

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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ESD NOISE CLIPPING DIODE

NNCD5.6J to NNCD36J

ELECTROSTATIC DISCHARGE NOISE CLIPPING DIODE

2-PIN ULTRA SUPER MINI MOLD (FLAT TYPE)

★ DESCRIPTION

These products are 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, thus making itself most suitable for external interface circuit protection.

These products are 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.
- Mounted in the ultra super mini mold (flat) package, the product can achieve high density and automatic packaging.

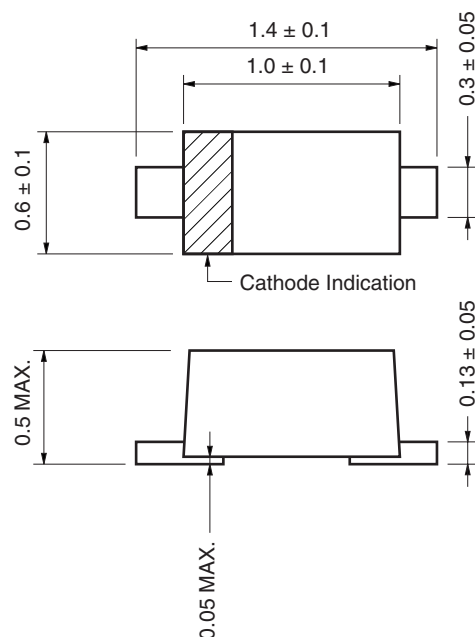
APPLICATIONS

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

MAXIMUM RATINGS (T_A = 25°C)

| Item | Symbol | Rating | Unit | Remark |
|----------------------|------------------|-------------------------|------|--------|
| Power Dissipation | P | 150 | mW | Total |
| Surge Reverse Power | P _{RSM} | 85 (t = 10 μs, 1 pulse) | W | |
| Junction Temperature | T _j | 150 | °C | |
| Storage Temperature | T _{stg} | -55 to +150 | °C | |

PACKAGE DRAWING (Unit: mm)



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ELECTRICAL CHARACTERISTICS (T_A = 25°C)

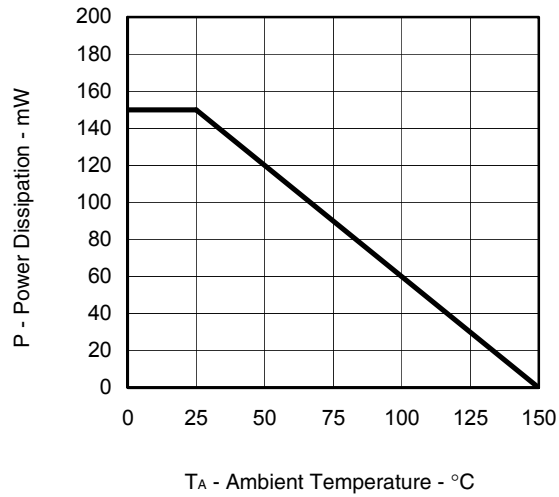
| TYPE No. | Breakdown Voltage ^{Note1} | | | Capacitance | | Reverse Leakage | | ESD Voltage ^{Note2} | |
|----------|------------------------------------|------|---------------------|---------------------|-----------------------------------|---------------------|--------------------|------------------------------|---|
| | V _{BR} (V) | | | C _i (pF) | | I _R (μA) | | (kV) | |
| | MIN. | MAX. | I _T (mA) | TYP. | Condition | MAX. | V _R (V) | MIN. | I _T (mA) |
| NNCD5.6J | 5.3 | 6.3 | 5 | 110 | V _R = 0 V f = 1 MHz | 5 | 2.5 | 30 | C = 150 pF R = 330 Ω Contact discharge |
| NNCD6.8J | 6.2 | 7.1 | 5 | 90 | | 2 | 3.5 | 30 | |
| NNCD8.2J | 7.7 | 8.7 | 5 | 70 | | 2 | 5.0 | 30 | |
| NNCD10J | 9.0 | 11.0 | 5 | 55 | | 2 | 7.0 | 30 | |
| NNCD16J | 15.0 | 17.0 | 5 | 30 | | 2 | 12.0 | 30 | |
| NNCD18J | 16.2 | 19.8 | 5 | 25 | | 2 | 13.0 | 23 | |
| NNCD24J | 22.0 | 26.0 | 5 | 20 | | 2 | 19.0 | 15 | |
| NNCD36J | 34.0 | 38.0 | 2 | 15 | | 2 | 27.0 | 12 | |

Notes 1. Tested with pulse (40 ms)

2. Based upon with IEC 61000-4-2

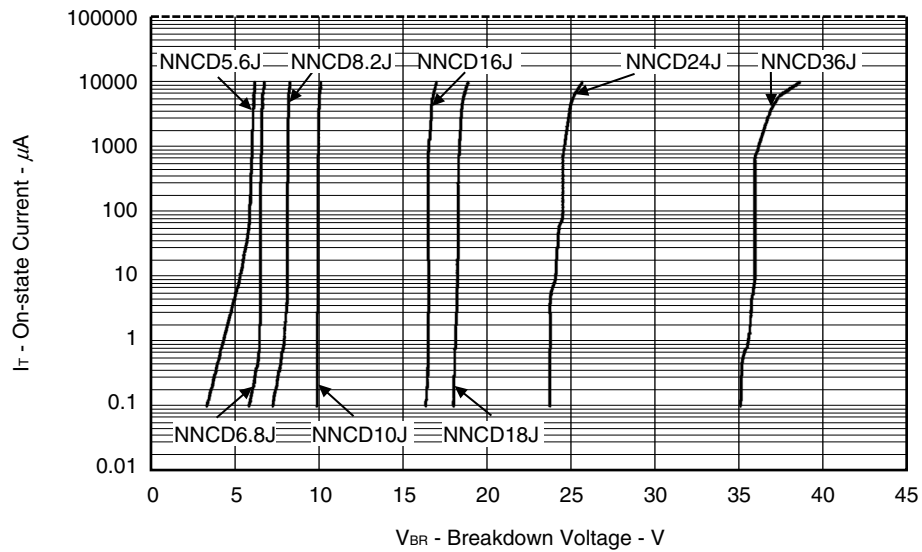
TYPICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)

