

To our customers,

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## Old Company Name in Catalogs and Other Documents

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On April 1<sup>st</sup>, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

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

April 1<sup>st</sup>, 2010  
Renesas Electronics Corporation

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

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Not recommended  
for new design

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ELECTROSTATIC DISCHARGE SURGE ABSORBER DEVICES  
DUAL TYPE: COMMON ANODE  
SC-70 PACKAGE

DESCRIPTION

This product series is a low capacity for ESD surge absorber devices. Use by 100 to 500 Mbps class data line (USB2.0, IEEE1394, 100B, etc.).

Based on the IEC 61000-4-2 test on electromagnetic interference (EMI), the devices assures an endurance of no less than 8 kV, thus making itself most suitable for external high signal interface circuit protection.

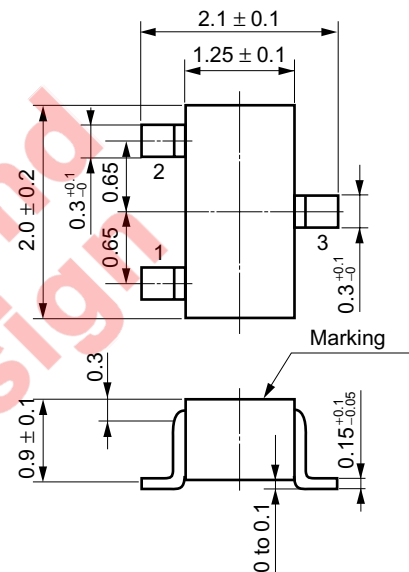
FEATURES

- 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 2 elements mounted (common anode).  
Mounted in the SC-70 package, the products can achieve high density and automatic packaging.

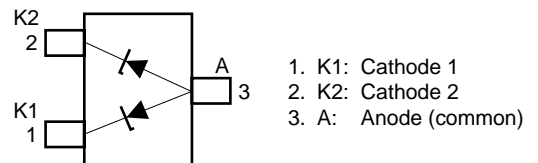
APPLICATIONS

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

PACKAGE DRAWING (Unit: mm)



ELECTRODE CONNECTION



ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ )

ITEM	SYMBOL	RATING	UNIT	REMARK
Power Dissipation	P	150	mW	Total
Surge Reverse Power	$P_{RSM}$	2 ( $t = 10 \mu\text{s}$ , 1 pulse)	W	
Junction Temperature	$T_j$	150	$^\circ\text{C}$	
Storage Temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$	

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**ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C) (A to K1, A to K2)**

PARAMETER	BREAK OVER VOLTAGE V <sub>Bo</sub> (V)		CAPACITANCE C <sub>i</sub> (pF)		REVERSE CURRENT I <sub>R</sub> (μA)		ESD <sup>Note</sup> (kV)		<REFERENCE> FORWARD BREAK OVER VOLTAGE
	MIN.	TYP.	TYP.	Condition	MAX.	V <sub>F</sub> (V)	MIN.	Condition	
NSAD500S	5.3	8	3.5	V <sub>R</sub> = 0 V f = 1 MHz	0.1	3.0	8	C = 150 pF R = 330 Ω Contact discharge	10 V TYP.

**Note** Biased upon with IEC 61000-4-2.

Not recommend for new design

TYPICAL CHARACTERISTICS (T<sub>A</sub> = 25°C)

