To our customers,

Old Company Name in Catalogs and Other Documents

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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

ESD NOISE CLIPPING DIODE

NNCD6.8RH

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

DESCRIPTION

The NNCD6.8RH is a low capacitance type diode developed for ESD (Electrostatic Discharge) absorption. Based on the IEC61000-4-2 test on electromagnetic interference (EMI), the diode assures an endurance of no less then 8 kV, and capacitance is small with 10 pF between the terminal.

This product series is the most suitable for ESD absorption in the high-speed data communication bus such as USB.

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

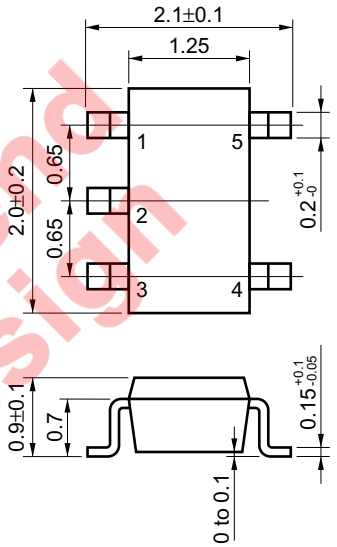
FEATURES

- Base on the electrostatic discharge immunity test (IEC 61000-4-2), the product assures the minimum endurance of 8 kV.
- Capacitance: 10 pF (at V_R = 0 V, f = 1 MHz) between the terminal
  The low capacitance can realize the excellent frequency characteristic.
- With four elements in the mini mold package, the products can achieve high density and automatic packaging.

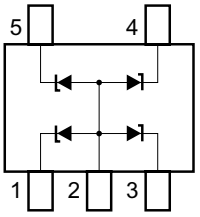
APPLICATIONS

- External interface circuit ESD absorption in the high-speed data communication bus such as USB.

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

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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Printed in Japan

The mark ★ shows major revised points.

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

TYPE No.	Breakdown Voltage Note1 V_{BR} (V)			Capacitance C_t (pF)		Reverse Leakage I_R (μA)		Dynamic impedance Note2 Z_z (Ω)		ESD Voltage Note3 (kV)	
	MIN.	MAX.	I_T (mA)	TYP.	Condition	MAX.	V_R (V)	MAX.	I_T (mA)	MIN.	Condition
NNCD6.8RH	6.2	7.1	5	10	V_R = 0 V f = 1 MHz	2	3.5	40	5	8	C = 150 pF R = 330 Ω Contact discharge

Notes 1. tested with pulse (40 ms)

2. Z_z is measured at I_T given a small A.C. signal.

3. Biased upon with IEC 61000-4-2

TYPICAL CHARACTERISTICS (T_A = 25°C)

Figure 1. POWER DISSIPATION vs. AMBIENT TEMPERATURE

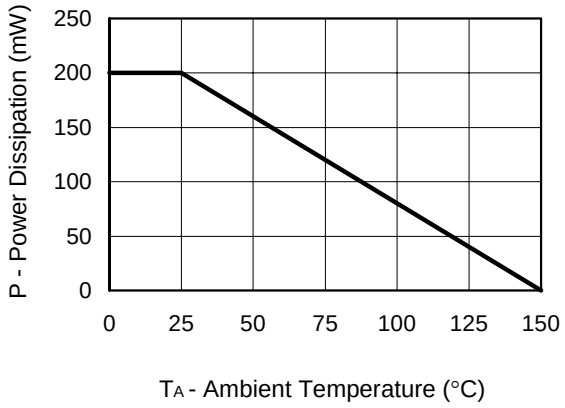


Figure 2. I_T - V_{BR} CHARACTERISTICS (A-K1, A-K2, A-K3, A-K4)

