

# TDSEMIC

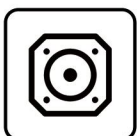
## 拓電半導體

自主封測 品質把控 售後保障

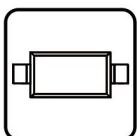
WEB | [WWW.TDSEMIC.COM](http://WWW.TDSEMIC.COM)



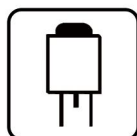
電源管理



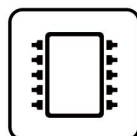
顯示驅動



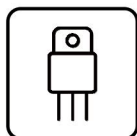
二三極管



LDO穩壓器



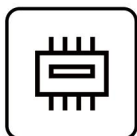
觸摸芯片



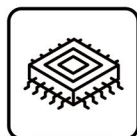
MOS管



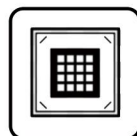
運算放大器



存儲芯片



MCU



串口通信

## MM5Z3V0-TD

產品規格說明書

MM5Z2V0 THRU MM5Z30V

SOD-523 MM5ZXXX稳压管系列

Features

- Total power dissipation: Max. 200mW
- Wide zener reverse voltage range 2V4 to 30V
- Small plastic package suitable for surface mounted design
- 5% high-precision regulated voltage stability
- High reliability chip and packaging process



Applications

Low-power voltage regulator is mainly used for circuit voltage adjustment of mobile phones, hand-held devices and high-density computer motherboards.

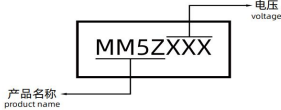
Schematic diagram of package die



Schematic diagram of package die

| Parameter                               | Symbol                            | Value      | Value |
|-----------------------------------------|-----------------------------------|------------|-------|
| Power Dissipation                       | P <sub>D</sub>                    | 200        | mW    |
| Operating and Storage Temperature Range | T <sub>J</sub> , T <sub>stg</sub> | -65 to+150 | °C    |

Ordering information

| Product ID | Pack    | Naming rule                                                                         | voltage | Qty(PCS) |
|------------|---------|-------------------------------------------------------------------------------------|---------|----------|
| MM5ZXXX    | SOD-523 |  | 2V0-30V | 3000     |

