

LOW VOLTAGE OPERATION SERIAL E²PROM

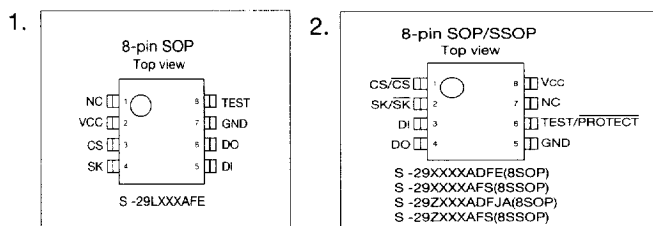
S-29L/U/Z Series

The S-29L Series, the S-29U Series and the S-29Z Series are serial E²PROMs characterized by low power consumption and low operating voltage.

The S-29L Series, which can be operated at 1.8V or more, are suitable for 3-Volt battery drive portable equipment.

The S-29U Series and the S-29Z Series, which can be operated at 0.9V or more, are suitable for 1.5-Volt battery drive portable equipment.

PIN CONFIGURATIONS



FEATURES

- Low operating voltage
 - S-29L Series Read : 1.8 to 5.5V, Write : 1.8 to 5.5V
 - S-29U Series Read : 0.9 to 3.6V, Write : 1.8 to 3.6V
 - S-29Z Series Read : 0.9 to 3.6V, Write : 0.9 to 3.6V
- Low current consumption
- Endurance : 10⁵ cycles/word
: 10⁶ cycles/word also available (S-29L/29U Series only).
- Data retention : 10 years
- Operating temperature : -40°C to +85°C
- Package : 8-pin SOP or 8-pin SSOP
(Mounting area of SSOP : 62% of that of SOP)

Memory size	Model No.	Instruction code conforming to;	Function				Pin Config No.	Operating voltage		Current consumption		Clock frequency Max.	Package
			Continuous read operation *1	Memory protection *2	CS Active *3	Micro computer interface *4		Read	Write	Read Max.	Stand by Max.		
1K bit (64 x 16 bit)	S-29L130A	NM93CS46	○		H		1,2	1.8V to 5.5V	1.8V to 5.5V	0.4mA (1.8V) to 0.8mA (5.5V)	0.4μA (1.8V) to 0.8μA (5.5V)	0.25MHz (1.8V) to 2.0MHz (5.5V)	8SOP/SSOP
	S-29L131A	NM93CS46	○	○	H		2						
	S-29L194A	SII original	○	○	L	○	2						
2K bit (128 x 16 bit)	S-29L220A	NM93CS56	○		H		1,2						
	S-29L221A	NM93CS56	○	○	H		2						
	S-29L294A	SII original	○	○	L	○	2						
4K bit (256 x 16 bit)	S-29L330A	NM93CS66	○		H		1,2						
	S-29L331A	NM93CS66	○	○	H		2						
	S-29L394A	SII original	○	○	L	○	2						
1K bit (64 x 16 bit)	S-29U130A	NM93CS46	○		H		2	0.9V to 3.6V	1.8V to 3.6V	0.2mA (0.9V) to 0.6mA (3.6V)	1.0 μA [-10 to +70°C] 2.0 μA [-40 to +85°C]	10kHz (0.9V) to 500kHz (3.6V) [-10 to +70°C] 5kHz (0.9V) to 500kHz (3.6V) [-40 to +85°C]	8SOP/SSOP
	S-29U131A	NM93CS46	○	○	H		2						
	S-29U194A	SII original	○	○	L	○	2						
2K bit (128 x 16 bit)	S-29U220A	NM93CS56	○		H		2						
	S-29U221A	NM93CS56	○	○	H		2						
	S-29U294A	SII original	○	○	L	○	2						
4K bit (256 x 16 bit)	S-29U330A	NM93CS66	○		H		2						
	S-29U331A	NM93CS66	○	○	H		2						
	S-29U394A	SII original	○	○	L	○	2						
4K bit (256 x 16 bit)	S-29Z330A	NM93CS66	○		H		2	0.9V to 3.6V	0.9V to 3.6V	0.2mA (0.9V) to 0.6mA (3.6V)	1.0 μA [-10 to +70°C] 2.0 μA [-40 to +85°C]	10kHz (0.9V) to 500kHz (3.6V) [-10 to +70°C] 5kHz (0.9V) to 500kHz (3.6V) [-40 to +85°C]	8SOP/SSOP
	S-29Z331A	NM93CS66	○	○	H		2						
	S-29Z394A	SII original	○	○	L	○	2						
8K bit (512 x 16 bit)	S-29Z430A	NM93CSXX	○		H		2						
	S-29Z431A	NM93CSXX	○	○	H		2						
	S-29Z494A	SII original	○	○	L	○	2						

*1 In continuous read operation address is incremented sequentially every 16th bit.

*2 50% memory protection from the first address.

*3 CS : chip select

*4 8-bit composition instruction enables easy interface with serial port.