ME2802 Series Voltage Detectors

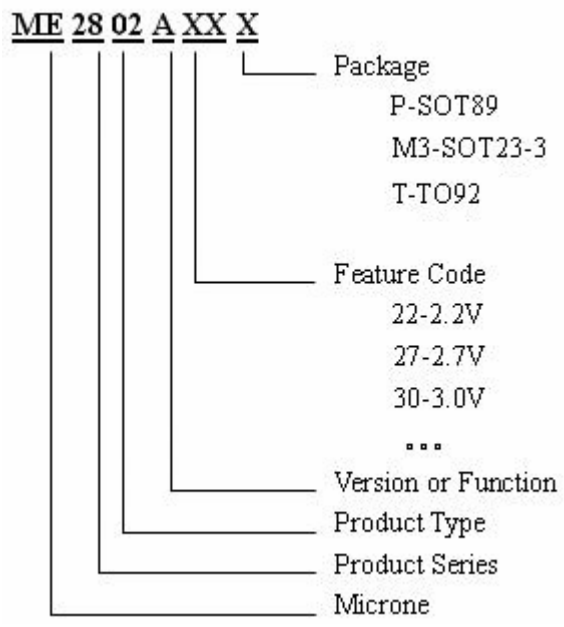
ME2802 Series are highly precise ,low power consumption voltage detectors,manufactured using CMOS technologies. Detect voltage is extremely accurate with minimal temperature drift.

NMOS output configurations are available.

Features

- Highly accurate： ±1%；
- Low power consumption：
  TYP 0.7uA (Vin=1.5V)；
- Detect voltage range：
  2.0V~4.8V in 0.1V increments；
- Operating voltage range：0.7V~7V；
- Detect voltage temperature characteristics：
  TYP±100ppm/℃；
- Output configuration： NMOS；
- PACKAGE： SOT23-3，SOT89-3，TO-92。

Selection Guide

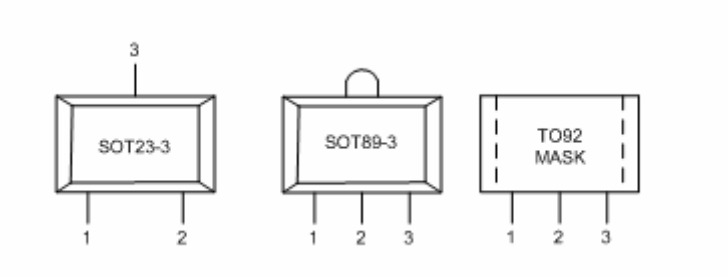


Applications

- Microprocessor reset circuitry；
- Memory battery back-up circuits；
- Power-on reset circuits；
- Power failure detection；
- System battery life and charge voltage monitors。

TYPE	POSTFIX	PACKAGE	OUTPUT CONFIGURATION
ME2802Axx	M3	SOT23-3	NMOS
	P	SOT89-3	
	T	TO-92	
	T1	TO-92	

Pin Configuration

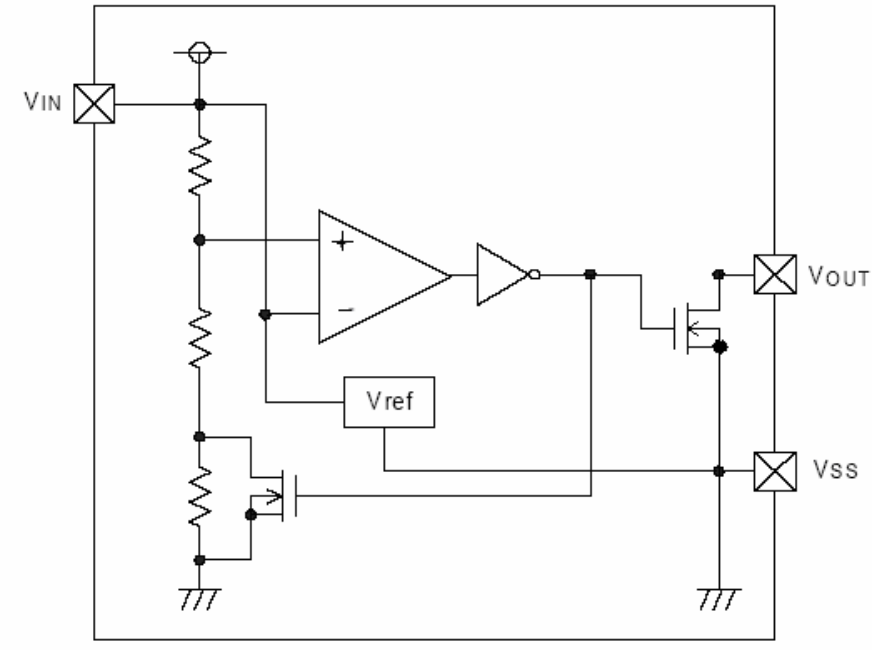


Pin Assignment

ME2802Axx

PIN Number				PIN NAME	FUNCTION
SOT23-3	SOT89-3	TO-92(T)	TO-92(T1)		
2	3	3	2	Vss	Ground
1	1	1	3	Vout	Output
3	2	2	1	Vin	Input

