Ultra-Small High-Precision Voltage Detector

CJ808 Series

■ INTRODUCTION

The Series is a series of high-precision voltage detectors with a built-in delay time generator of fixed time deve-loped using CMOS process.

The detection voltage is fixed internally, with an accuracy of ±2.0%.

■ APPLICATIONS

- Memory battery back-up circuits
- Power-on reset circuits
- Power failure detection
- Power monitor for portable equipment such as notebook computers, digital cameras, PDA, and cellular phones.
- Constant voltage power monitors for cameras,video equipment and com-munication devices.
- Power monitor for microcomputers and reset for CPUs.

■ FEATURES

- Ultra-low current consumption: 0.9μA@3.5V(Typ.)
- High-precision detection voltage: ±2.0%
- Hysteresis characteristics: -VDET×5%(Typ.)
- Operating voltage range: 0.95V to 7.0V
- Detection voltage: 1.5V to 6.0V (10mV step)
- ESD(HMB): ±8
- Output forms:
  NMOS open-drain output (Active Low)
  CMOS output (Active Low)

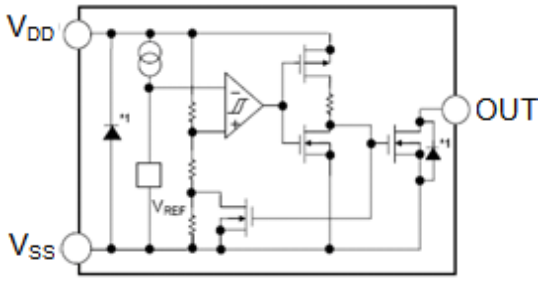
■ ORDER INFORMATION

CJ808①②③④⑤

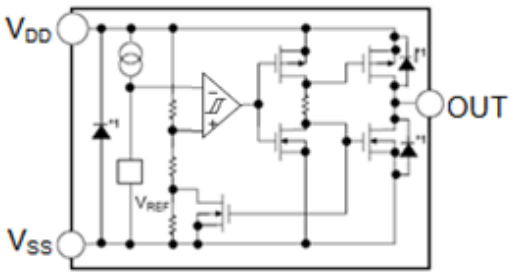
DESIGNATOR	SYMBOL	DESCRIPTION
①	C	CMOS
	N	NMOS open drain
②③④	Integer	DetectionVoltage (1.50V~6.00V), "④"elide when it is "0" e.g. 3.0V=②:3, ③:0 2.93V=②:2, ③:9, ④:3
⑤	M	Package：SOT-23-3L
	MR	Package：SOT-23-5L
	P	Package：SOT-89-3L
	N	Package：SOT-23

■ BLOCK DIAGRAMS

NMOS open-drain

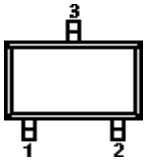


CMOS output



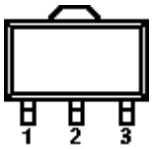
■ PIN CONFIGURATION

SOT-23
SOT-23-3L



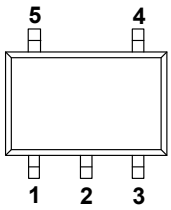
PIN NO.	N/M	FUNCTION
1	V_{OUT}	Voltage detection output pin
2	V_{SS}	Ground
3	V_{DD}	Voltage input pin

SOT-89-3L



PIN NO.	P	FUNCTION
1	V_{OUT}	Voltage detection output pin
2	V_{DD}	Voltage input pin
3	V_{SS}	Ground

SOT-23-5L



PIN NO.	MR	FUNCTION
1	V_{OUT}	Voltage detection output pin
2	V_{DD}	Voltage input pin
3	V_{SS}	Ground
4	NC	No connection
5	NC	No connection

