

# 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  $V_{CC}$  and / or GND.

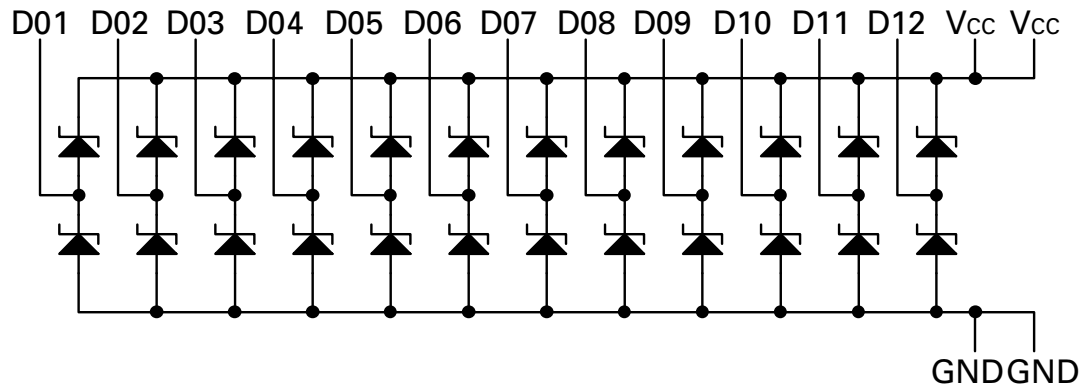
## FEATURES

- 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 $T_{amb}= 25^{\circ}\text{C}$ 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 $70^{\circ}\text{C}$
Storage Temperature Range	-65 to $150^{\circ}\text{C}$

\* 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  $t_W=100\mu\text{s}$ , duty cycle  $\leq 20\%$
- (4) For operation above  $25^{\circ}\text{C}$ , derate linearly at the rate of  $6.25\text{mW}/^{\circ}\text{C}$

## ELECTRICAL CHARACTERISTICS (at $T_{amb}= 25^{\circ}\text{C}$ unless otherwise stated)

### Single-Diode Operation

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

### 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 $I_F=1\text{A}$ (6)
			0.02	0.2	mA	Total $I_F=198\text{mA}$ (6)

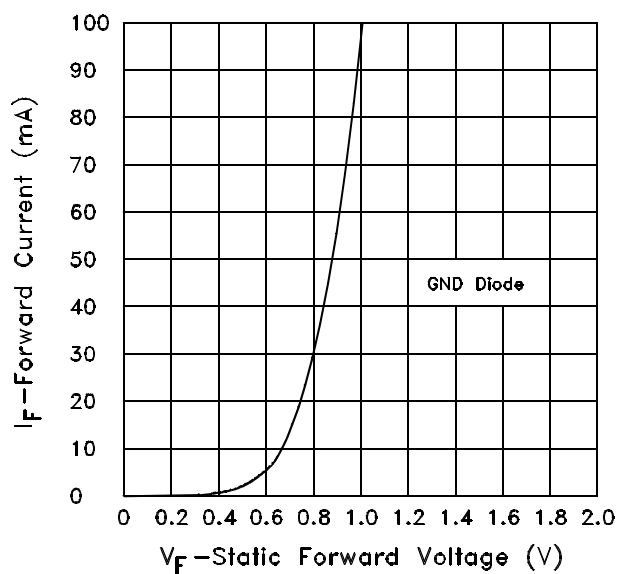
### Note:

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

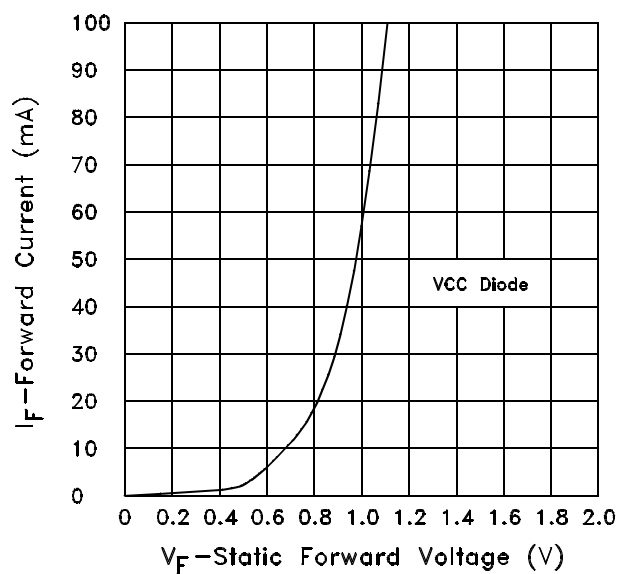
## SWITCHING CHARACTERISTICS (over operating free-air temperature range)

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

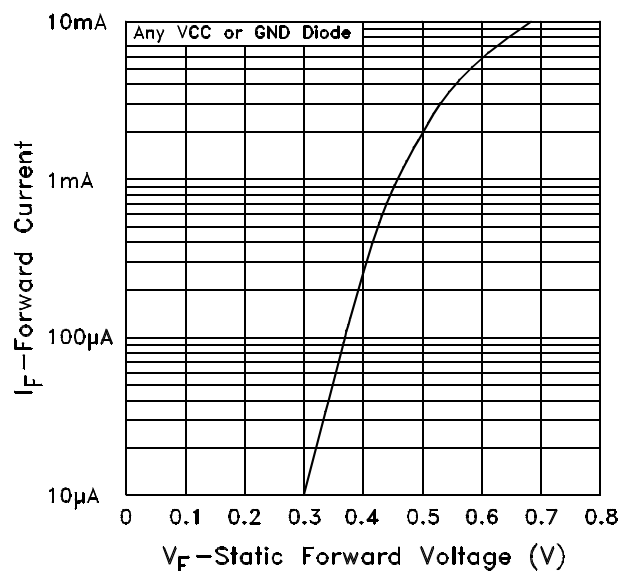
### TYPICAL CHARACTERISTICS



**$I_F$  vs  $V_F$  Characteristic**



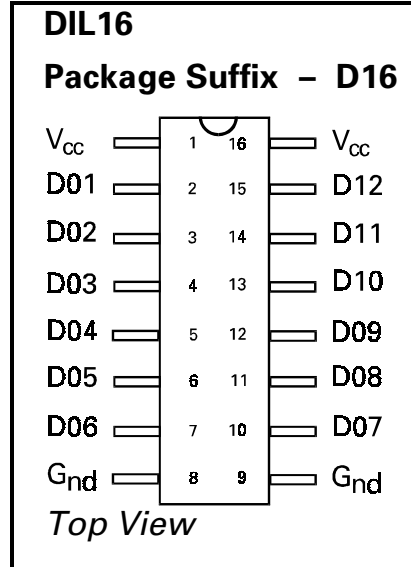
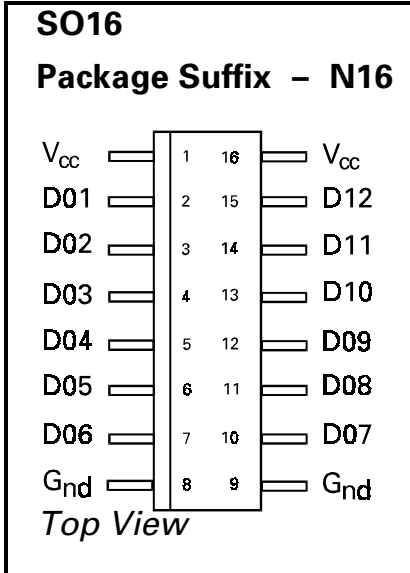
**$I_F$  vs  $V_F$  Characteristic**



**Low  $I_F$  vs  $V_F$  Characteristic**

# SDA24

## CONNECTION DIAGRAMS



## ORDERING INFORMATION

Part Number	Package	Part Mark
SDA24D16	DIL16	SDA24
SDA24N16	SO16N	SDA24