

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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ESD NOISE CLIPPING DIODE  
**NNCD5.6H, NNCD6.8H**

LOW CAPACITANCE TYPE ELECTROSTATIC DISCHARGE NOISE CLIPPING DIODE  
 (QUAD TYPE: COMMON ANODE)  
 5-PIN SUPER SMALL MINI MOLD

**DESCRIPTION**

This product series is a low capacitance type diode developed for ESD (Electrostatic Discharge) absorption. Based on the IEC-61000-4-2 test on electromagnetic interference (EMI), the diode assures an endurance of no less than 30 kV, thus making itself most suitable for external interface circuit protection.

With four elements mounted in the 5-pin super mini mold package, that product can cope with more high density assembling.

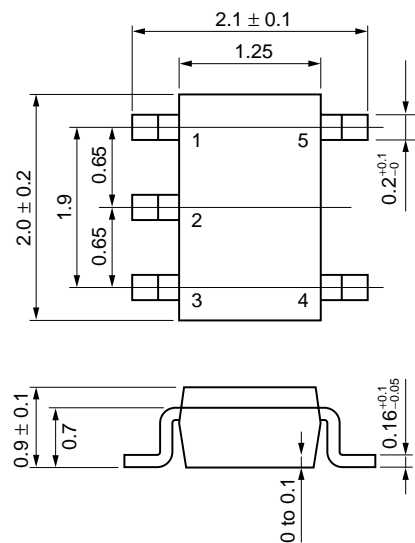
**FEATURES**

- Base on the electrostatic discharge immunity test (IEC 61000-4-2) product assures the minimum endurance of 30 kV.
- With 4 elements mounted (common anode).  
 Mounted in the SC-88A package, the product cans achiever high density and automatic packaging.

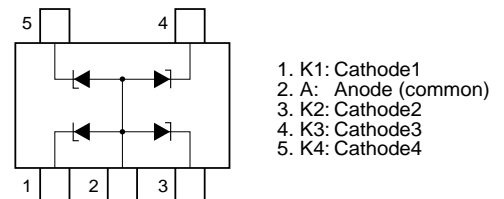
**APPLICATIONS**

- External interface circuit ESD absorption
- Circuits for Waveform clipper, Surge absorber

**PACKAGE DRAWING (Unit: mm)**



**ELECTRODE CONNECTION**



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

**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>	85 (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 - K1, A - K2, A - K3, A - K4)**

TYPE No.	BREAKDOWN VOLTAGE <sup>Note1</sup> V <sub>BR</sub> (V)			CAPACITANCE C <sub>i</sub> (pF)		REVERSE LEAKAGE I <sub>R</sub> (μA)		DYNAMIC IMPEDANCE <sup>Note2</sup> Z <sub>Z</sub> (Ω)		ESD VOLTAGE <sup>Note3</sup> (kV)	
	MIN.	MAX.	I <sub>r</sub> (mA)	TYP.	Condition	MAX.	V <sub>R</sub> (V)	MAX.	I <sub>r</sub> (mA)	MIN.	Condition
NNCD5.6H	5.3	6.3	5	110	V <sub>R</sub> = 0 V f = 1 MHz	5	2.5	110	5	30	C = 150 pF R = 330 Ω Contact discharge
NNCD6.8H	6.2	7.1	5	90		2	3.5	40	5		

- Notes**
1. Tested with pulse (40 ms).
  2. Z<sub>Z</sub> is measured I<sub>r</sub> given a small A.C. signal.
  3. Based upon with IEC61000-4-2.

