

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

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# DATA SHEET



## ESD NOISE CLIPPING DIODE NNCD6.8PH

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

#### DESCRIPTION

The NNCD6.8PH is a 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, the product can cope with more high density assembling.

#### FEATURES

- Base on the electrostatic discharge immunity test (IEC 61000-4-2), the product assures the minimum endurance of 30 kV.
- With four elements in the MINI MOLD package, the products can achieve high density and automatic packaging.

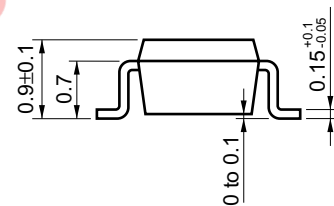
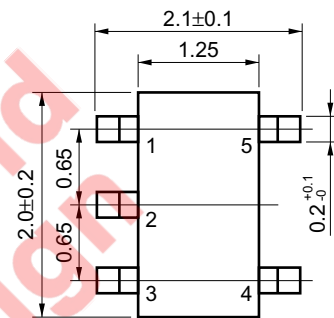
#### APPLICATIONS

- External interface circuit ESD absorption
- Circuits for waveform clipper, surge absorber

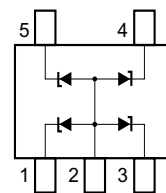
#### MAXIMUM RATINGS (T<sub>A</sub> = 25°C)

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	

#### PACKAGE DIMENSION (Unit: mm)



#### ELECTRODE CONNECTION



1. K1: Cathode 1
2. A : Anode (common)
3. K2: Cathode 2
4. K3: Cathode 3
5. K4: Cathode 4

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**ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C) (A to K1, A to K2, A to K3, A to K4)**

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

**Notes** 1. Tested with pulse (40 ms)

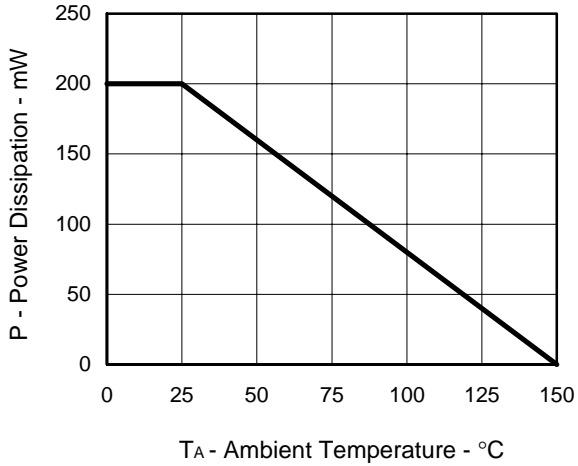
2. Z<sub>z</sub> is measured at I<sub>T</sub> given a small A.C. signal.

3. Based upon with IEC 61000-4-2

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

Figure 1. POWER DISSIPATION vs. AMBIENT TEMPERATURE



★ Figure 2. I<sub>T</sub> - V<sub>BR</sub> CHARACTERISTICS (A-K1, A-K2, A-K3, A-K4)