Block Diagram



Absolute Maximum Ratings

PARAMETER		SYMBAL	RATINGS	UNITS
V_{IN} Input Voltage		V_{IN}	8	V
Output Current		Iout	50	mA
Output Voltage	NMOS	Vout	Vss-0.3~Vin+0.3	V
	N-ch open drain		Vss-0.3~12	
Continuous Total Power Dissipation	SOT23	Pd	150	mW
	SOT89		500	mW
	TO92		300	mW
Operating Ambient Temperature		T_{Opr}	-40~+85	℃
Storage Temperature		T_{stg}	-40~+125	℃
Soldering temperature and time		T_{solder}	260℃, 10s	

Electrical Characteristics (V_{DF}(T)=2.0V to 4.8V±1% Ta=25℃)

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
V_{DF}	Detect Voltage		V_{DF}* 0.99	V_{DF}	V_{DF}* 1.01	V
V_{HYS}	Hysteresis Range		V_{DF}* 0.02	V_{DF}* 0.05	V_{DF}* 0.08	V
Iss	Supply Current	Vin=1.5V		0.7	2.7	uA
		=2.0V		0.8	3.2	
		=3.0V		0.9	3.6	
		=4.0V		1.0	3.8	
		=5.0V		1.1	4.3	
V_{IN}	Operating Voltage	V_{DF}(T)=1.6V to 6.0V	0.7		7	V
I_{OUT}	Output Current	N-ch VDS=0.5V				mA
		VIN=1.0V	1.0	2.2		
		=2.0V	3.0	7.7		
		=3.0V	5.0	10.1		
		=4.0V	6.0	11.5		
		=5.0V	7.0	13.0		
$\Delta V_{DF}/(\Delta topr*V_{DF})$	Temperature characteristics	-40℃≤Topr≤85℃		±100		ppm/℃

Note：1、VDF(T) ：Established Detect Voltage value

2、Release Voltage：$V_{DR}=V_{DF}+V_{HYS}$

Functional Description

Functional Description

1、 When input voltage (V_{IN}) rises above detect voltage (V_{DF}), output voltage (V_{OUT}) will be equal to V_{IN}.

2、 When input voltage (V_{IN}) falls below detect voltage (V_{DF}), output voltage (V_{OUT}) will be equal to the ground voltage (V_{SS}) level.

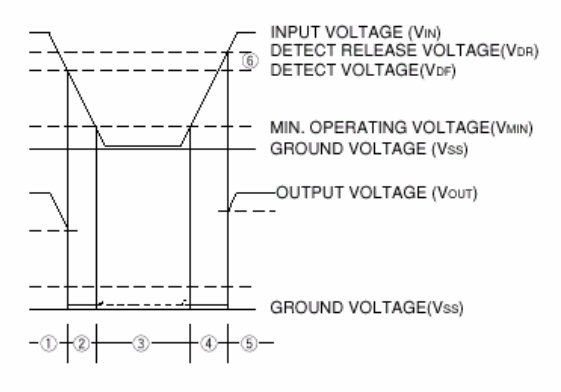
3、 When input voltage (V_{IN}) falls to a level below that of the minimum operating voltage (V_{MIN}), output will become unstable. In this condition, V_{IN} will equal the pulled-up output (should output be pulled-up.)

4、 When input voltage (V_{IN}) rises above the ground voltage (V_{SS}) level, output will be unstable at levels below the minimum operating voltage (V_{MIN}). Between the VMIN and detect release voltage (V_{DR}) levels, the ground voltage (V_{SS}) level will be maintained.

5、 When input voltage (V_{IN}) rises above detect release voltage (V_{DR}), output voltage (V_{OUT}) will be equal to V_{IN}.

6、 The difference between V_{DR} and V_{DF} represents the hysteresis range.

