5; $t_p = 8/20 \mu\text{s}$ ; single shot		$P_{PP}$	82	W
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses, $T_A = 25 \text{ }^\circ\text{C}$		$V_{ESD}$	$\pm 20$	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses, $T_A = 25 \text{ }^\circ\text{C}$			$\pm 20$	kV
Operating temperature	Junction temperature		$T_J$	-55 to +150	$^\circ\text{C}$
Storage temperature			$T_{STG}$	-55 to +150	$^\circ\text{C}$

**ELECTRICAL CHARACTERISTICS** (pin 1 to 3, 3 to 1, 2 to 3, or 3 to 2)  
 ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , 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 $I_R = 0.05\text{ }\mu\text{A}$	$V_R$	33	-	-	V
Reverse current	At $V_{RWM} = 33\text{ V}$	$I_R$	-	-	0.05	$\mu\text{A}$
Reverse breakdown voltage	At $I_R = 1\text{ mA}$	$V_{BR}$	36	38	40	V
Reverse clamping voltage	At $I_{PP} = 1\text{ A}$ ; $t_p = 8/20\text{ }\mu\text{s}$	$V_C$	-	-	48	V
	At $I_{PP} = I_{PPM} = 1.6\text{ A}$ ; $t_p = 8/20\text{ }\mu\text{s}$	$V_C$	-	47	52	V
Capacitance	At $V_R = 0\text{ V}$ , $f = 1\text{ MHz}$	$C_D$	-	6	8	pF
	At $V_R = 5\text{ V}$ , $f = 1\text{ MHz}$		-	4.1	6	pF
	Diode capacitance matching at $V_R = 5\text{ V}$ , $C_{D13}$ vs. $C_{D23}$	$dC_D$	-	-	0.12	pF

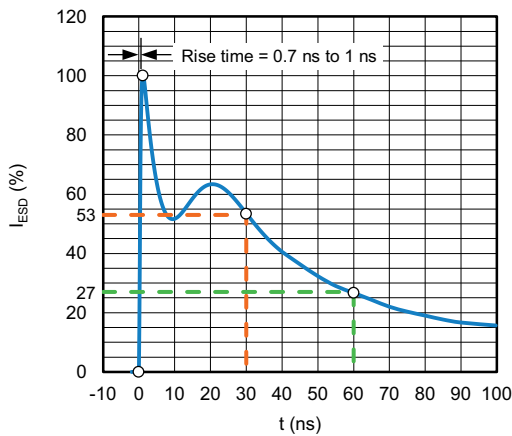
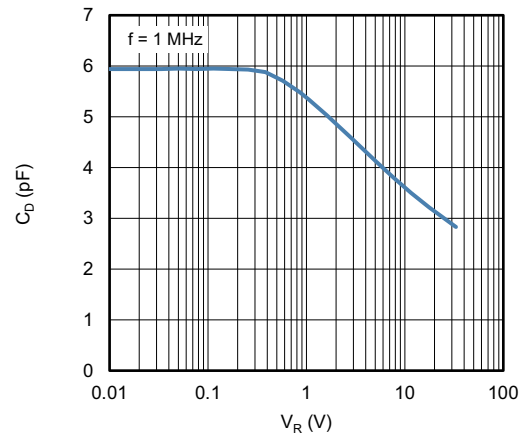

 Fig. 1 - ESD Discharge Current Wave Form acc. IEC 61000-4-2 (330  $\Omega$  /150 pF)


Fig. 3 - Typical Capacitance vs. Reverse Voltage

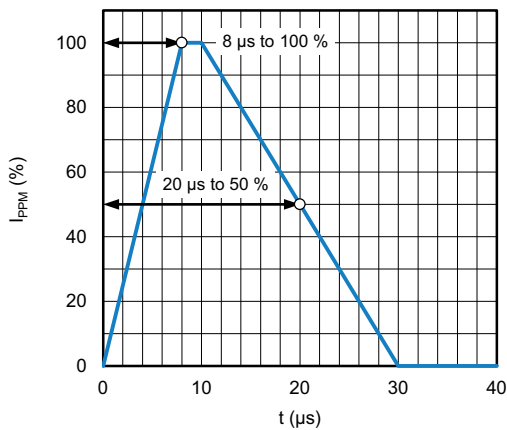
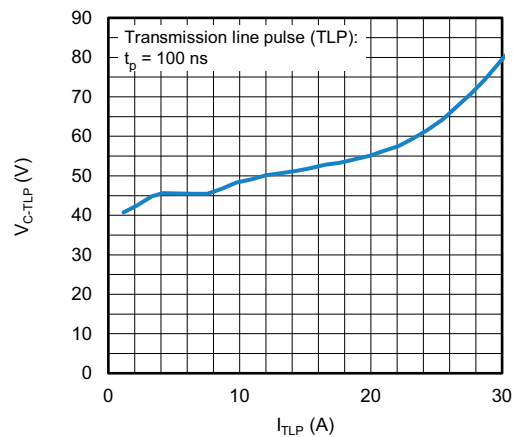

