

To our customers,

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## Old Company Name in Catalogs and Other Documents

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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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**ELECTROSTATIC DISCHARGE SURGE ABSORBER DEVICES**  
**DUAL TYPE: COMMON ANODE**  
**SC-59 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.

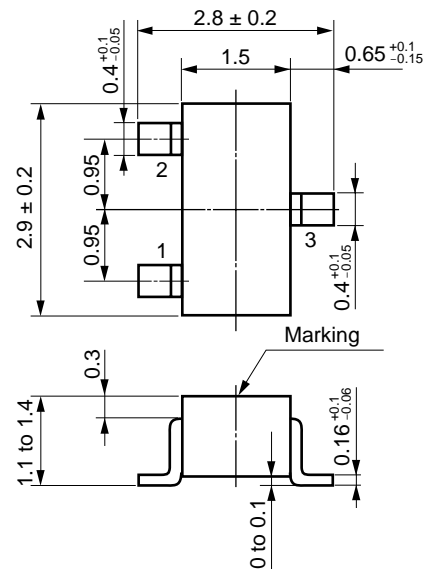
**FEATURES**

- 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-59 package, the products can achieve high density and automatic packaging.

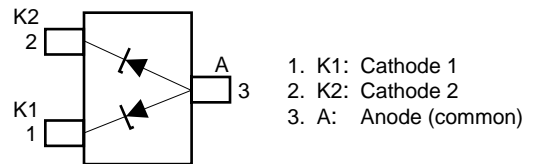
**APPLICATIONS**

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

**PACKAGE DRAWING (Unit: mm)**



**ELECTRODE CONNECTION**



**ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = 25°C)**

ITEM	SYMBOL	RATING	UNIT	REMARK
Power Dissipation	P	200	mW	Total
Surge Reverse Power	P <sub>RSM</sub>	2 (t = 10 μs, 1 pulse)	W	
Junction Temperature	T <sub>j</sub>	150	°C	
Storage Temperature	T <sub>stg</sub>	-55 to +150	°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	
NSAD500F	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.