Timing Chart



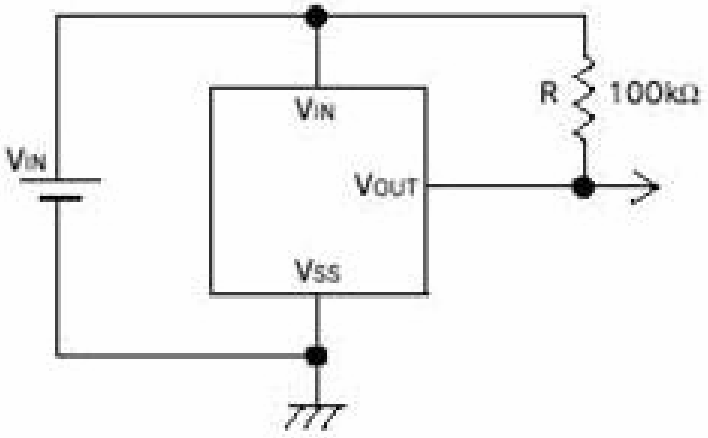
Directions for use

Notes on Use

1、 Please use this IC within the stated maximum ratings. Operation beyond these limits may cause degrading or permanent damage to the device.

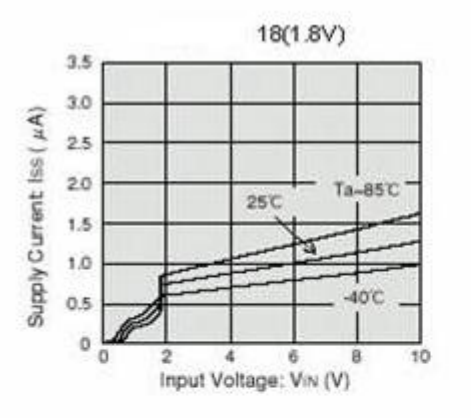
2、In order to stabilize the IC's operations, please ensure that V_{IN} pin's input frequency's rise and fall times are more than several u Sec/V.