 Fig. 2 - 8/20  $\mu\text{s}$  Peak Pulse Current Wave Form acc. IEC 61000-4-5


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

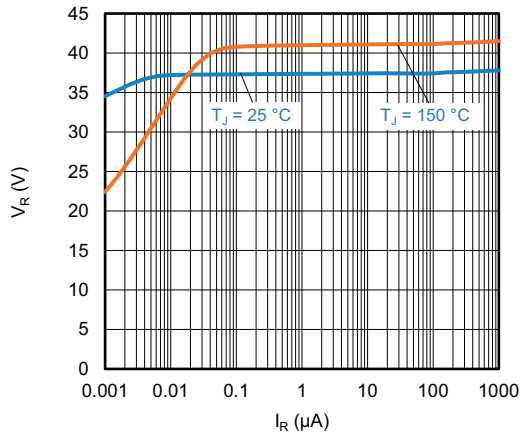


Fig. 5 - Typical Reverse Voltage vs. Reverse Current

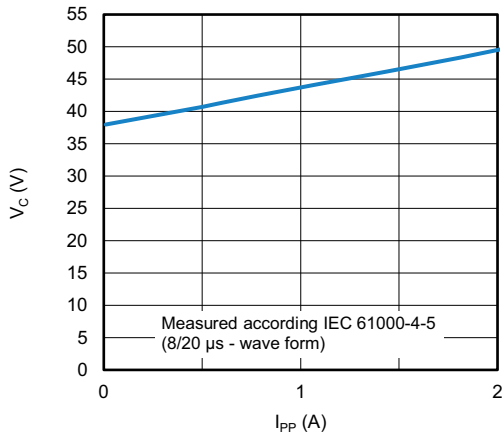
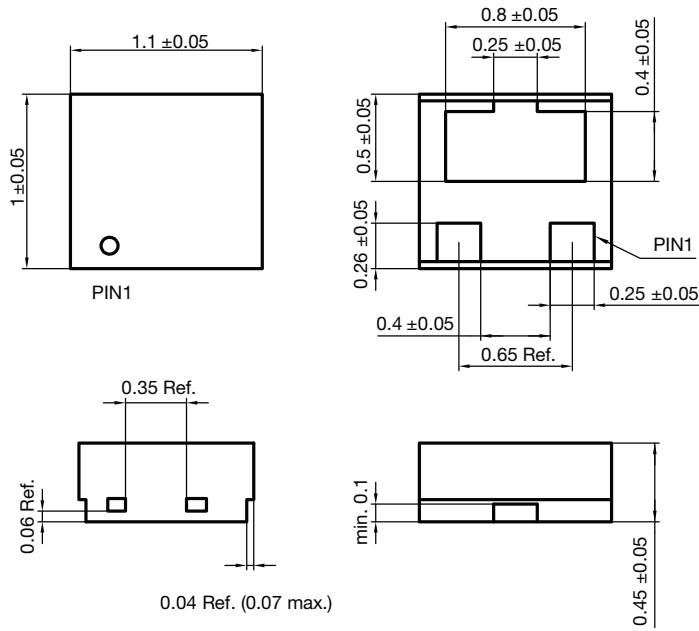


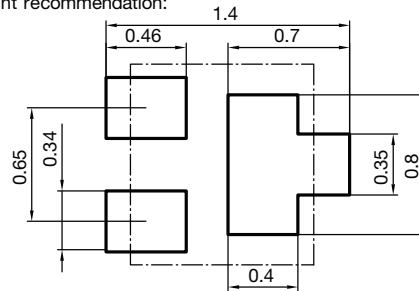
Fig. 6 - Typical Peak Clamping Voltage vs. Peak Pulse Current