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNITS
Power supply voltage		V_{DD}	$V_{SS}-0.3 \sim V_{SS}+8$	V
Output voltage		V_{OUT}	$V_{SS}-0.3 \sim V_{SS}+8$	V
Power dissipation	SOT-23	PD	250	mW
	SOT-23-3L		400	mW
	SOT-89-3L		500	mW
	SOT-23-5L		500	mW
Operating ambient temperature		T_{opr}	−40 ~+85	°C
Storage temperature		T_{stg}	−40 ~+125	°C
Soldering Temperature & Time		T_{solder}	260℃, 10s	

■ ELECTRICAL CHARACTERISTICS

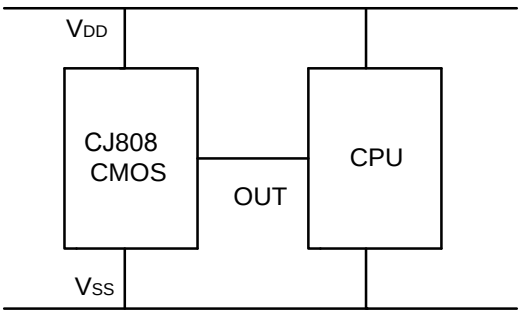
(Ta=25°C, unless otherwise specified)

PARAMETER	SYMBOL	CONDITIONS		MIN	TYP	MAX	UNITS
Detection voltage***1**	$-V_{DET}$	—		$-V_{DET(S)}$ ×0.98	$-V_{DET(S)}$	$-V_{DET(S)}$ ×1.02	V
Hysteresis width	V_{HYS}	—		0.02× $-V_{DET(S)}$	0.05× $-V_{DET(S)}$	0.08× $-V_{DET(S)}$	V
Current consumption	I_{SS}	$V_{DD}=-V_{DET}+0.5V$	CJ808 C/N 20～26	—	1.0	2.0	uA
			CJ808 C/N 26～39	—	1.2	2.5	uA
			CJ808 C/N 39～60	—	1.5	3.0	uA
Operating voltage	V_{DD}	—		0.95	—	7	V
Output current	I_{OUT}	NMOS: V_{OUT} =0.5 V V_{DD} =-V_{DET}-0.5 V	CJ808 C/N 20～26	3.0	13.0	—	mA
			CJ808 C/N 26～39	3.0	15.0	—	mA
			CJ808 C/N 39～60	3.0	18.0	—	mA
		PMOS: V_{DD}-V_{OUT} =0.5 V $V_{DD}=-V_{DET}+0.5V$	CJ808 C/N 20～26	1.5	4.0	—	mA
			CJ808 C/N 26～39	1.5	6.0	—	mA
			CJ808 C/N 39～60	1.5	8.0	—	mA
Leakage current	I_{LEAK}	Only for NMOS open-drain output products, V_{DD} =8.0 V, V_{OUT} =8.0 V			—	1.0	uA
temperature coefficient		Ta=−40°C ~+85°C		—	±120	±360	ppm/°C
Delay time	T_{PLH}				200		us

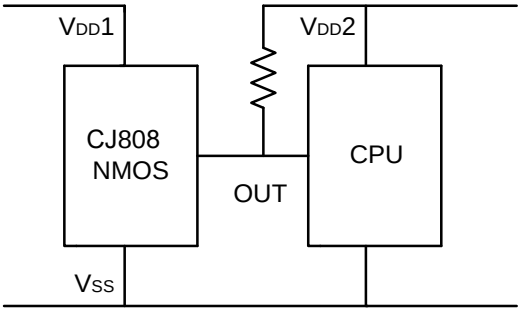
***1.** $-V_{DET}$: Actual detection voltage value, $-V_{DET(S)}$: Specified detection voltage value