## Electrical Characteristics (TA=25℃, unless otherwise noted)

| Type    | Marking | Zener Voltage Range <sup>(2)</sup>    |         |         | Maximum Zener impedance <sup>(3)</sup> |                                  |                                  |                 | Reverse Current <sup>(2)</sup> |                 | ypical temperature coefficient<br>@I <sub>IR</sub><br>mV/°C |      | Test current<br>I <sub>TR</sub> |
|---------|---------|---------------------------------------|---------|---------|----------------------------------------|----------------------------------|----------------------------------|-----------------|--------------------------------|-----------------|-------------------------------------------------------------|------|---------------------------------|
|         |         | V <sub>ZT</sub> (at I <sub>ZT</sub> ) |         |         | I <sub>ZT</sub>                        | Z <sub>ZT</sub> @I <sub>ZT</sub> | Z <sub>ZK</sub> @I <sub>ZK</sub> | I <sub>ZK</sub> | I <sub>R</sub>                 | @V <sub>R</sub> |                                                             |      |                                 |
|         |         | Min (V)                               | Nom (V) | Max (V) | (mA)                                   | (Ω)                              |                                  | (mA)            | μA                             | V               | MIN                                                         | MAX  |                                 |
| MM5Z2V0 | WY      | 1.91                                  | 2.0     | 2.09    | 5                                      | 100                              | 600                              | 1               | 150                            | 1.0             | -3.5                                                        | 0    | 5                               |
| MM5Z2V4 | 00      | 2.2                                   | 2.4     | 2.6     | 5                                      | 100                              | 1000                             | 1               | 50                             | 1.0             | -3.5                                                        | 0    | 5                               |
| MM5Z2V7 | 01      | 2.5                                   | 2.7     | 2.9     | 5                                      | 100                              | 1000                             | 1               | 20                             | 1.0             | -3.5                                                        | 0    | 5                               |
| MM5Z3V0 | 02      | 2.8                                   | 3.0     | 3.2     | 5                                      | 100                              | 1000                             | 1               | 10                             | 1.0             | -3.5                                                        | 0    | 5                               |
| MM5Z3V3 | 05      | 3.1                                   | 3.3     | 3.5     | 5                                      | 95                               | 1000                             | 1               | 5.0                            | 1.0             | -3.5                                                        | 0    | 5                               |
| MM5Z3V6 | 06      | 3.4                                   | 3.6     | 3.8     | 5                                      | 90                               | 1000                             | 1               | 5.0                            | 1.0             | -3.5                                                        | 0    | 5                               |
| MM5Z3V9 | 07      | 3.7                                   | 3.9     | 4.1     | 5                                      | 90                               | 1000                             | 1               | 3.0                            | 1.0             | -3.5                                                        | -2.5 | 5                               |
| MM5Z4V3 | 08      | 4.0                                   | 4.3     | 4.6     | 5                                      | 90                               | 1000                             | 1               | 3.0                            | 1.0             | -3.5                                                        | 0    | 5                               |
| MM5Z4V7 | 09      | 4.4                                   | 4.7     | 5.0     | 5                                      | 80                               | 800                              | 1               | 3.0                            | 2.0             | -3.5                                                        | 0.2  | 5                               |
| MM5Z5V1 | 0A      | 4.8                                   | 5.1     | 5.4     | 5                                      | 60                               | 500                              | 1               | 2.0                            | 2.0             | -2.7                                                        | 1.2  | 5                               |
| MM5Z5V6 | W9      | 5.2                                   | 5.6     | 6.0     | 5                                      | 40                               | 400                              | 1               | 1.0                            | 2.0             | -2                                                          | 2.5  | 5                               |
| MM5Z6V2 | 0E      | 5.8                                   | 6.2     | 6.6     | 5                                      | 10                               | 100                              | 1               | 3.0                            | 4.0             | 0.4                                                         | 3.7  | 5                               |
| MM5Z6V8 | 0F      | 6.4                                   | 6.8     | 7.2     | 5                                      | 15                               | 160                              | 1               | 2.0                            | 4.0             | 1.2                                                         | 4.5  | 5                               |
| MM5Z7V5 | 0G      | 7.0                                   | 7.5     | 7.9     | 5                                      | 15                               | 160                              | 1               | 1.0                            | 5.0             | 2.5                                                         | 5.3  | 5                               |
| MM5Z8V2 | 0H      | 7.7                                   | 8.2     | 8.7     | 5                                      | 15                               | 160                              | 1               | 0.7                            | 5.0             | 3.2                                                         | 6.2  | 5                               |
| MM5Z9V1 | 0K      | 8.5                                   | 9.1     | 9.6     | 5                                      | 15                               | 160                              | 1               | 0.2                            | 7.0             | 3.8                                                         | 7.0  | 5                               |
| MM5Z10V | 0L      | 9.4                                   | 10      | 10.6    | 5                                      | 20                               | 160                              | 1               | 0.1                            | 8.0             | 4.5                                                         | 8.0  | 5                               |
| MM5Z11V | 0M      | 10.4                                  | 11      | 11.6    | 5                                      | 20                               | 160                              | 1               | 0.1                            | 8.0             | 5.4                                                         | 9.0  | 5                               |
| MM5Z12V | 0N      | 11.4                                  | 12      | 12.7    | 5                                      | 25                               | 80                               | 1               | 0.1                            | 8.0             | 6.0                                                         | 10.0 | 5                               |
| MM5Z13V | 0P      | 12.4                                  | 13.25   | 14.1    | 5                                      | 30                               | 80                               | 1               | 0.1                            | 8.0             | 7.0                                                         | 11.0 | 5                               |
| MM5Z15V | 0T      | 14.3                                  | 15      | 15.8    | 5                                      | 30                               | 200                              | 1               | 0.05                           | 10.5            | 9.2                                                         | 13.0 | 5                               |
| MM5Z16V | 0U      | 15.3                                  | 16.2    | 17.1    | 2                                      | 40                               | 200                              | 1               | 0.05                           | 11.2            | 10.4                                                        | 14.0 | 2                               |
| MM5Z18V | 0W      | 16.8                                  | 18      | 19.1    | 2                                      | 45                               | 225                              | 1               | 0.05                           | 12.6            | 12.4                                                        | 16.0 | 2                               |
| MM5Z20V | 0Z      | 18.8                                  | 20      | 21.2    | 2                                      | 55                               | 225                              | 1               | 0.05                           | 14.0            | 14.4                                                        | 18.0 | 2                               |
| MM5Z22V | 10      | 20.8                                  | 22      | 23.3    | 2                                      | 55                               | 250                              | 1               | 0.05                           | 15.4            | 16.4                                                        | 20.0 | 2                               |
| MM5Z24V | 11      | 22.8                                  | 24.2    | 25.6    | 2                                      | 70                               | 120                              | 1               | 0.05                           | 16.8            | 18.4                                                        | 22.0 | 2                               |
| MM5Z27V | 12      | 25.1                                  | 27      | 28.9    | 2                                      | 80                               | 300                              | 1               | 0.05                           | 18.9            | 21.4                                                        | 25.3 | 2                               |
| MM5Z30V | 14      | 28.0                                  | 30      | 32.0    | 2                                      | 80                               | 300                              | 1               | 0.05                           | 21.0            | 24.4                                                        | 29.4 | 2                               |