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

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

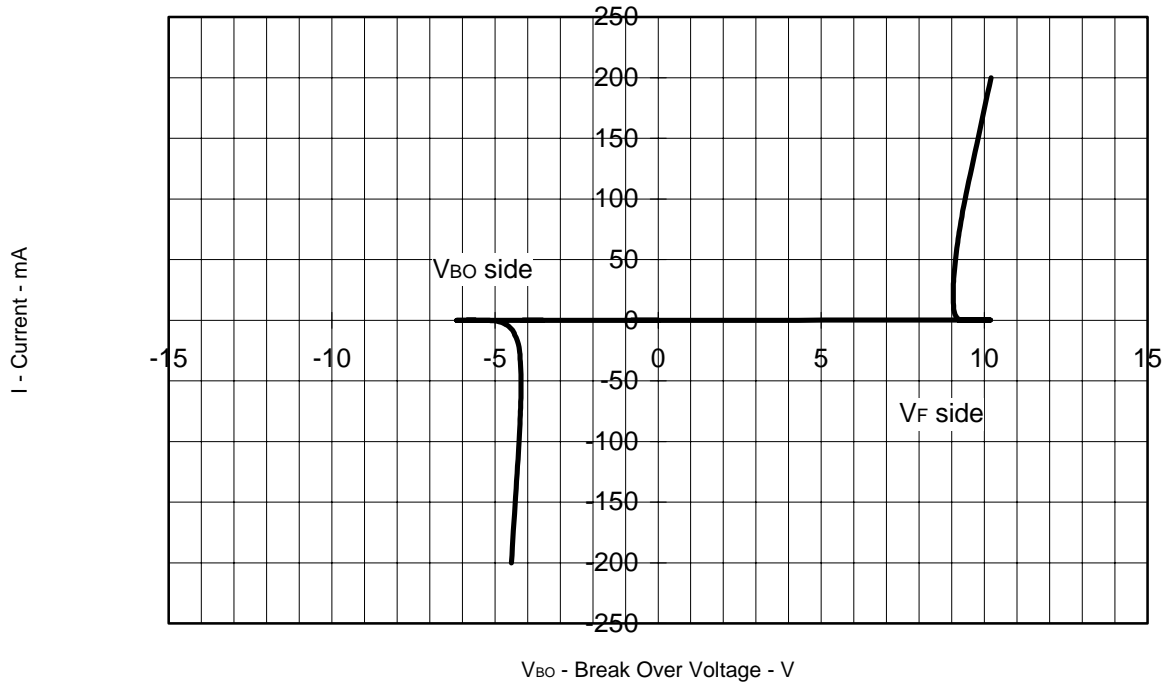


Figure 2. C<sub>i</sub> vs. V CHARACTERISTICS

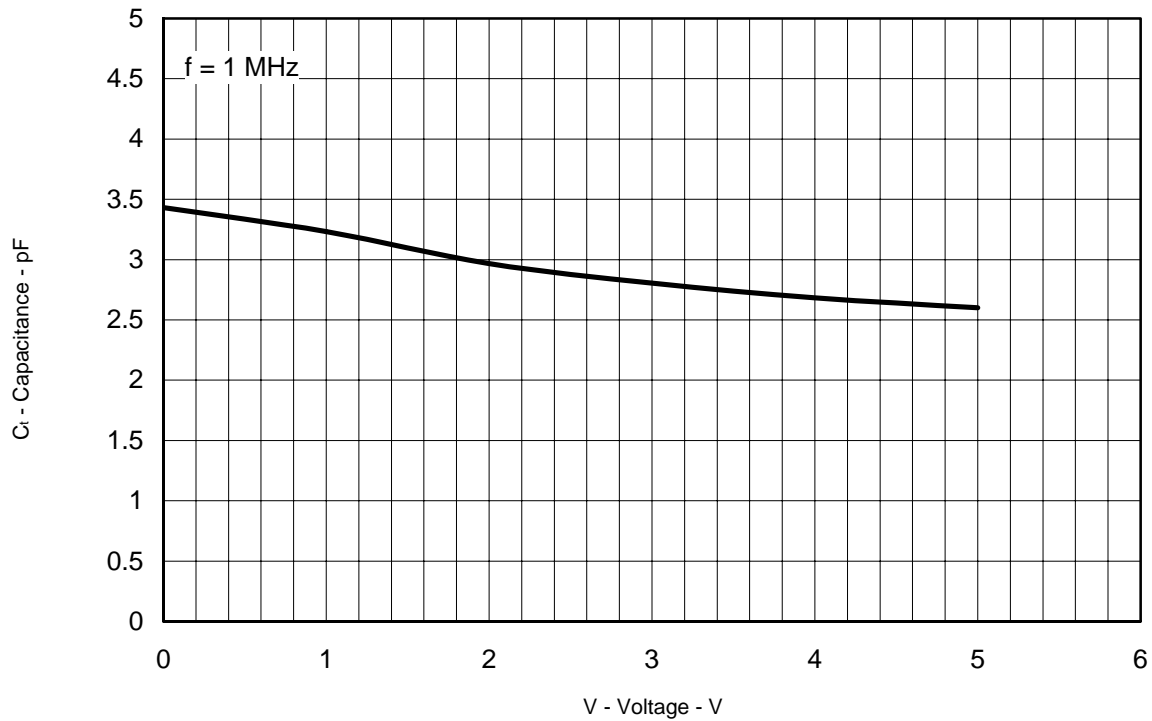
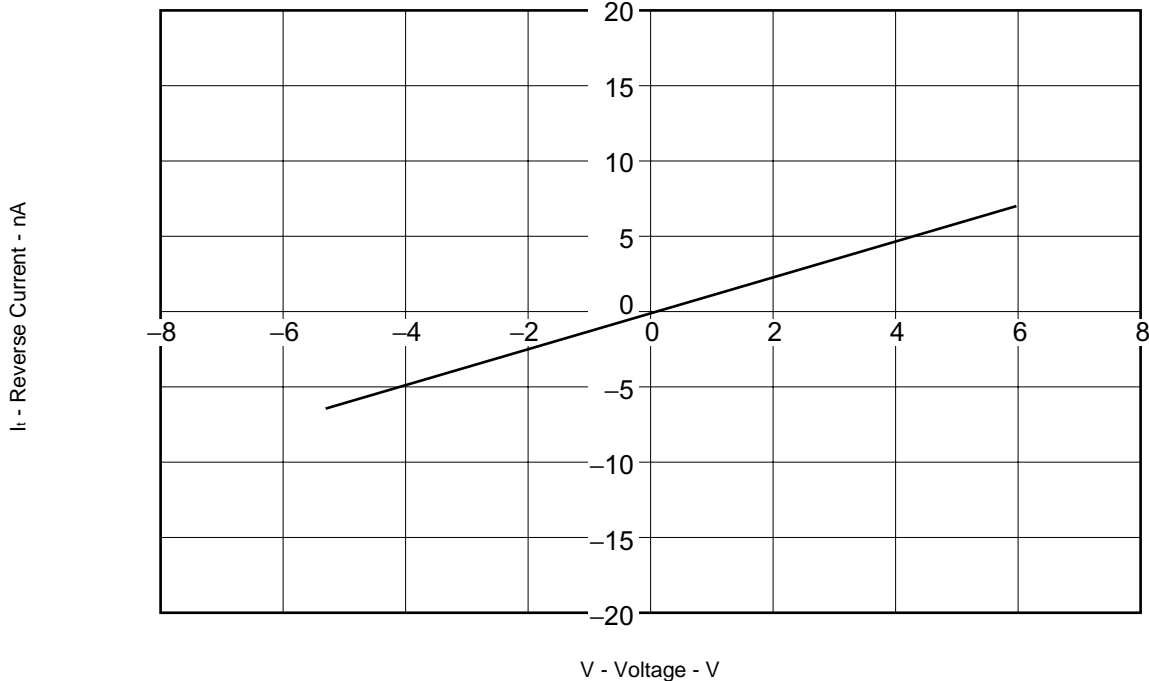


Figure 3.  $I_t$  vs.  $V$  CHARACTERISTICS



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