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Renesas Electronics website: http://www.renesas.com

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (http://www.renesas.com)

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RENESAS

DATA SHEET

SURGE ABSORBER DEVICES
NSAD500H

ELECTROSTATIC DISCHARGE SURGE ABSORBER DEVICES
QUAD TYPE: COMMON ANODE
SC-88A PACKAGE

DESCRIPTION

NSAD500H is a low capacity ESD surge absorber developed for 100 to 500 Mbps-class data line ESD noise protection, such as USB2.0, IEEE1394, or 100B.

Based on an IEC61000-4-2 test for electromagnetic interference (EMI), this device assures an ESD endurance of 8 kV or more on contact discharge, and its capacity between pins is as small as about 3.5 pF TYP. Therefore, NSAD500H is suitable for external interface protection on data communication whose speed has been increasing.

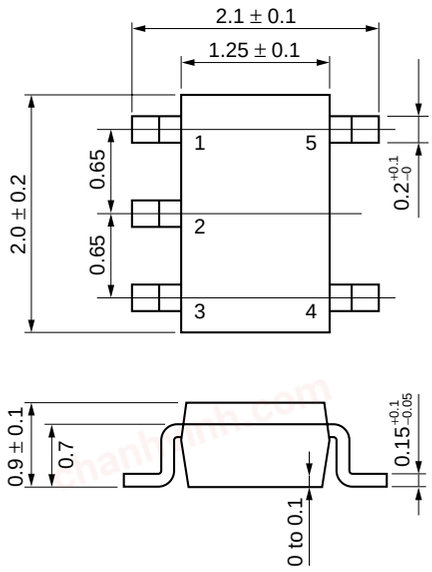
FEATURES

- Base on the electrostatic discharge immunity test (IEC 61000-4-2) product assures the minimum endurance of 8 kV.
- Capacitance: 3.5 pF TYP.
  It's an extraordinarily small capacitance.
- With 4 elements mounted (common anode).
  Mounted in the SC-88A package, the products can achieve high density and automatic packaging.

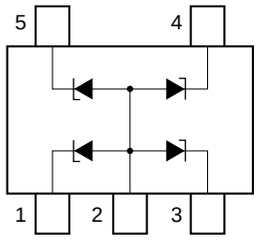
APPLICATIONS

- USB2.0, IEEE1394, 100B external interface circuit ESD protection.

<R> PACKAGE DRAWING (Unit: mm)



ELECTRODE CONNECTION



1. K1: Cathode1
2. A: Anode (common)
3. K2: Cathode2
4. K3: Cathode3
5. K4: Cathode4

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C)

ITEM	SYMBOL	RATING	UNIT	REMARK
Power Dissipation	P	200	mW	Total
Surge Reverse Power	P_{RSM}	2 (t = 10 μs, 1 pulse)	W	
Junction Temperature	T_j	150	°C	
Storage Temperature	T_{stg}	−55 to +150	°C	

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The revised points can be easily searched by copying an "<R>" in the PDF file and specifying it in the "Find what:" field.

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ELECTRICAL CHARACTERISTICS (T_A = 25°C) (A to K1, A to K2, A to K3, A to K4)

PARAMETER	BREAK OVER VOLTAGE V_{BO} (V)		CAPACITANCE C_t (pF)		REVERSE CURRENT I_R (μA)		ESD [Note] (kV)		<REFERENCE> FORWARD BREAK OVER VOLTAGE
	MIN.	TYP.	TYP.	Condition	MAX.	V_F (V)	MIN.	Condition	
NSAD500H	5.3	8	3.5	V_R = 0 V, f = 1 MHz	0.1	3.0	8	C = 150 pF, R = 330 Ω, Contact discharge	10 V TYP.

Note Based upon with IEC 61000-4-2.

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TYPICAL CHARACTERISTICS (T_A = 25°C)

