SCHOTTKY DIODE ARRAY

SDA32

ISSUE 2 – JANUARY 1998

DEVICE DESCRIPTION

The SDA32 Schottky Barrier Diode Array is designed to reduce reflection noise on high speed parallel data lines.

The device helps suppress transients caused by transmission line reflections, cross talk and switching noise.

The SDA32 consists of an array of 16 high speed Schottky diode pairs suitable for clamping to V_{CC} and / or Gnd.

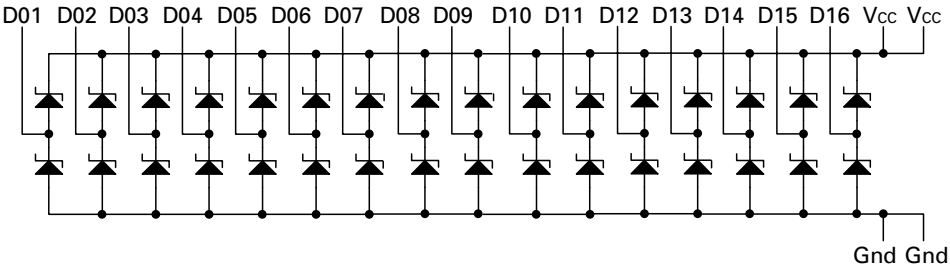
FEATURES

- Reduced reflection noise
- Repetitive peak forward current - 200mA
- 16 diode pairs
- SO20 and DIL20 packages

APPLICATIONS

- Termination of data lines
- Protection of memory devices

SCHEMATIC DIAGRAM



SDA32

ABSOLUTE MAXIMUM RATING (at T_{amb}= 25°C unless otherwise stated)*

Steady-State Reverse Voltage	7V
Continuous Forward Current	50mA(1) 170mA(2)
Repetitive Peak Forward Current (3)	200mA(1) 1A(2)
Continuous Total Power Dissipation (4) (SO and DIL packages)	625mW
Operating Free-air Temperature Range	0 to 70°C
Storage Temperature Range	-65 to 150°C

* Stresses beyond those listed above may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated under the recommended operating conditions is not implied. Exposure to absolute maximum rated conditions for extended periods of time may affect device reliability.

Note:

(1) Any D terminal from Gnd or to V_{CC}

(2) Total through all Gnd or V_{CC} terminals

(3) These values apply for t_W=100µs, duty cycle ≤ 20%

(4) For operation above 25°C , derate linearly at the rate of 6.25mW/°C

ELECTRICAL CHARACTERISTICS (at T_{amb}=25°C unless otherwise stated)

Single-Diode Operation

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS
Static Forward Voltage	V_F		0.85	1.05	V	To V_{CC} , I_F=18mA
			1.05	1.3	V	To V_{CC} , I_F=50mA
			0.75	0.95	V	From Gnd, I_F=18mA
			0.95	1.2	V	From Gnd, I_F=50mA
Peak Forward Voltage	V_{FM}		1.45		V	I_F=200mA
Static Reverse Current	I_R			6	µA	To V_{CC} ,V_R=7V
				5	µA	From Gnd, V_R=7V
Total Capacitance	C_T		6	16	pF	V_R=0, f=1MHz
			4	6	pF	V_R=2V, f=1MHz

Note:

(5) Test conditions and limits apply separately to each of the diodes. The diodes not under test are open circuited during the measurement of these characteristics.