Figure 1. POWER DISSIPATION vs. AMBIENT TEMPERATURE



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Figure 2. I_T - V_{BR} CHARACTERISTICS



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Figure 3. C_t - V_R CHARACTERISTICS

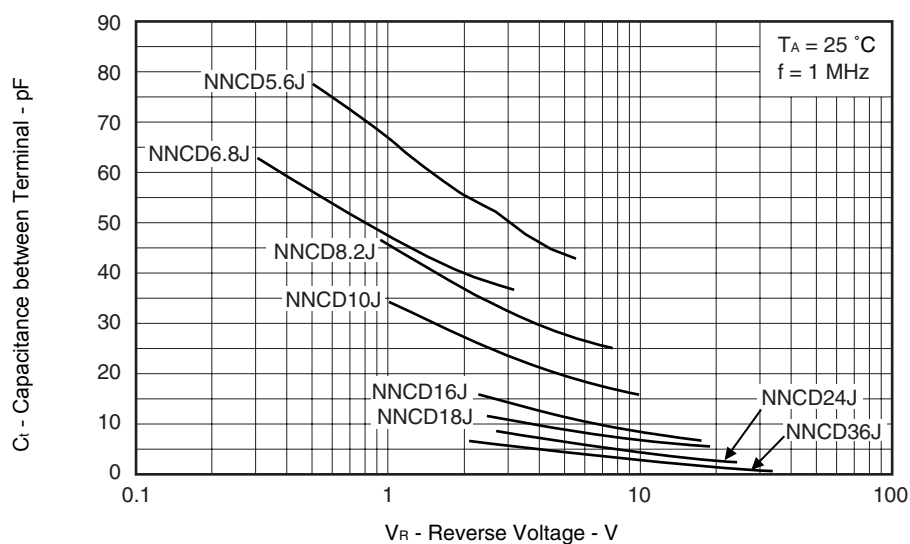


Figure 4. SURGE REVERSE POWER RATINGS

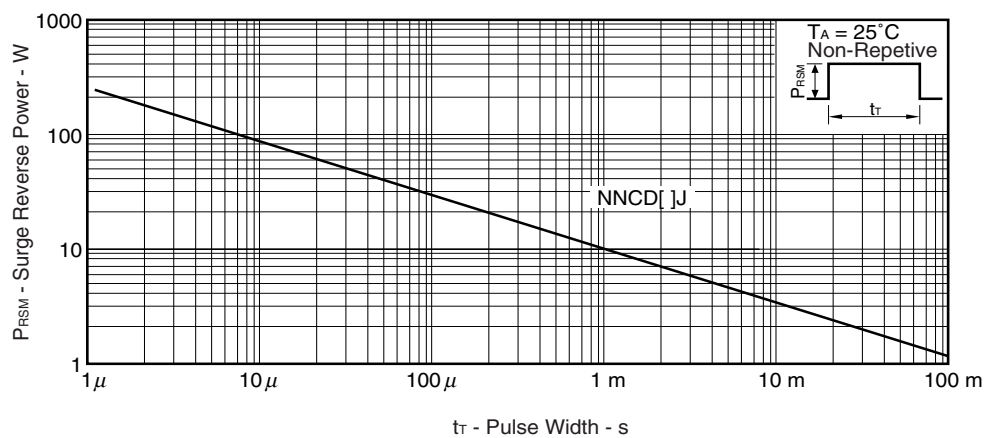
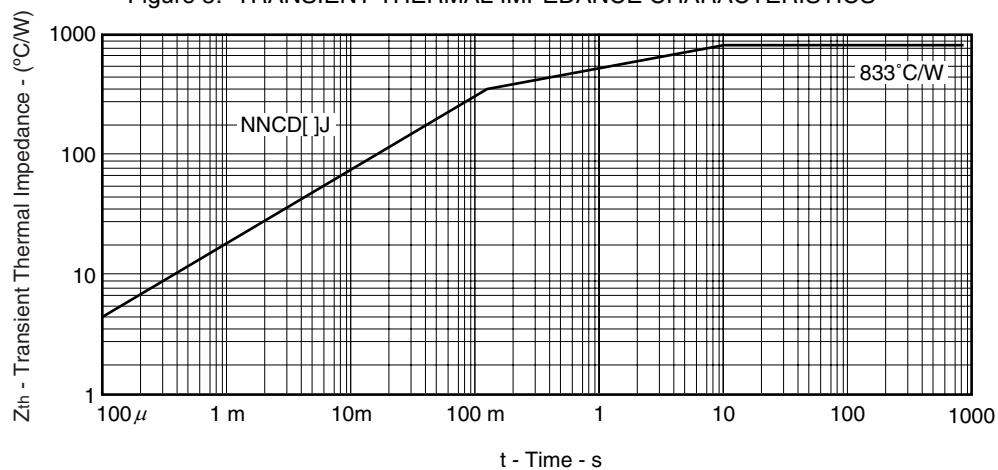


Figure 5. TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS



Remark When using ceramic board of 10 x 7.5 x 0.75 mm (Cu film 11 x 2 x 0.035 mm)

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