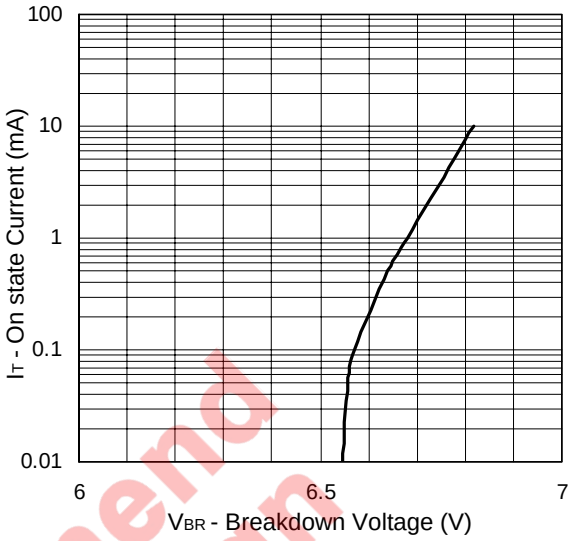


Figure 3. Z_Z - I_T

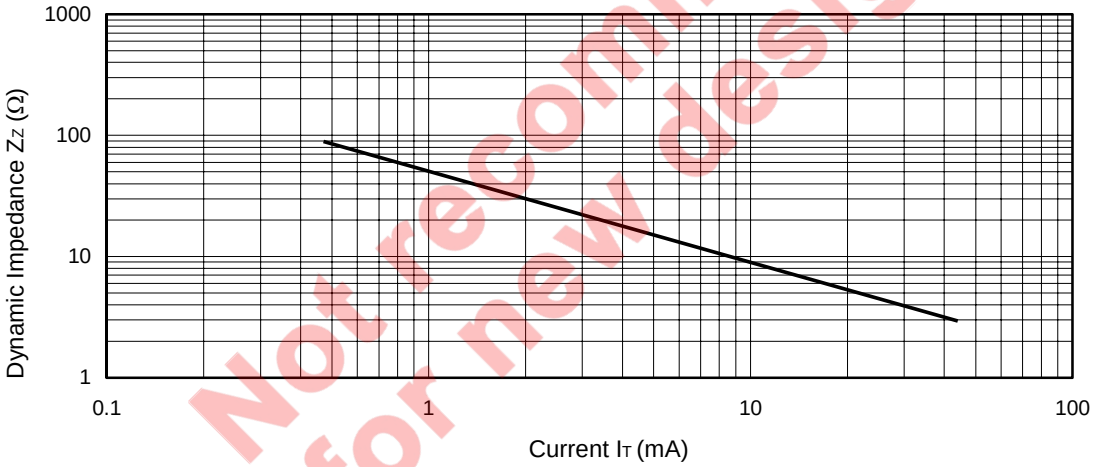


Figure 4. C_t - V_R CHARACTERISTICS

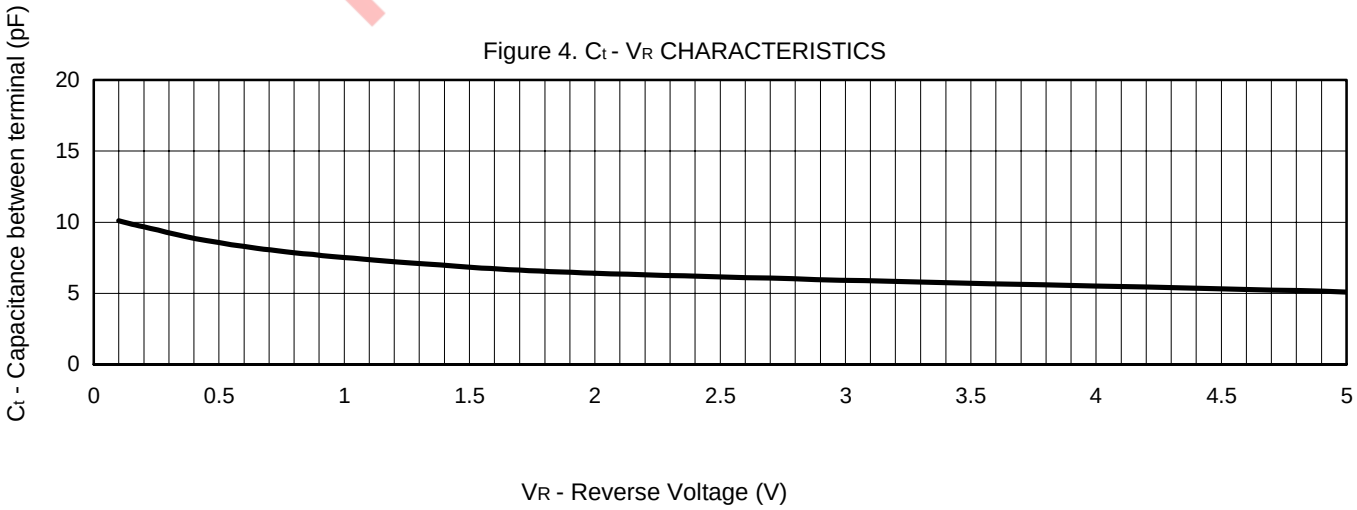
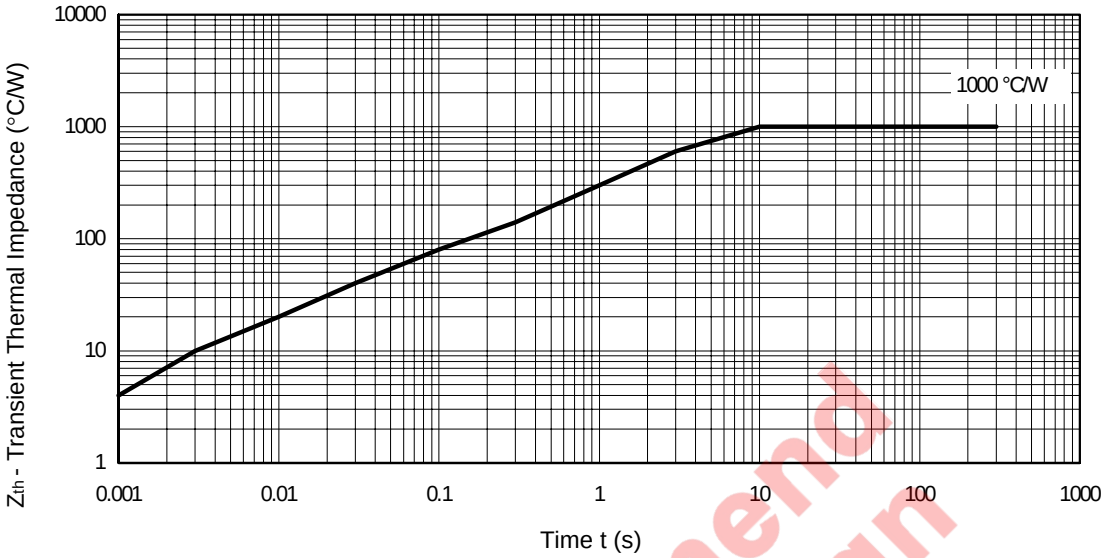
