SCHOTTKY DIODE ARRAY

SDA24

ISSUE 3 – JANUARY 1998

DEVICE DESCRIPTION

The SDA24 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 SDA24 consists of an array of 12 high speed Schottky diode pairs suitable for clamping to Vcc and / or GND.

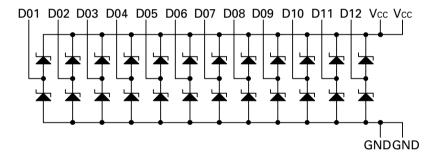
FEATURES

- Reduced reflection noise
- Repetitive peak forward current -200mA
- 12 diode pairs
- SO16 and DIL16 packages

APPLICATIONS

- Termination of data lines
- Protection of memory devices

SCHEMATIC DIAGRAM



SDA24

ABSOLUTE MAXIMUM RATING (at Tamb= 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) 625mW

(SO and DIL packages)

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 Vcc terminals
- (3) These values apply for $t_W=100\mu s$, duty cycle $\leq 20\%$
- (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

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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	μΑ	To V _{CC} ,V _R =7V
				5	μΑ	From GND, V _R =7V
Total Capacitance	Ст		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		8.0	2	mA	Total I _F =1A (6)
			0.02	0.2	mA	Total I _F =198mA (6)

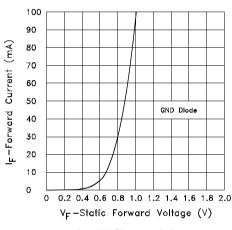
Note:

(6)I_X is measured under the following conditions with one diode static, and all others switching. Switching diodes: t_W =100 μ s, 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)

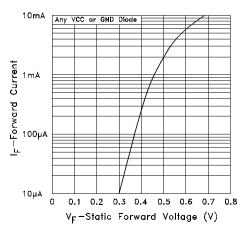
PARAMETER	SYMBOL	MIN.	TYP.	MAX	UNIT	CONDITIONS
Reverse Recovery Time	t _{rr}		8	16	ns	$I_{F=10mA}$ $I_{R(REC)}=1mA$ $I_{RM(REC)}=10mA$ $R_L=100\Omega$

TYPICAL CHARACTERISTICS



I_F vs V_F Characteristic

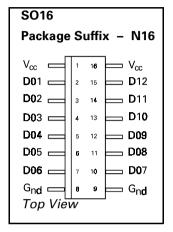
I_F vs V_F Characteristic

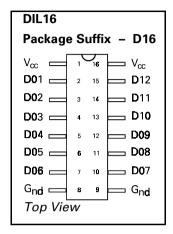


Low I_F vs V_F Characteristic

SDA24

CONNECTION DIAGRAMS





ORDERING INFORMATION

Part Number	Package	Part Mark		
SDA24D16	DIL16	SDA24		
SDA24N16	SO16N	SDA24		