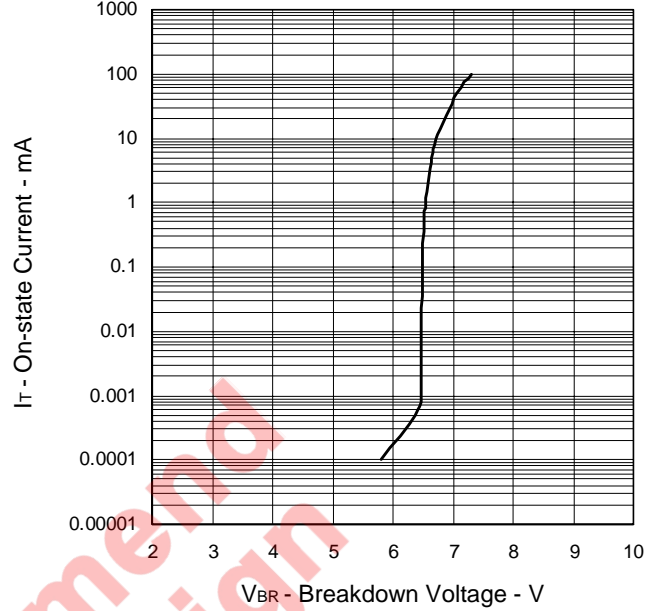


Figure 3. Z<sub>Z</sub> - I<sub>T</sub>

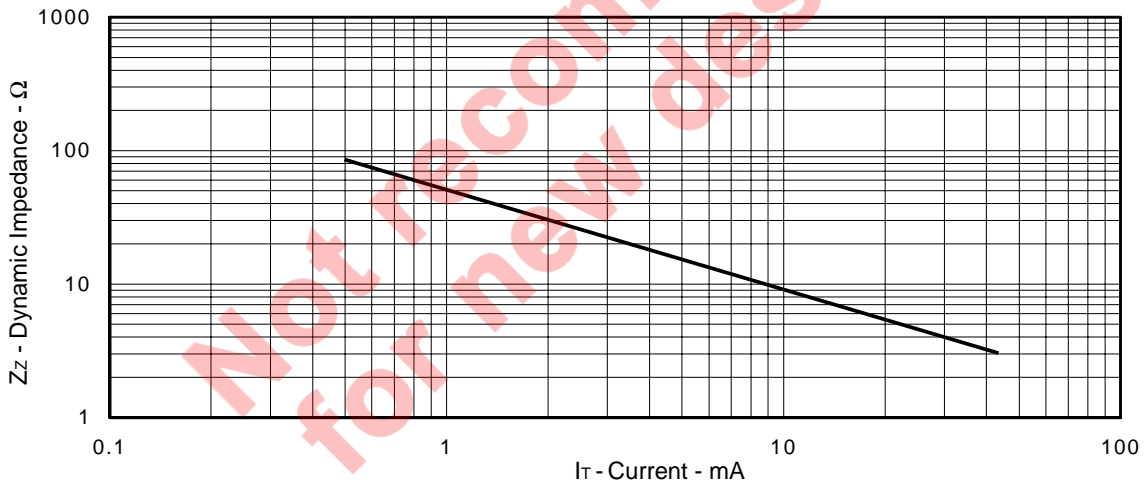


Figure 4. C<sub>t</sub> - V<sub>R</sub> CHARACTERISTICS

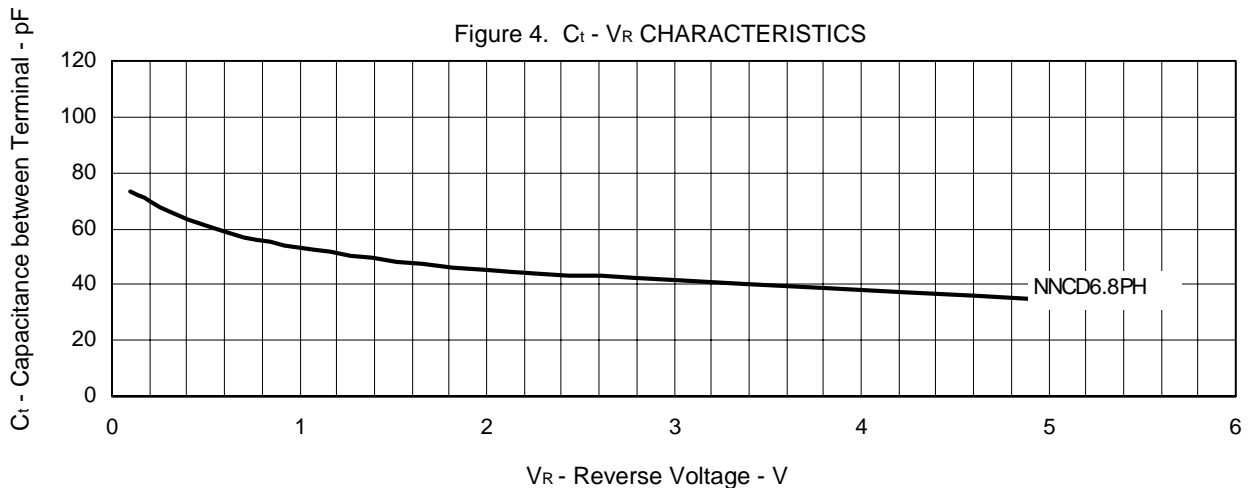


