

### **OVERVIEW**

The SM6503A is the Diode array for ESD protection. 5 circuits consisted of diode element are integrated into ultra-small 6 pin plastic package. It is the most appropriate to protect the external interface circuit of portable equipment which requires miniaturization from ESD.

# FEATURES

- ± 12kV ESD immunity level (IEC61000-4-2 contact discharge)
- Clamp voltage: 7.5V typ.
- Low capacitance: 10pF typ.
- 5 circuits integrated into one package
- Ultra-small package
- SM6503AD: 6-pin SON
- SM6503AH: SOT23-6

### **APPLICATIONS**

- Cellular phone
- PDA
- Set Top Box
- Digital Still Camera

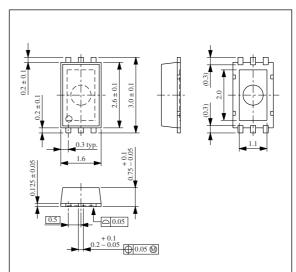
### **ORDERING INFORMATION**

| Device   | Package   |  |  |
|----------|-----------|--|--|
| SM6503AD | 6-pin SON |  |  |
| SM6503AH | SOT23-6   |  |  |

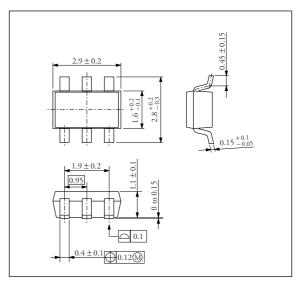
# PACKAGE DIMENSIONS

(Unit: mm)

#### SM6503AD (6-pin SON)

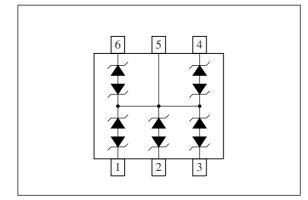


#### SM6503AH (SOT23-6)



**PIN DESCRIPTION** 

# **PINOUT** (Top view)



| Number | Name | Description |
|--------|------|-------------|
| 1      | DIO1 | Diode 1     |
| 2      | DIO2 | Diode 2     |
| 3      | DIO3 | Diode 3     |
| 4      | DIO4 | Diode 4     |
| 5      | VSS  | Ground      |
| 6      | DIO5 | Diode 5     |

## **SPECIFICATIONS**

## **Absolute Maximum Ratings**

 $Ta = 25^{\circ}C$ 

| Parameter                 | Symbol           | Condition | Rating      | Unit |
|---------------------------|------------------|-----------|-------------|------|
| Power dissipation         | PD               |           | 220         | mW   |
| Storage temperature range | T <sub>stg</sub> |           | - 55 to 125 | °C   |

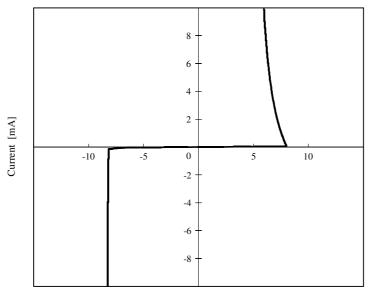
#### **Electrical Characteristics**

 $Ta = 25^{\circ}C$ 

| Parameter                             | Symbol            | Condition                                 | Rating |       |       | Unit |
|---------------------------------------|-------------------|---|--------|-------|-------|------|
|                                       |                   |   | min    | typ   | max   | Unit |
| Diode maximum leakage current         | I <sub>LEAK</sub> | 6V applied                                | -      | -     | 1     | μA   |
| Forward clamp voltage V <sub>ZF</sub> | V                 | I <sub>Z</sub> = 1μA                      | 6.5    | 7.5   | 8.5   | V    |
|                                       | VZF               | I <sub>Z</sub> = 5mA                      | -      | 6.5   | -     | V    |
| Reverse clamp voltage V <sub>ZR</sub> | M                 | I <sub>Z</sub> = - 1μA                    | - 8.5  | - 7.5 | - 6.5 | V    |
|                                       | VZR               | I <sub>Z</sub> = - 5mA                    | -      | - 8.0 | -     | V    |
| Terminal capacitance                  | CT                | f = 1MHz, between DIO1 to DIO5<br>and VSS | -      | 10    | -     | pF   |
| Maximum operating voltage             | V <sub>MAX</sub>  |   | -      | -     | 6     | V    |

# **TYPICAL PERFORMANCE**

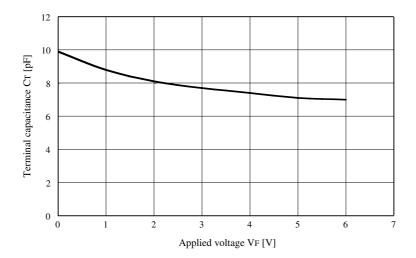
# V–I Characteristics (between DIO1 to DIO5 and VSS)



Clamping voltage [V]

#### Terminal Capacitance vs. Applied Voltage

f = 1MHz



SM6503A

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NC0023AE 2001.05