### NOTES:

(1) Zener voltage is measured with a pulse test current I<sub>Z</sub> at an ambient temperature of 25°C.

## Typical Characteristics

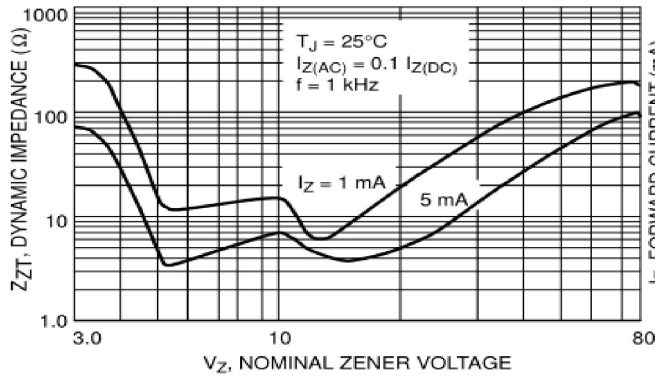


Figure 1. Effect of Zener Voltage on Zener Impedance

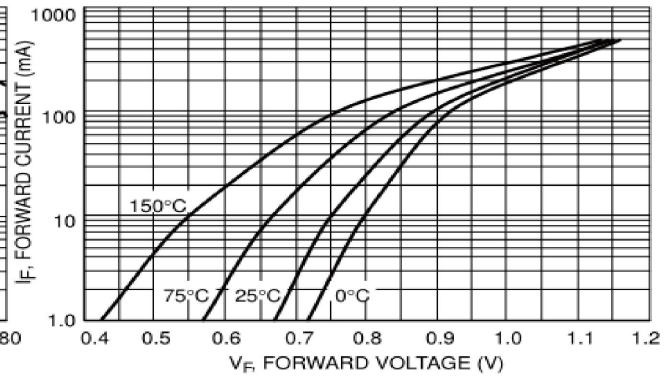


Figure 2. Typical Forward Voltage

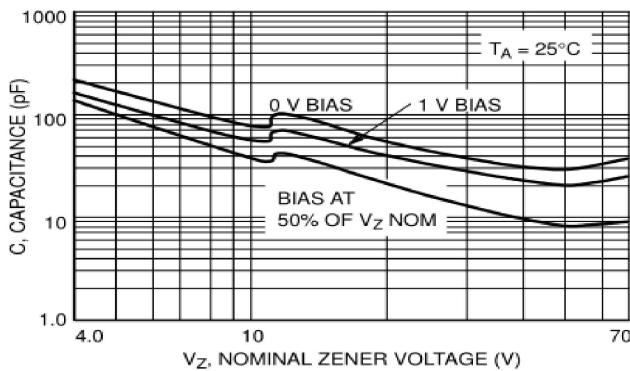


Figure 3. Typical Capacitance

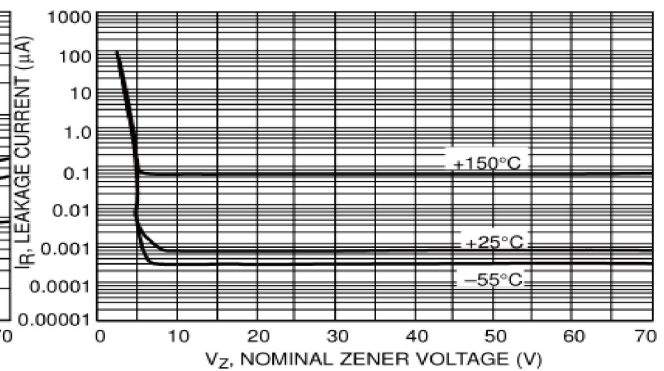


Figure 4. Typical Leakage Current

Typical Characteristics

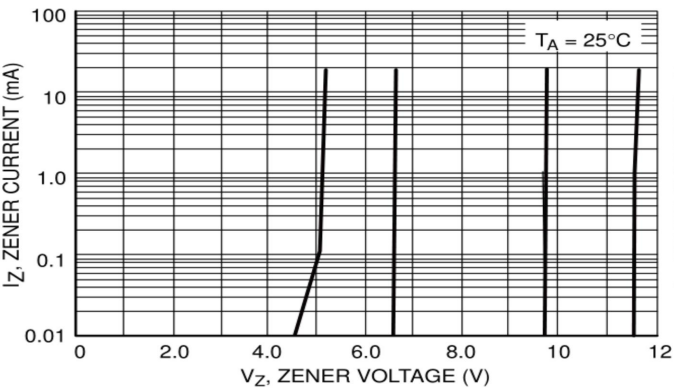


Figure 5. Zener Voltage versus Zener Current  
( $V_Z$  Up to 12 V)