Figure 5. TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS

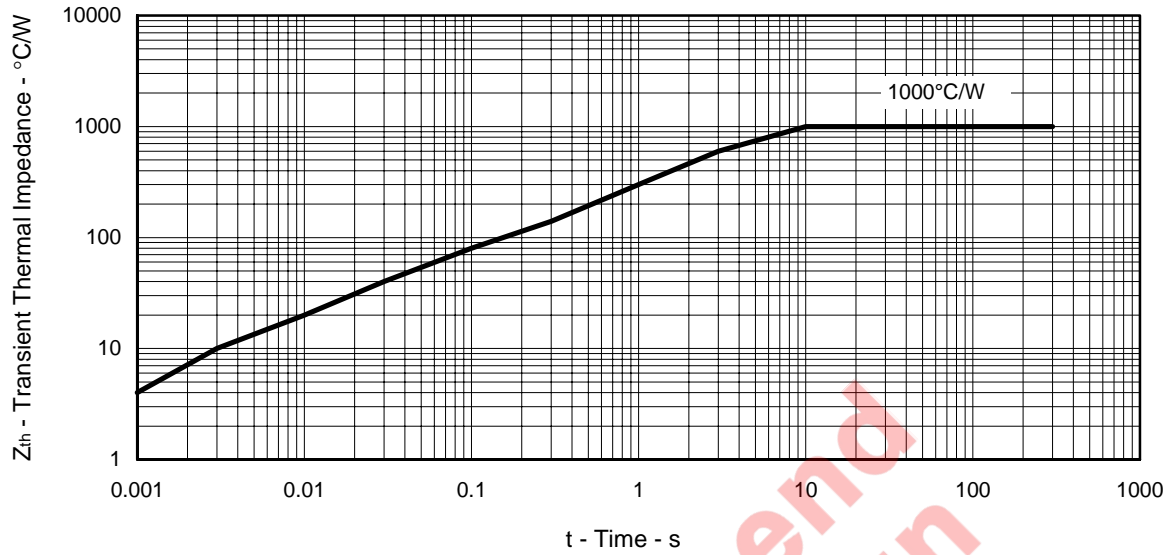
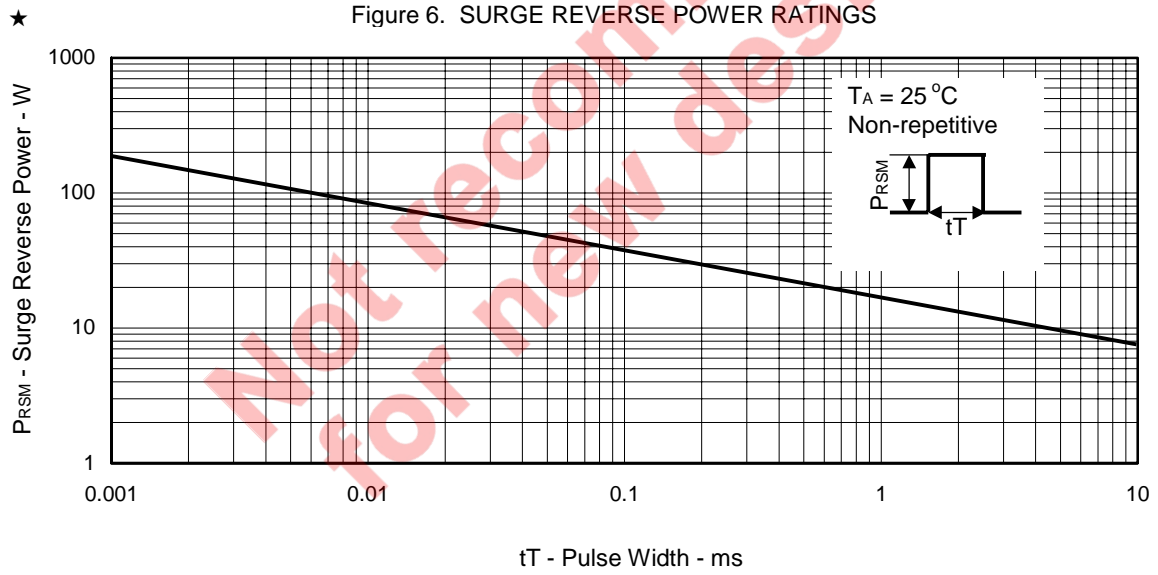


Figure 6. SURGE REVERSE POWER RATINGS



[MEMO]

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