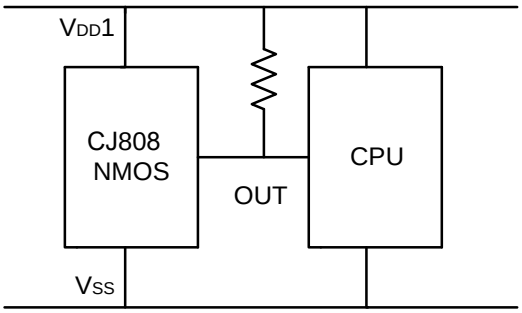
■ TYPICAL APPLICATION CIRCUITS

1、CMOS output

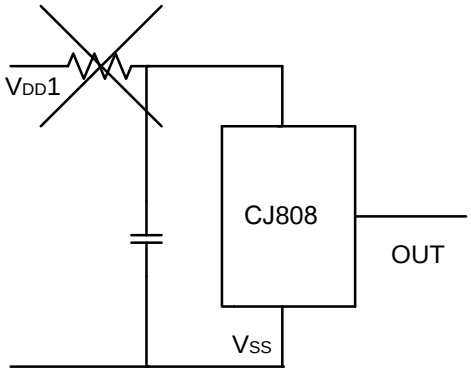


2、NMOS open-drain

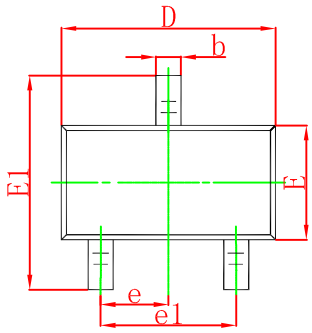


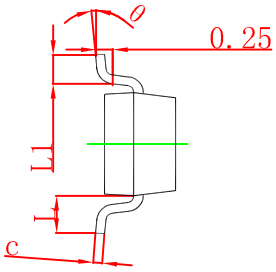


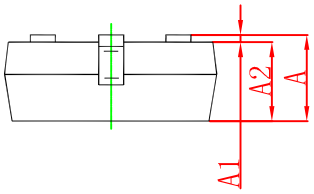
3. Forbidden Circuits



SOT-23 Package Outline Dimensions

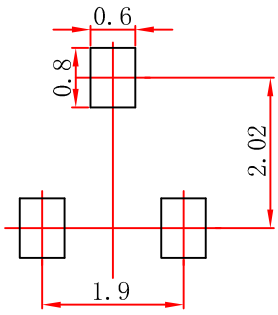






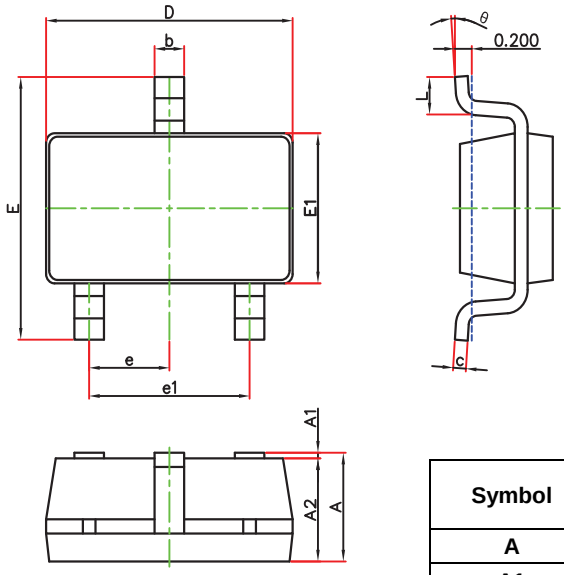
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

SOT-23 Suggested Pad Layout



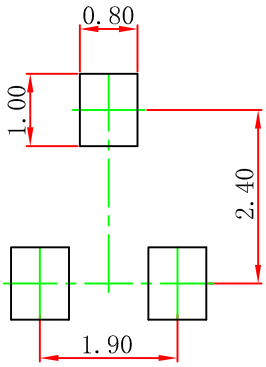
Note:
1.Controlling dimension:in millimeters.
2.General tolerance:±0.05mm.
3.The pad layout is for reference purposes only.

