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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DATA SHEET

RENESAS

E.S.D NOISE CLIPPING DIODES

NNCD5.6MG to NNCD6.8MG

LOW CAPACITANCE HIGH ESD TYPE ELECTROSTATIC DISCHARGE NOISE CLIPPING DIODES (QUARTO TYPE: COMMON ANODE) 5-PIN MINI MOLD

This product series is a low capacitance type diode developed for E.S.D. (Electrostatic Discharge) protection. Based on the IEC61000-4-2 test on electromagnetic interference (EMI), the diode assures an endurance of no less than 30 kV, and capacitance is small with 20 pF TYP. This product series is the most suitable for the ESD protection in the high-speed data communication bus such as USB.

With four elements mounted in the 5-PIN Mini Mold Package, that product can cope with high density assembling.

FEATURES

- Based on the electrostatic discharge immunity test (IEC61000-4-2), the product assures the minimum endurance of 30 kV.
- Capacitance is small with 20 pF TYP. (at V_R = 0 V, f = 1 MHz). It is excellent in the frequency characteristic.
- With 4 elements mounted (common anode) in the SC-74A package, that product can cope with high density assembling.

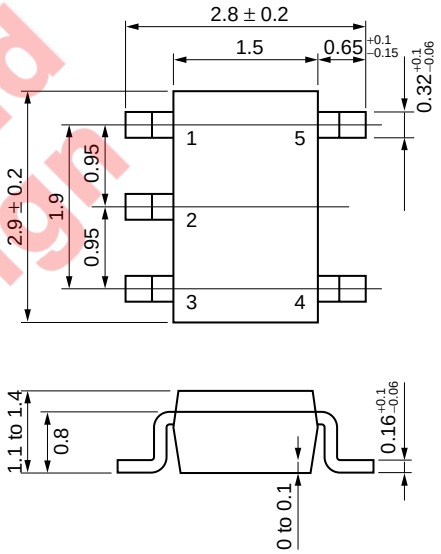
APPLICATIONS

- External interface circuit E.S.D. protection in the high-speed data communication bus such as USB.

MAXIMUM RATINGS (T_A = 25°C)

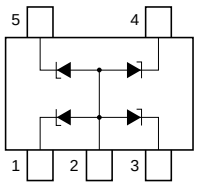
Power Dissipation	P	200 mW (Total)
Surge Reverse Power	P_{RSM}	2 W (t = 10 μs 1 pulse) Fig.5
Junction Temperature	T_j	150°C
Storage Temperature	T_{stg}	–55°C to +150°C

PACKAGE DIMENSIONS (in millimeters)



(SC-74A)

PIN 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_A = 25°C) (A-K1, A-K2, A-K3, A-K4)

Type No.	Breakdown Voltage[Note 1] V_{BR} (V)			Dynamic[Note 2] Impedance Z_Z (Ω)		Reverse Leakage I_R (μA)		Capacitance C_t (pF)		E.S.D Voltage (kV)	
	MIN.	MAX.	I_T (mA)	MAX.	I_T (mA)	MAX.	V_R (V)	TYP.	TEST CONDITION	MIN.	TEST CONDITION
NNCD5.6MG	5.3	6.3	5	80	5	5	2.5	26	V_R = 0 V f = 1 MHz	30	C = 150 pF R = 330 Ω (IEC61000-4-2)
NNCD6.2MG	5.7	6.7	5	50	5	2	3.0	20		30	
NNCD6.8MG	6.2	7.1	5	30	5	2	3.5	20		30	

Note 1. Tested with pulse (40 ms)

2. Z_Z is measured at I_T give a small A.C. signal.

TYPICAL CHARACTERISTICS (T_A = 25°C)

