DATA SHEET

E.S.D NOISE CLIPPING DIODES NNCD3.3B to NNCD12B

ELECTROSTATIC DISCHARGE NOISE CLIPPING DIODES (500 mW TYPE)

This product series is a diode developed for E.S.D (Electrostatic Discharge) noise protection. Based on the IEC1000-4-2 test on electromagnetic interference (EMI), the diode assures an endurance of no less than 30 kV.

Type NNCD2.0B to NNCD12B Series is into DO-35 Package with DHD (Double Heatsink Diode) construction having allowable power dissipation of 500 mW.

FEATURES

- Based on the electrostatic discharge immunity test (IEC1000-4-2), the product assures the minimum endurance of 30 kV.
- Based on the reference supply of the set, the product achieves a series over a wide range (15 product name lined up).
- DHD (Double Heatsink Diode) construction.

APPLICATIONS

- Circuit E.S.D protection.
- Circuits for Waveform clipper, Surge absorber.

MAXIMUM RATINGS (TA = 25 °C)

Power Dissipation	Р	500 mW	
Surge Reverse Power	Prsm	100 W (t _T = 10 μ s 1 pulse)	Fig. 7
Junction Temperature	Tj	175 °C	
Storage Temperature	Tstg	–65 °C to +175 °C	



ELECTRICAL CHARACTERISTICS (TA = 25 °C)

Type Number	Breakdown Voltage ^{Note 1} V _{BR} (V)		Dynamic Impedance ^{Note 2} Zz (Ω)		Reverse Leakage IR (µA)		Capacitance Ct (pF)		E.S.D Voltage (kV)		
	MIN.	MAX.	I⊤ (mA)	MAX.	I⊤ (mA)	MAX.	Vr (V)	TYP.	TEST CONDITION	MIN.	TEST CONDITION
NNCD3.3B	3.16	3.53	20	70	20	20	1.0	240	$V_R = 0 V$ f = 1 MHz	30	C = 150 pF R = 330 Ω (IEC1000 -4-2)
NNCD3.6B	3.47	3.83	20	60	20	10	1.0	230		30	
NNCD3.9B	3.77	4.14	20	50	20	5	1.0	220		30	
NNCD4.3B	4.05	4.53	20	40	20	5	1.0	210		30	
NNCD4.7B	4.47	4.91	20	25	20	5	1.0	190		30	
NNCD5.1B	4.85	5.35	20	20	20	5	1.5	160		30	
NNCD5.6B	5.29	5.88	20	13	20	5	2.5	140		30	
NNCD6.2B	5.81	6.40	20	10	20	5	3.0	120		30	
NNCD6.8B	6.32	6.97	20	8	20	2	3.5	110		30	
NNCD7.5B	6.88	7.64	20	8	20	0.5	4.0	90		30	
NNCD8.2B	7.56	8.41	20	8	20	0.5	5.0	90		30	
NNCD9.1B	8.33	9.29	20	8	20	0.5	6.0	90		30	
NNCD10B	9.19	10.3	20	8	20	0.2	7.0	80		30	
NNCD11B	10.18	11.26	10	10	10	0.2	8.0	70		30	
NNCD12B	11.13	12.30	10	10	10	0.2	9.0	70		30	

Notes 1. Tested with pulse (40 ms)

2. Zz is measured at IT give a small A.C. signal.

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







Fig. 2 THERMAL RESISTANCE vs. SIZE OF P.C BOARD



Fig. 4 IT - VBR CHARACTERISTICS















REFERENCE

Document Name	Document No.		
NEC semiconductor device reliability/quality control system	C11745E		
NEC semiconductor device reliability/quality control system	MEI-1201		
Quality grade on NEC semiconductor device	C11531E		
Semiconductor device mounting technology manual	C10535E		
Guide to quality assurance for semiconductor device	MEI-1202		

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- Specific: Aircrafts, aerospace equipment, submersible repeaters, nuclear reactor control systems, life support systems or medical equipment for life support, etc.

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Anti-radioactive design is not implemented in this product.