

MN1382SEP Datasheet

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DiGi Electronics Part Number Manufacturer Manufacturer Product Number Description Detailed Description MN1382SEP-DG Panasonic Electronic Components MN1382SEP IC SUPERVISOR 1 CHANNEL MINI-3DC Supervisor Push-Pull, Totem Pole 1 Channel MINI-3 DC

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Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
MN1382SEP	Panasonic Electronic Components
Series:	Product Status:
-	Obsolete
DiGi-Electronics Programmable:	Туре:
Not Verified	Simple Reset/Power-On Reset
Number of Voltages Monitored:	Voltage - Threshold:
1	2.2V
Output:	Reset:
Output: Push-Pull, Totem Pole	Reset: Active High
Output: Push-Pull, Totem Pole Reset Timeout:	Reset: Active High Operating Temperature:
Output: Push-Pull, Totem Pole Reset Timeout: 250µs Typical	Reset: Active High Operating Temperature: -20°C ~ 70°C (TA)
Output: Push-Pull, Totem Pole Reset Timeout: 250µs Typical Mounting Type:	Reset: Active High Operating Temperature: -20°C ~ 70°C (TA) Package / Case:
Output: Push-Pull, Totem Pole Reset Timeout: 250µs Typical Mounting Type: Surface Mount	Reset:Active HighOperating Temperature:-20°C ~ 70°C (TA)Package / Case:TO-236-3, SC-59, SOT-23-3
Output:Push-Pull, Totem PoleReset Timeout:250µs TypicalMounting Type:Surface MountSupplier Device Package:	Reset: Active High Operating Temperature: -20°C ~ 70°C (TA) Package / Case: TO-236-3, SC-59, SOT-23-3 Base Product Number:

Environmental & Export classification

Moisture Sensitivity Level (MSL):	ECCN:
1 (Unlimited)	EAR99
HTSUS:	
8542.39.0001	

Volyage Detector IC

MN1382S CMOS IC for Voltage Detection

Overview

The MN1382S are elements that monitor the power supply voltage supplied to microcomputers and other LSI systems and issue reset signals for initializing the system after the power is first applied or for preventing runaway operation when the supply voltage fluctuates.

This is a CMOS output, choose the ideal element for your application from the series' wide selection of detection ranks (16 ranks 2.0 V to 4.7 V).

There is other output type, N-channel open drain output (MN13821S) and inverted CMOS output (MN13822S).

Features

- Three-pin element requiring no adjustment
- Wide selection of detection ranks (16 ranks 2.0 V to 4.7 V)
- Highly precise detection voltage
- Detection voltage with hysteresis characteristic

 $\Delta VD = 50 \text{ mV}$ for ranks C to K

 $\Delta VD = 100 \text{ mV}$ for ranks L to T

- Low current consumption: $I_{DD} = 1 \ \mu A (typ.)$ for $V_{DD} = 5 \ V$
- Low fluctuation in detection voltage with tempera-ture (1 mV/°C (typ.))

Applications

- Battery checkers
- Power outage detectors
- Level discriminators
- Memory backup systems
- Microcomputer reset circuits
- Reset circuits for other electronic circuits

Block Diagram







- Code
- MINI-3DC
- Pin name
 - 1: Out Reset signal output pin
 - 2: V_{SS} Ground pin
 - 3: V_{DD} Power supply pin



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Note) Rank symbol will be marked on the package in the \Box area.

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Detection Ranks (on Voltage)

Denk	Detection Voltage for Drop in Power Supply Voltage V _{DL}		Linit	Detection Voltage Hysteresis Width △VD		
Rank	Min	Max	Unit	Min	max	
С	2.0	2.2				
D	2.1	2.3				
Е	2.2	2.4				
F	2.3	2.5		50		
G	2.4	2.6		50		
Н	2.5	2.7				
J	2.6	2.9				
Κ	2.8	3.1	v		200	mV
L	3.0	3.3	, v		500	IIIV
М	3.2	3.5				
Ν	3.4	3.7				
Р	3.6	3.9		100		
Q	3.8	4.1		100		
R	4.0	4.3				
S	4.2	4.5				
Т	4.4	4.7				

Absolute Maximum Ratings $V_{SS} = 0 V, T_a = 25^{\circ}C$

Parameter	Symbol	Rating	Unit
Power supply voltage	V _{DD}	7.0	V
Output voltage	Vo	-0.3 to $V_{DD}{+}0.3$	V
Operating ambient temperature	T _{opr}	-20 to +70	°C
Storage temperature	T _{stg}	-55 to +125	°C

Recommended Operating Conditions $V_{SS} = 0 V, T_a = 25^{\circ}C$

Parameter	Symbol	Conditions	Min	Тур	Max	Unit
Power supply voltage	V _{DD}	See Figures 1 and 4	1.5		6.0	V

Application Circuit Example



Note) Connect resistors, capacitors, and the like only to the output pin on the MN1382S element.