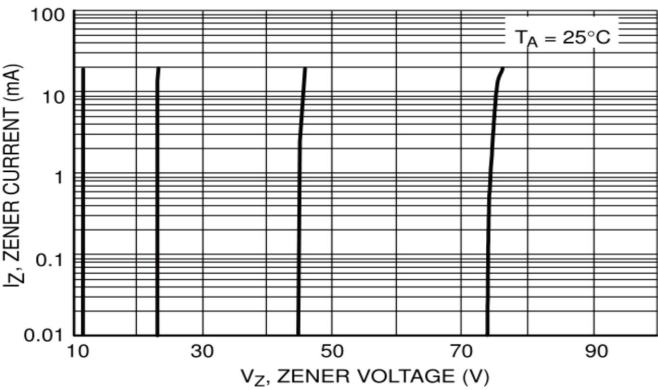


Figure 6. Zener Voltage versus Zener Current  
(12 V to 75 V)

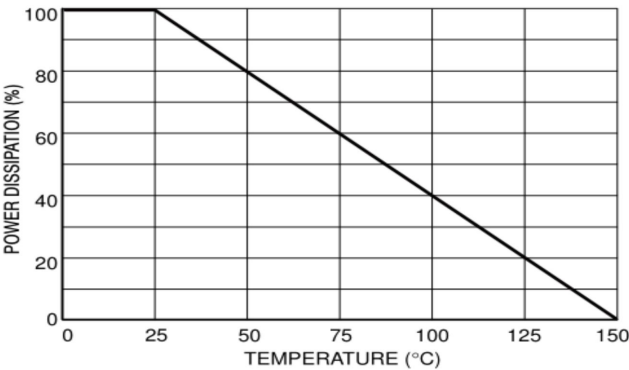
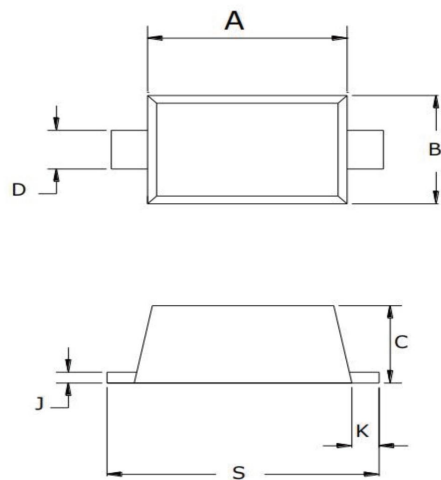


Figure 7. Steady State Power Derating

Package Outline Dimensions

SOD523



| SYMBOL | MILLIMETERS |      |
|--------|-------------|------|
|        | MIN         | MAX  |
| A      | 1.10        | 1.30 |
| B      | 0.70        | 0.90 |
| C      | 0.50        | 0.70 |
| D      | 0.25        | 0.35 |
| J      | 0.07        | 0.20 |
| K      | 0.15        | 0.25 |
| S      | 1.50        | 1.70 |

Soldering Footprint (mm)