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

Figure 1. P vs. T<sub>A</sub> RATING

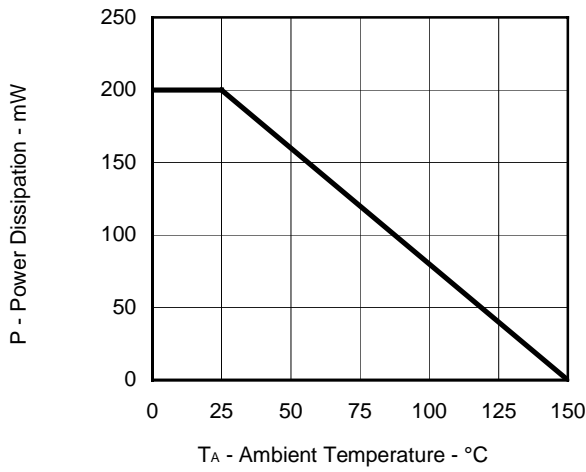


Figure 2. I<sub>T</sub> vs. V<sub>BR</sub> CHARACTERISTICS

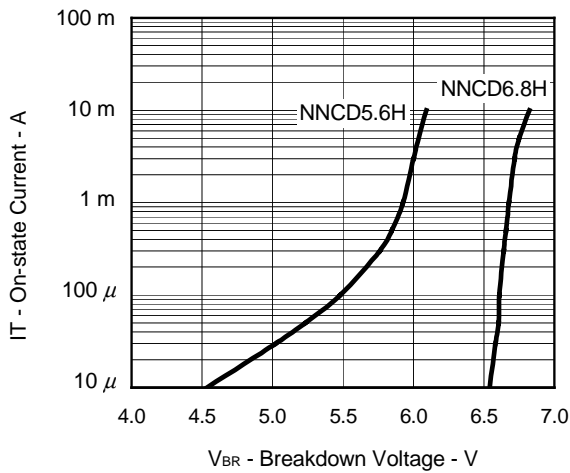


Figure 3. I<sub>R</sub> vs. V<sub>BR</sub> CHARACTERISTICS

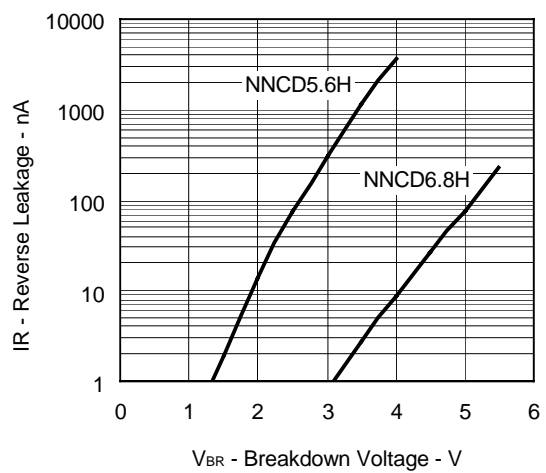