## PACKAGE DIMENSIONS in millimeters (inches)



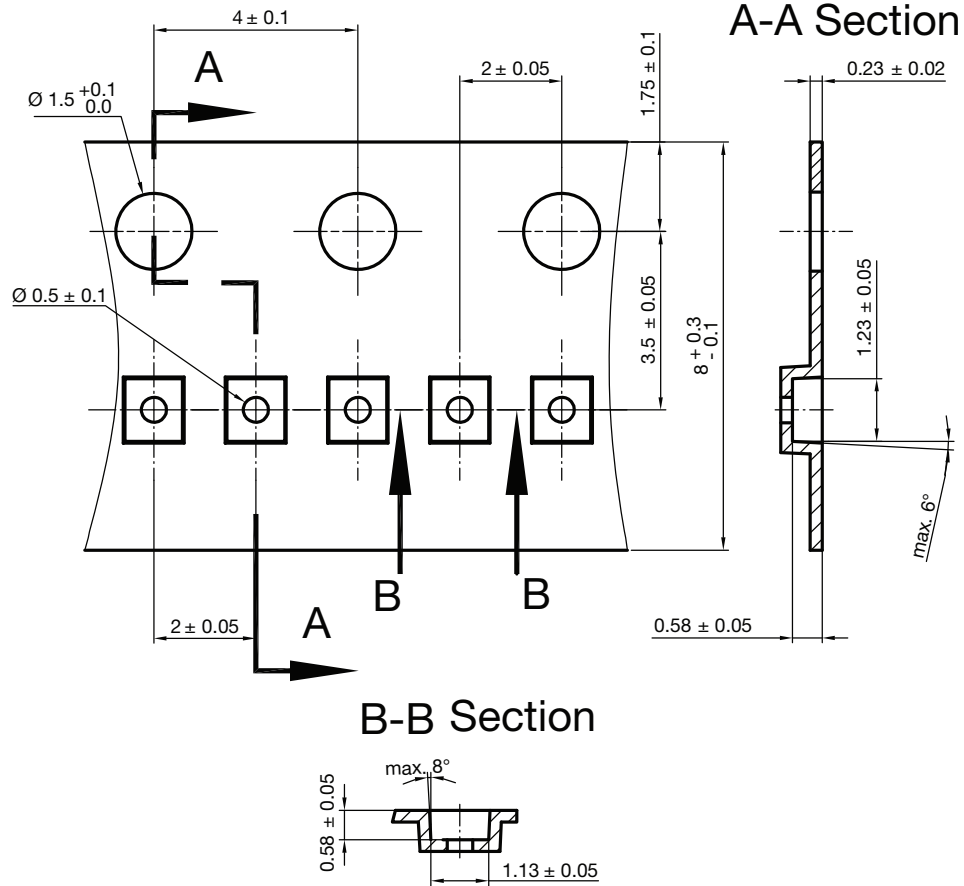
foot print recommendation:



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



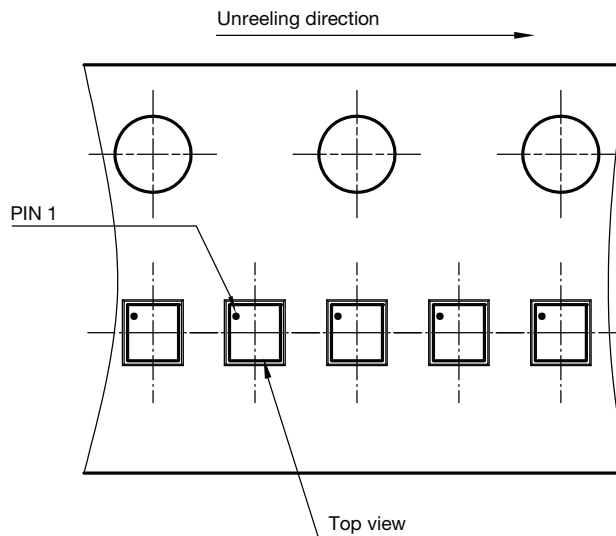
CARRIER TAPE DFN1110-3A



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

surface resistance:  $10^5 - 10^{11} \frac{\text{OHMS}}{\text{SQ}}$   
Cumulative tolerances of 10 sprocket holes is  $\pm 0.2$  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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