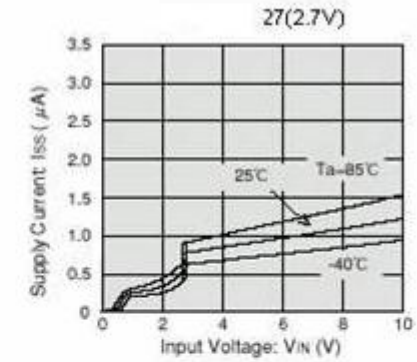
Typical Applications

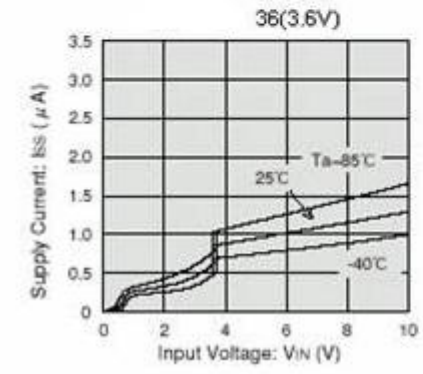


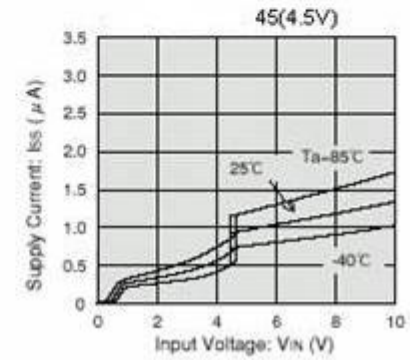
Type Characteristics

1、 SUPPLY CURRENT vs. INPUT VOLTAGE

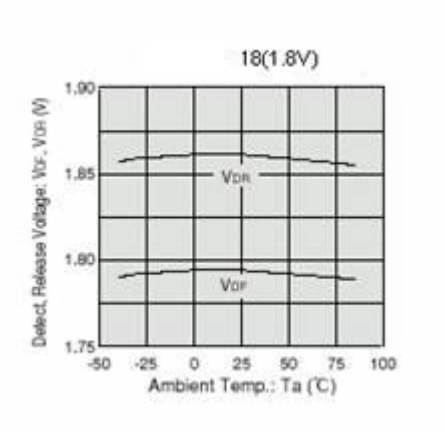


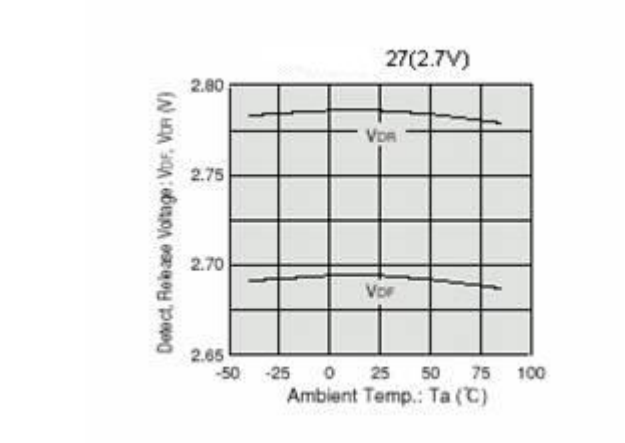


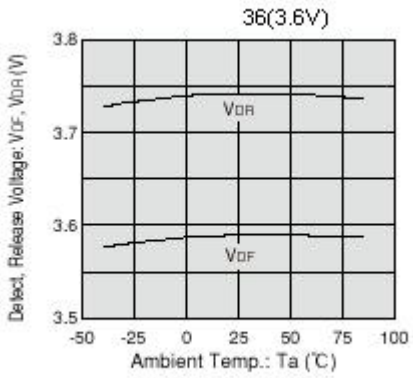


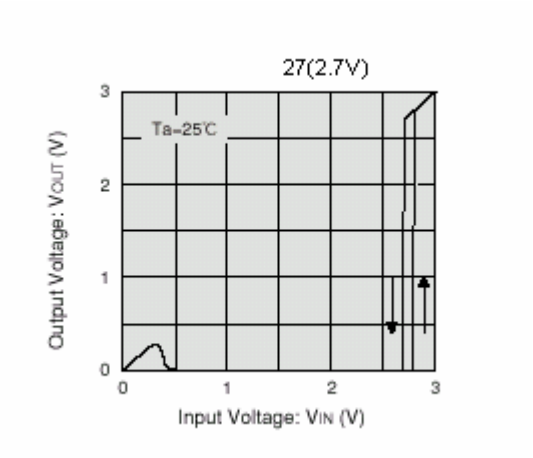


2、 DETECT,RELEASE VOLTAGE vs. AMBIENT TEMPERATURE

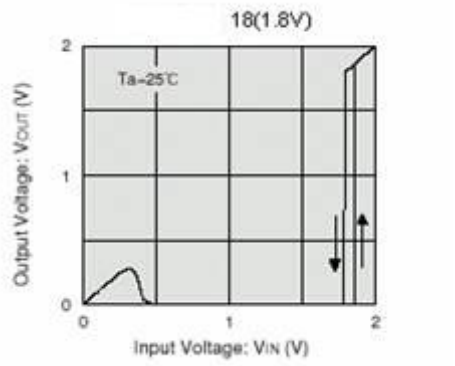


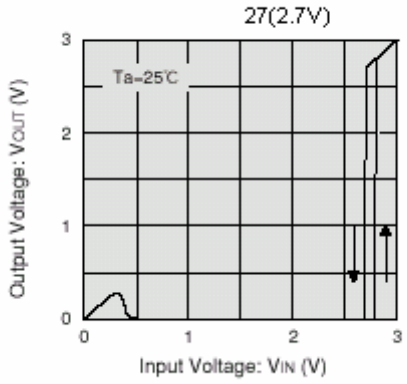


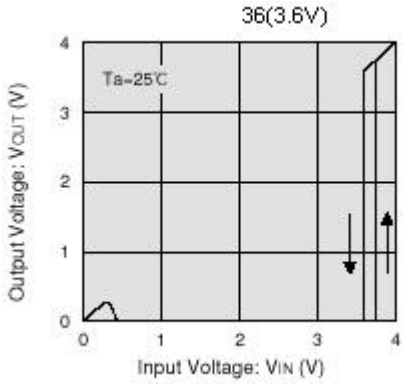


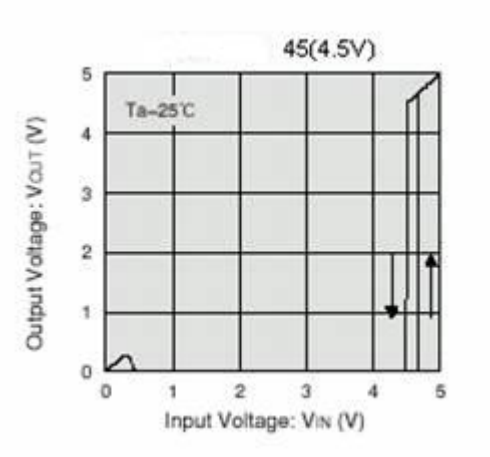


3、 OUTPUT VOLTAGE vs. INPUT VOLTAGE

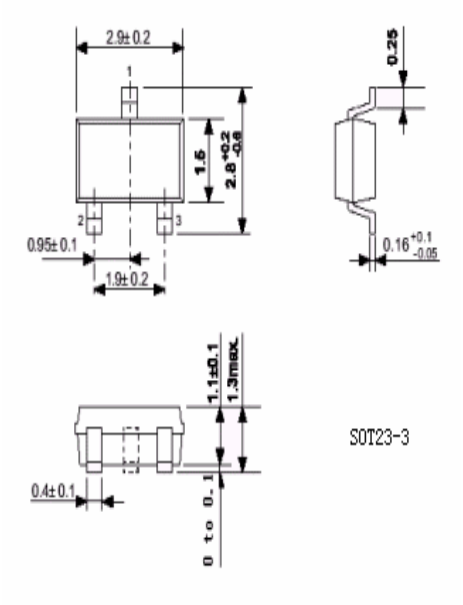


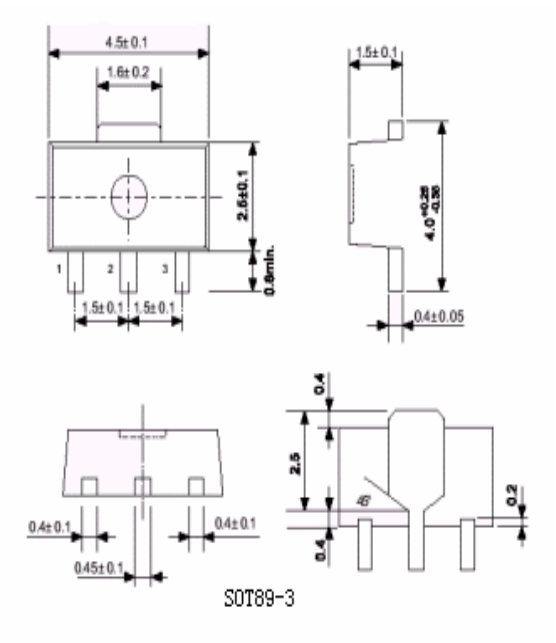


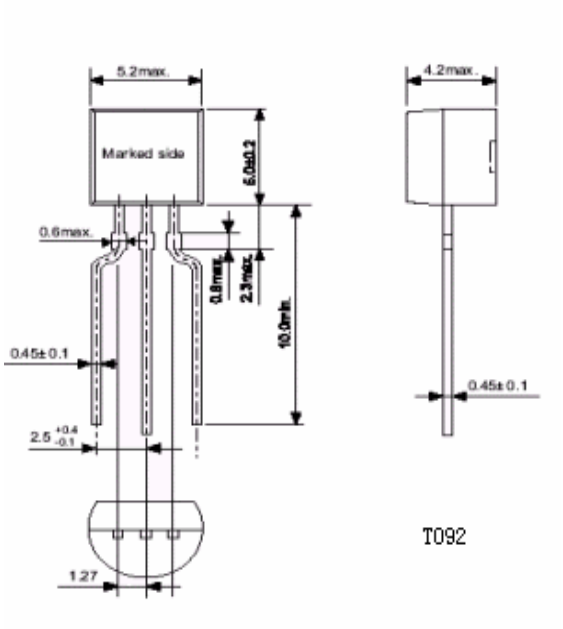

36(3.6V)
Ta=25℃
Output Voltage: VOUT (V)
Input Voltage: VIN (V)
0
1
2
3
4


45(4.5V)
Ta=25℃
Output Voltage: VOUT (V)
Input Voltage: VIN (V)
0
1
2
3
4
5

Package Diomensions







- **The information described herein is subject to change without notice.**
- **Nanjing Micro One Electronics Inc is not responsible for any problems caused by circuits or diagrams described herein whose related industrial properties, patents, or other rights belong to third parties. The application circuit examples explain typical applications of the products, and do not guarantee the success of any specific mass-production design.**
- **Use of the information described herein for other purposes and/or reproduction or copying without the express permission of Nanjing Micro One Electronics Inc is strictly prohibited.**
- **The products described herein cannot be used as part of any device or equipment affecting the human body, such as exercise equipment, medical equipment, security systems, gas equipment, or any apparatus installed in airplanes and other vehicles, without prior written permission of Nanjing Micro One Electronics Inc.**
- **Although Nanjing Micro One Electronics Inc exerts the greatest possible effort to ensure high quality and reliability, the failure or malfunction of semiconductor products may occur. The user of these products should therefore give thorough consideration to safety design, including redundancy, fire-prevention measures, and malfunction prevention, to prevent any accidents, fires, or community damage that may ensue.**