Figure 1. I vs. V_{BO} CHARACTERISTICS

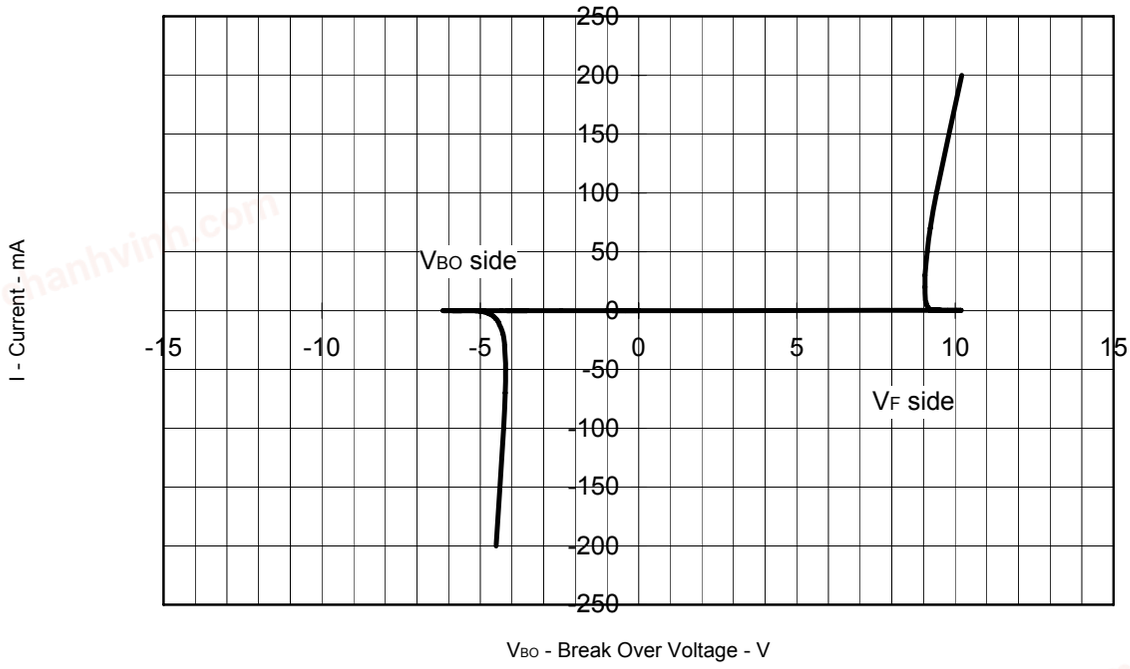
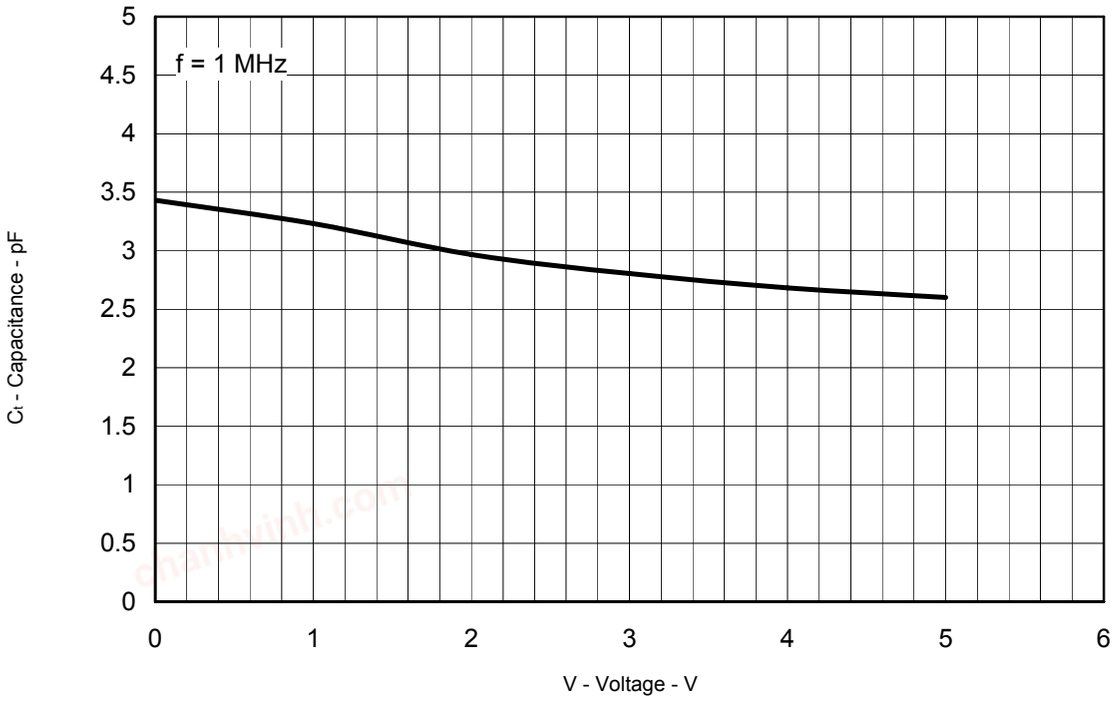
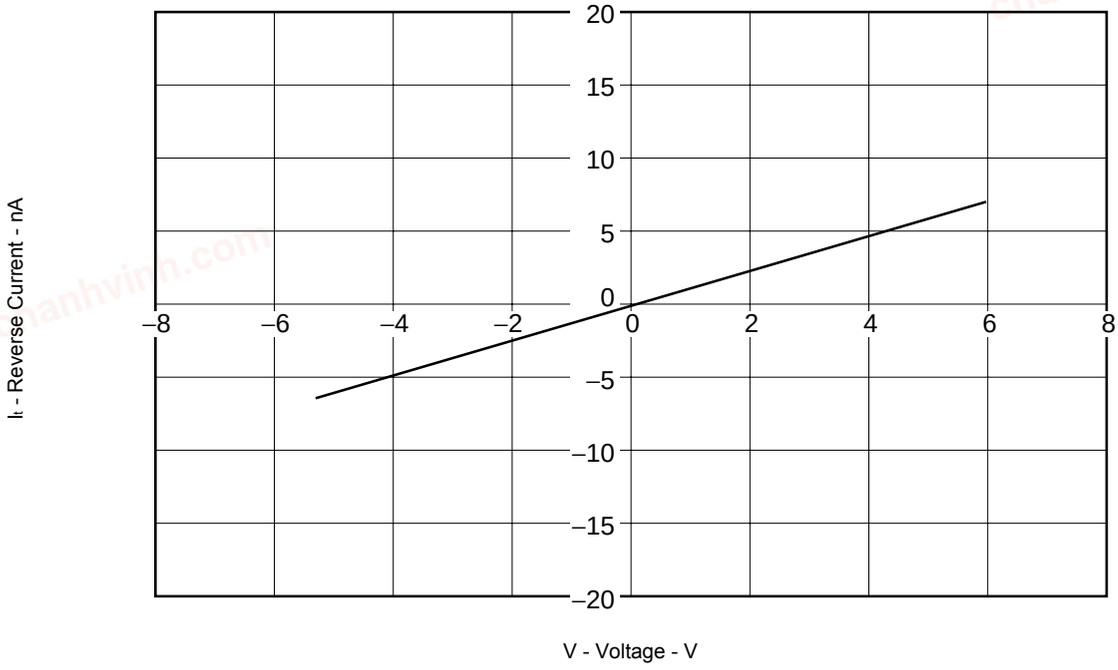


Figure 2. C_t vs. V CHARACTERISTICS



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Figure 3. I_t vs. V CHARACTERISTICS



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