Note that connect-ing them to the power source pins changes V_{DH} , V_{DL} , and ΔVD . Select the values of R and C to match the application.

Electrical Characteristics

• DC Characteristics $V_{SS} = 0$ V, $T_a = -20^{\circ}$ C to $+70^{\circ}$ C

Parameter	Symbol	Conditions	Min	Тур	Max	Unit
Power supply current	I _{DD}	$V_{DD} = 5 V^*$, Load resistor 10 k Ω		1	5	μΑ
Detection voltage for drop in power supply voltage	V_{DL}	$T_a = 25^{\circ}C$	For particu	ilars, see the	detection	V
Detection voltage hysteresis width	ΔVD	See Figures 1 and 4	voltage rar	nk table.		mV
High level output voitage	V _{OH}	$I_{OH} = -40 \ \mu A$	$0.8 \mathrm{V_{DD}}$		V _{DD}	V
Low level output voitage	V _{OL}	$V_{DD} = 1.8 \text{ V}, I_{OH} = 0.7 \text{ mA}$	V _{SS}		0.4	V

Note) *: This includes the output pin's leakage current.

• AC Characteristics $V_{SS} = 0 V$, $T_a = 25^{\circ}C$

Deremeter	Symbol	Conditions		Allowable Value (tvp) Unit	
Farameter	Symbol		Rank	Allowable value (typ)	Unit
			С		
			D		
			Е	_	
			F	_	
			G	3.0	
			Н		
			J		
Reset release time	torr	See Figures 2 and 3	K	_	115
	OH	See 1 Igures 2 and 5	L		μο
			М	_	
			N	-	
			Р	-	
			Q	4.0	
			R	-	
			S	-	
			Т		
			C	-	
			D	250.0	
			E	-	
			F		
			G	-	
			H	115.0	
			J	-	
Reset time	t _{OL}	See Figures 2 and 3	K	70.0	μs
			L	/0.0	
			N	-	
			D D	-	
			0	15.0	
			R	15.0	
			S		

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Reference Data





Note) 1. Output cannot be specified for power supply voltages under 1.5 V because operation is not guaranteed for that range.

2. V_{DL} : Detection voltage for drop in power supply voltage

 V_{DH} : Detection voltage for rise in power supply voltage

 t_{OL} : Time lag between the time that the power supply voltage reaches the detection voltage (V_{DL} or V_{DH}) and the time that theoutput pin (OUT) goes to Low level.

 t_{OH} : Time lag between the time that the power supply voltage reaches the detection voltage (V_{DL} or V_{DH}) and the time that theoutput pin (OUT) goes to High level.





Reference Data (Continued)



Figure 3. Circuit for Measuring the Output Characteristics



Figure 4. Description chart for Measuring the I/O Characteristics

Note) 1. Output cannot be specified for power supply voltages under 1.5 V because operation is not guaranteed for that range.

2. $V_{DL}\,$: Detection voltage for drop in power supply voltage

 $V_{\text{DH}}\,$: Detection voltage for rise in power supply voltage

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Reference Characteristics

The following characteristics curves represent results from a specific sample therefore they do not guarantee the characteristics for the final product.





Figure 5-a I_{DD} — V_{DD} Characteristic (Rank Q)





Figure 6-a I_{DD} — Temperature Characteristic (Rank Q)



Figure 6-b Measurement Circuit

Reference Characteristics (Continued)

The following characteristics curves represent results from a specific sample therefore they do not guarantee the characteristics for the final product.





Figure7-a V_{DL} — V_{DH} Temperature Characteristic (Rank Q)



Figure 7-b Measurement Circuit



Figure 8-b Measurement Circuit

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Reference Characteristics (Continued)

The following characteristics curves represent results from a specific sample therefore they do not guarantee the characteristics for the final product.



Figure 9-a I_{OL} — V_{DL} Characteristic



Figure 10-a $\,$ I_{OH} — V_{OH} Characteristic



Figure 9-b Measurement Circuit



Figure 10-b Measurement Circuit

Reference Characteristics (Continued)

5.5

5.0

4.5

-40

-20

0

20

Figure 12-a IOH — Temperature Characteristic

Temperature Characteristic Ta (°C)

40

The following characteristics curves represent results from a specific sample therefore they do not guarantee the characteristics for the final product.





Figure 11-b Measurement Circuit



Figure 12-b Measurement Circuit

80

60

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MINI-3DC









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