Figure 1. I vs. V<sub>BO</sub> CHARACTERISTICS

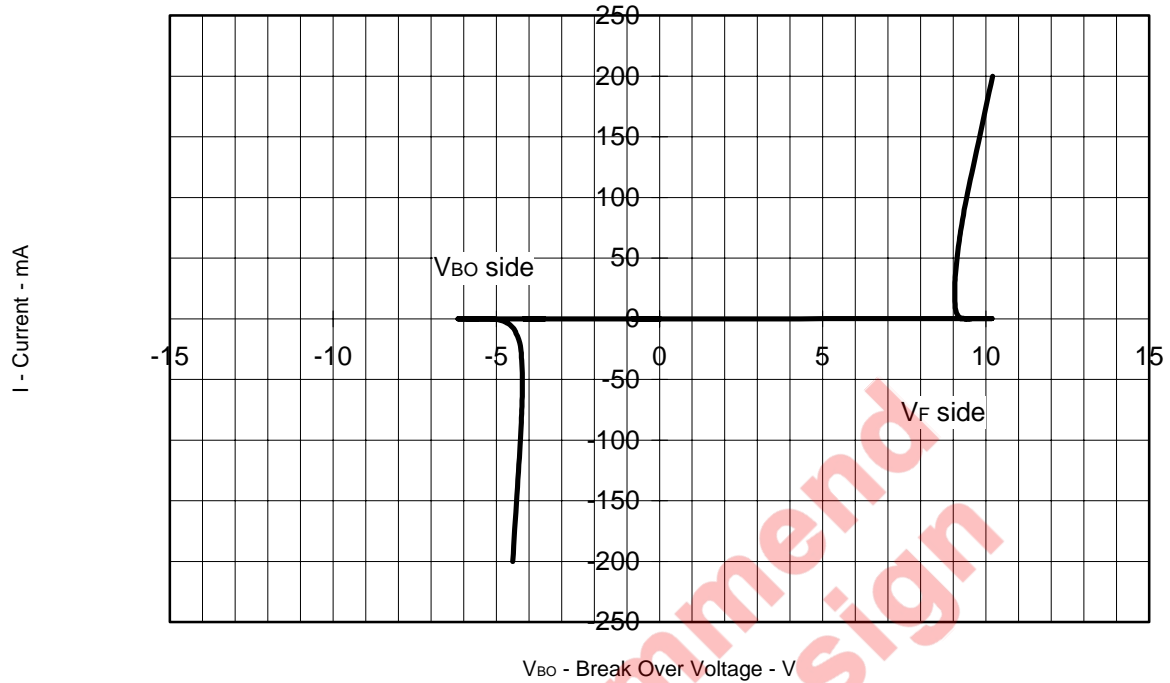


Figure 2. C<sub>t</sub> vs. V CHARACTERISTICS

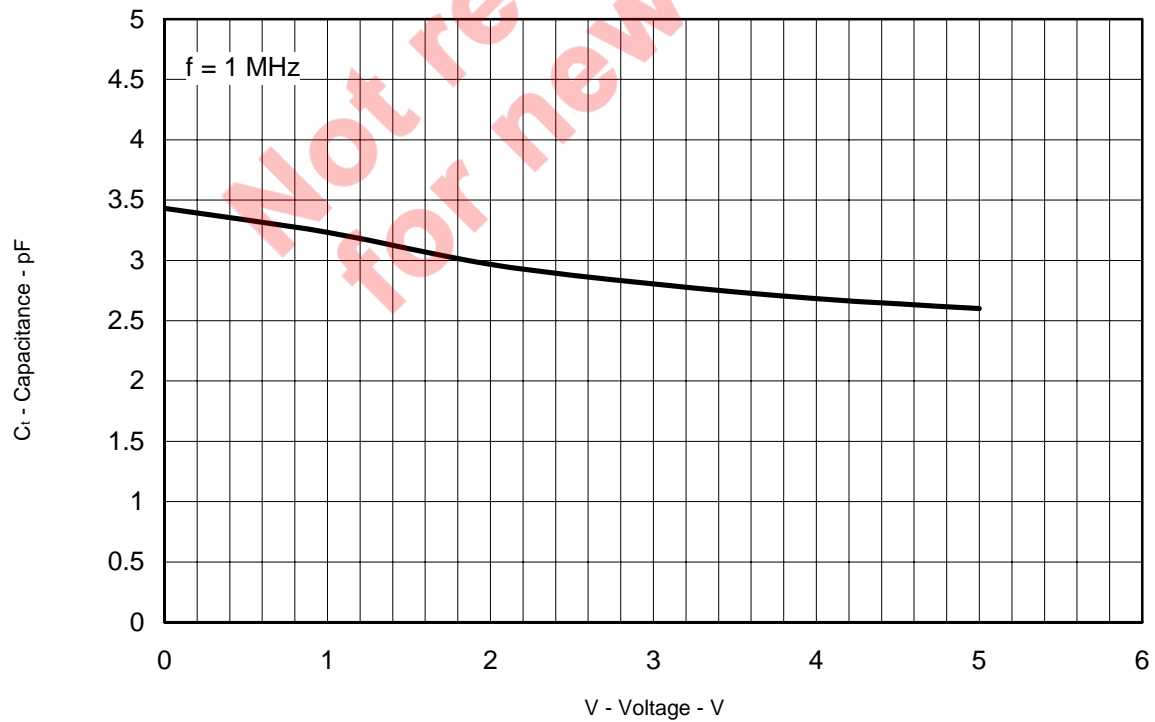