Fig. 1 POWER DISSIPATION vs. AMBIENT TEMPERATURE

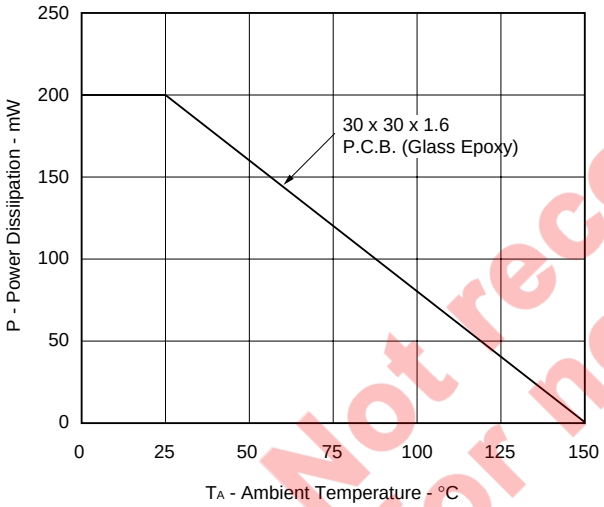


Fig. 2 I_T vs. V_{BR} CHARACTERISTICS

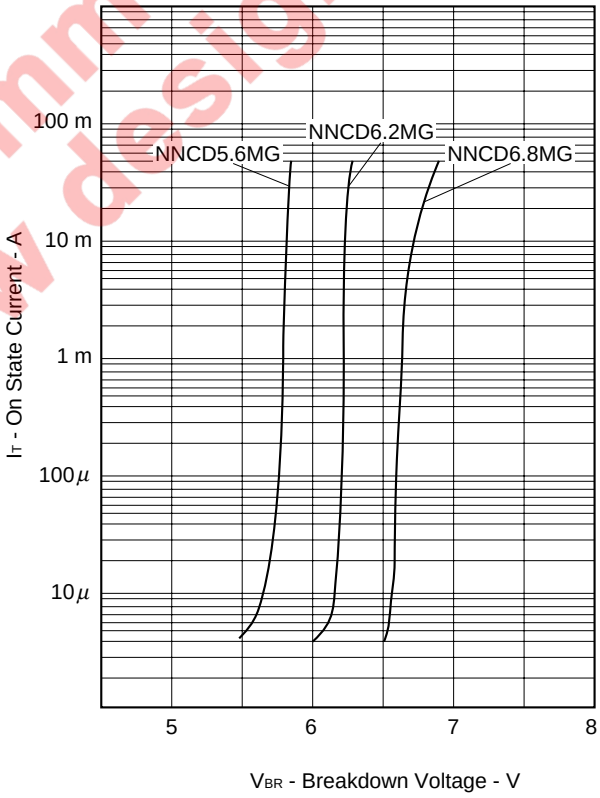


Fig. 3 C_t-V_R CHARACTERISTICS

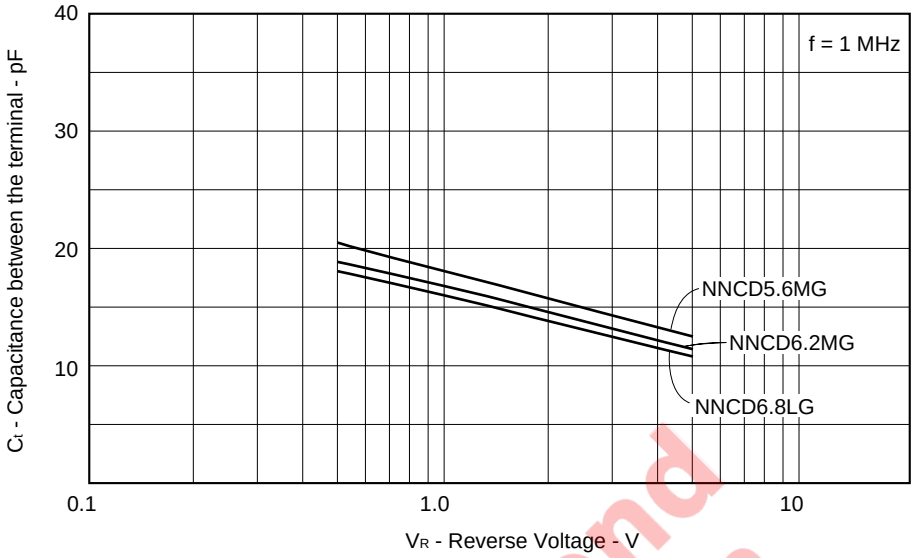


Fig. 4 TRANSIENT THERMAL IMPEADANCE CHARACTERISTIC

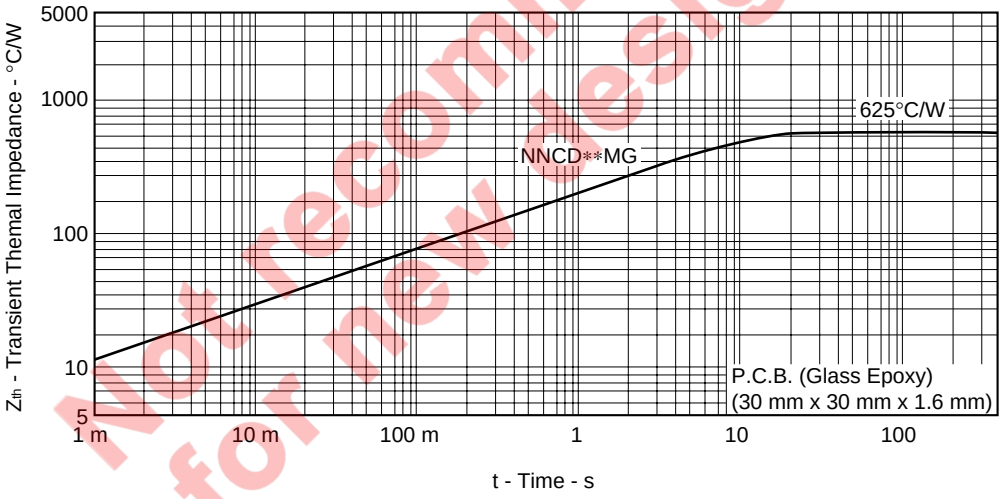
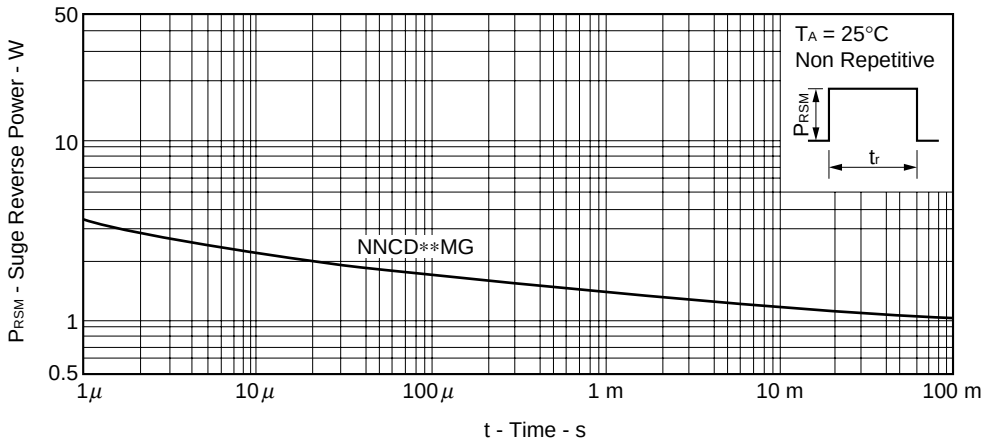


Fig. 5 SURGE REVERSE POWER RATINGS



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