Multiple-Diode Operation

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS
Internal Crosstalk Current	I_X		0.8	2	mA	Total I_F=1A (6)
			0.02	0.2	mA	Total I_F=198mA (6)

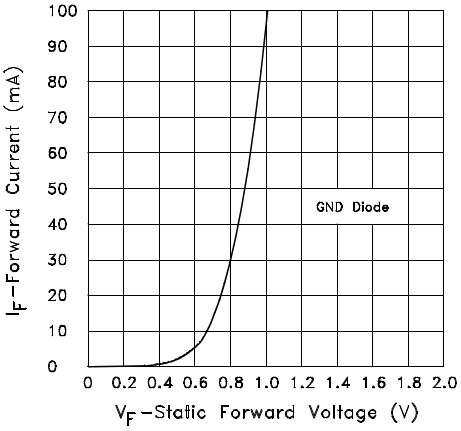
Note:

(6) I_X is measured under the following conditions with one diode static, and all others switching. Switching diodes: t_W=100µs, duty cycle=0.2; static diode; V_R=5V. The static diode input current is the internal crosstalk current I_X.

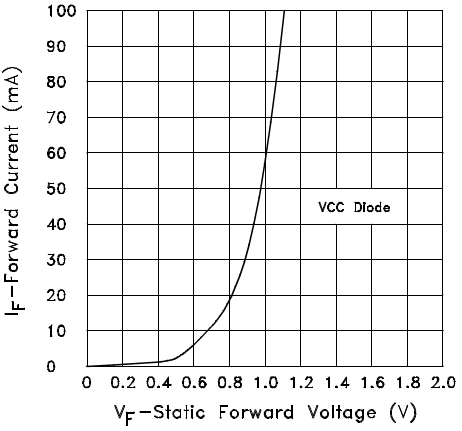
SWITCHING CHARACTERISTICS (over operating free-air temperature range)

PARAMETER	SYMBOL	MIN.	TYP.	MAX	UNIT	CONDITIONS
Reverse Recovery Time	t_{rr}		8	16	ns	I_F=10mA $I_{R(REC)}$=1mA $I_{RM(REC)}$ =10mA R_L=100Ω

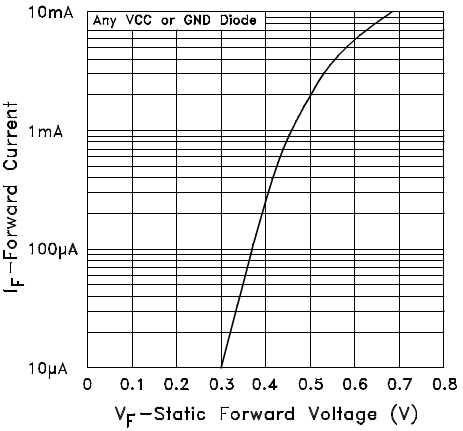
TYPICAL CHARACTERISTICS



I_F vs V_F Characteristic



I_F vs V_F Characteristic



Low I_F vs V_F Characteristic

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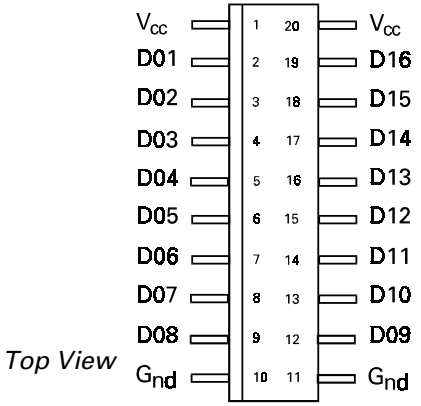
CONNECTION DIAGRAMS

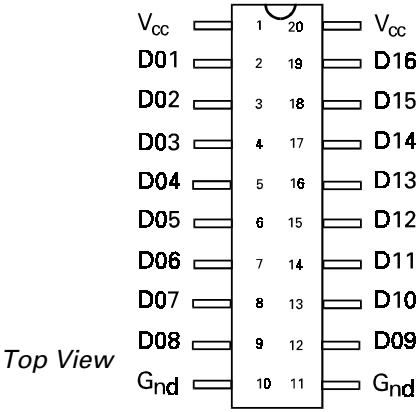
SO20

Package Suffix – N20



DIL20

Package Suffix – D20



ORDERING INFORMATION

Part Number	Package	Part Mark
SDA32N20	SO20	SDA32
SDA32D20	DIL20	SDA32