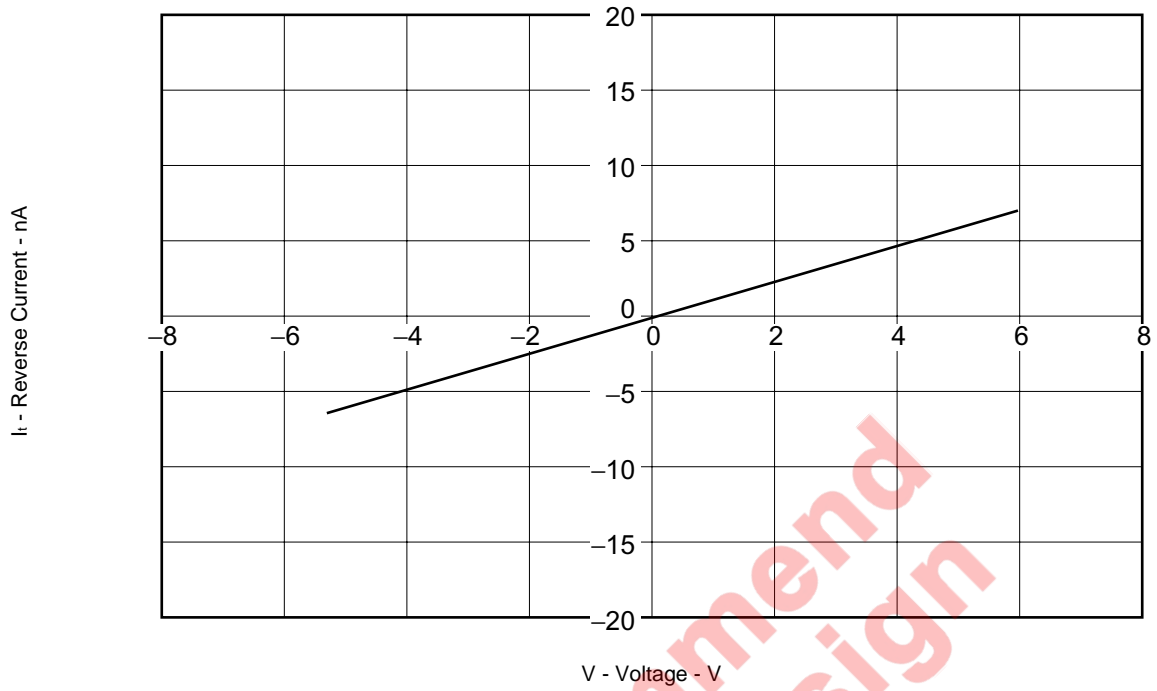


Figure 3.  $I_r$  vs.  $V$  CHARACTERISTICS



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