SOT-23-3L Package Outline Dimensions



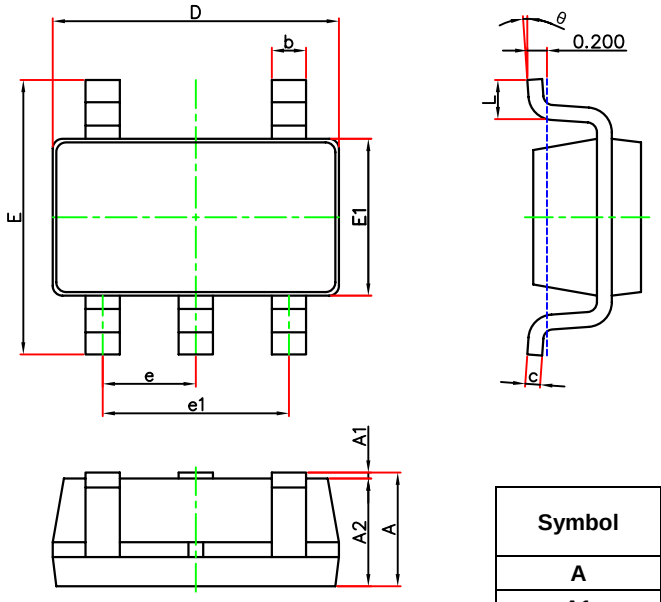
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	2.650	2.950	0.104	0.116
E1	1.500	1.700	0.059	0.067
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

SOT-23-3L Suggested Pad Layout



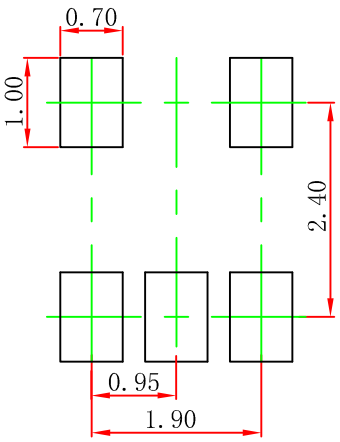
Note:
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SOT-23-5L Package Outline Dimensions



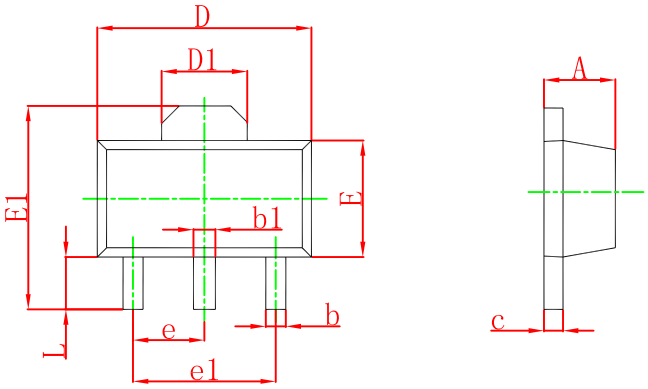
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	2.650	2.950	0.104	0.116
E1	1.500	1.700	0.059	0.067
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

SOT-23-5L Suggested Pad Layout



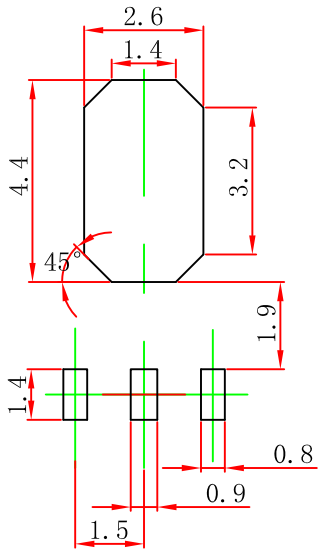
Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.

SOT-89-3L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.197
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF		0.061 REF	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP		0.060 TYP	
e1	3.000 TYP		0.118 TYP	
L	0.900	1.200	0.035	0.047

SOT-89-3L Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:±0.05mm.
3.The pad layout is for reference purposes only.

DISCLAIMER

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