Figure 4. C<sub>t</sub> vs. V<sub>R</sub> CHARACTERISTICS

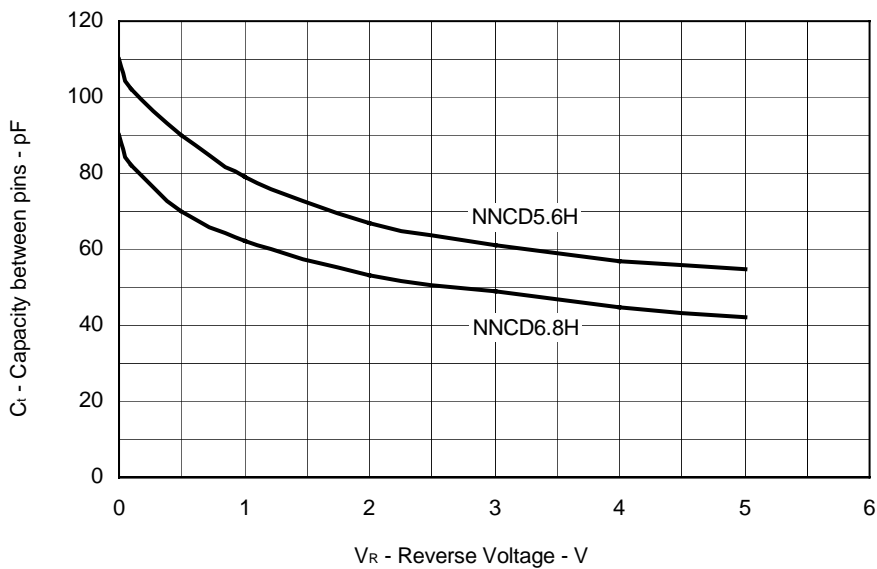


Figure 5. SURGE RVERSE POWER RATING

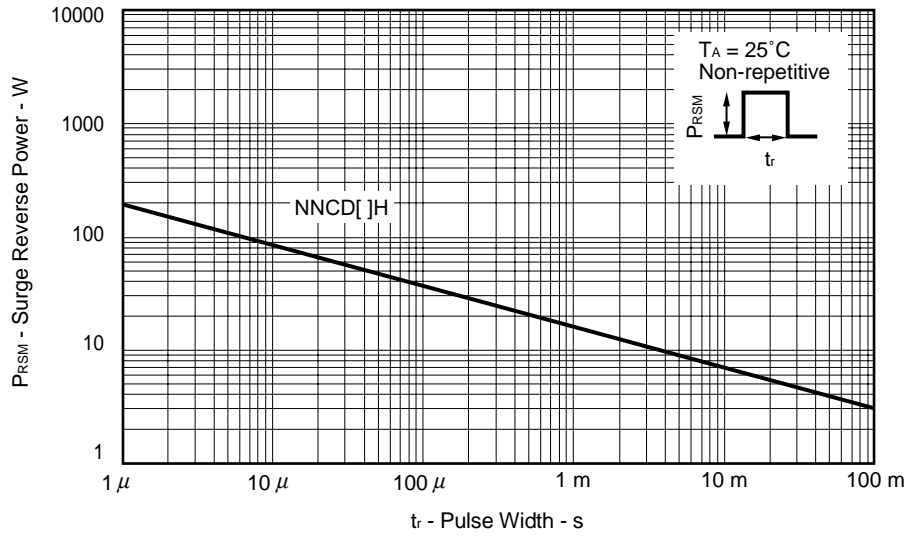
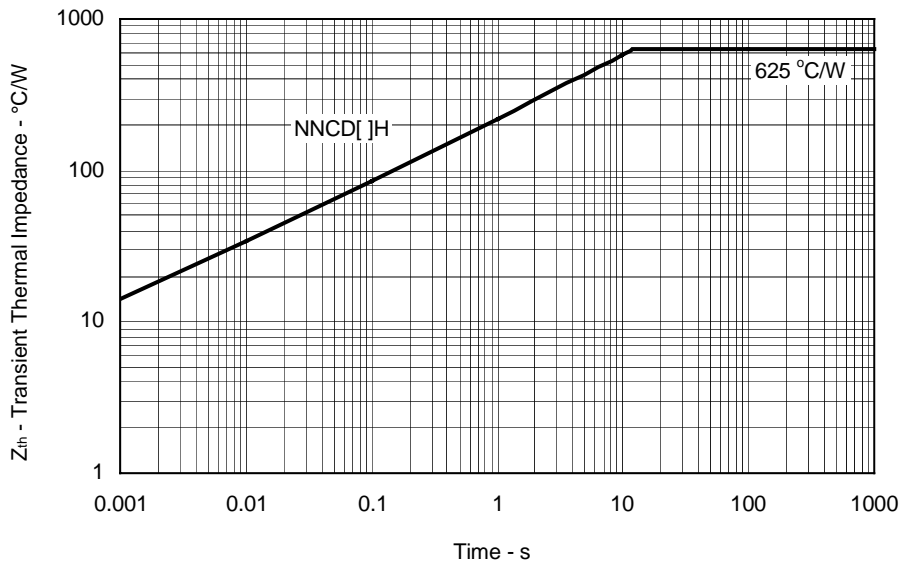


Figure 6. TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS



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