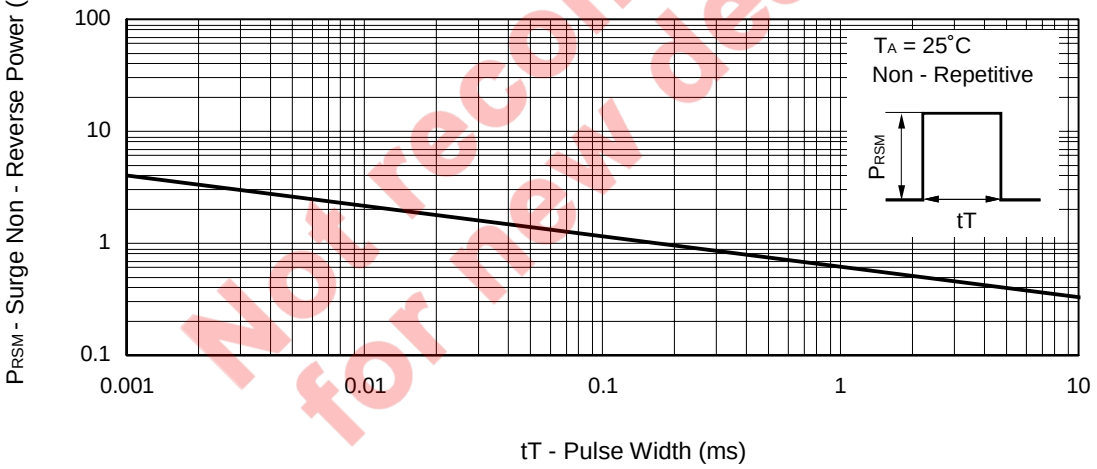


Figure 5. TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS



★ Figure 6. SURGE REVERSE POWER RATINGS



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