

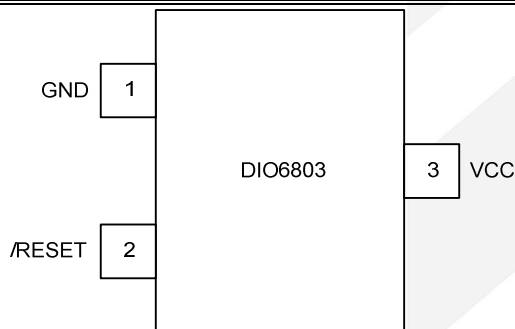
DIO6803

Ultra Low Power Microprocessor Reset Circuit

Features

- 140ms min Reset Pulse Width
- 10 μ A Typ Supply Current @V_{CC} = 3V
- Guaranteed Reset Valid to V_{CC} = 1.0V
- Temperature coefficient of reset threshold: 21ppm/°C
- Power Supply Transient Immunity
- Operating Temperature Range: -40°C to 125°C
- Available in SOT23 and SOT23-3

Pin Assignment



(Top View)

Descriptions

DIO6803 series are micro-processor (μ P) supervisory circuits used to monitor the power supplies in μ P and digital systems. They provide excellent circuit reliability and low cost by eliminating external components.

These circuits perform a single function: they assert a reset signal whenever the V_{CC} supply voltage declines below a preset threshold, keeping it asserted for at least 140ms after V_{CC} has risen above the reset threshold.

The DIO6803 has Open drain outputs. The DIO6803 has an active-low /RESET output, The reset comparator is designed to ignore fast transients on V_{CC}, and the outputs are guaranteed to be in the correct logic state for V_{CC} down to 1.0V over the temperature range.

The device is available in 3 pin SOT23 and SOT23-3 packages.

Applications

- Computers
- Controllers
- Intelligent Instruments
- Portable/Battery-Powered Equipment

Ordering Information

Order Part Number		T _A	Package	
DIO6803XST3	RoHS	-40 to 125°C	SOT23	Tape & Reel, 3000
DIO6803XSU3	RoHS	-40 to 125°C	SOT23-3	Tape & Reel, 3000

Ordering Information Complimentary Note

Ordering Code = Part No. + Package Code

ST3: Stands for SOT23

SU3: stands for SOT23-3

X: Refer to Device Function Reference Table on Page 2

Device Function Reference Table

Part No.	Reset threshold	Reset active Low or High	Output Type	Marking
DIO6803RST3	2.63V	Low	Open Drain	ABD
DIO6803RSU3	2.63V	Low	Open Drain	ABD
DIO6803SST3	2.93V	Low	Open Drain	ABC
DIO6803SSU3	2.93V	Low	Open Drain	ABC

Block Diagram

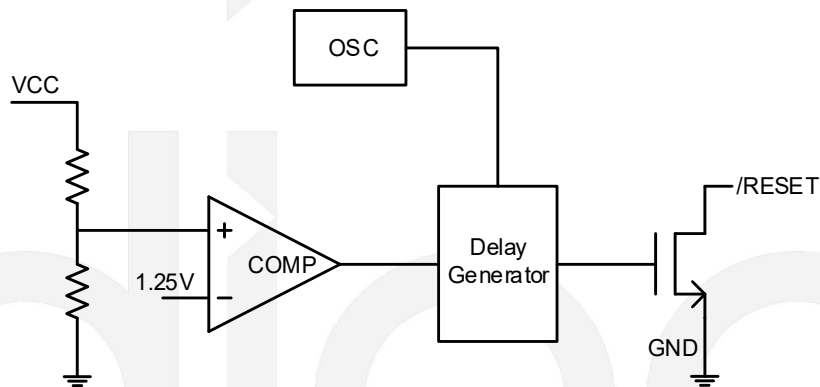


Figure 1 Block Diagram

Pin Descriptions

Symbol	Description
/RESET	Open Drain output. This output remains low if V_{CC} drops below $V_{RES}-V_{HYST}$, and for at least 140ms after V_{CC} rises above V_{RES}
GND	Ground terminal
V_{CC}	Analog input. This pin is both the power supply to internal circuit and the voltage to be monitored

Absolute Maximum Ratings

Stresses beyond those listed under “Absolute Maximum Rating” may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other condition beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

Parameter		Rating	Units
Terminal Voltage (With respect to GND)	V_{CC}	-0.3 to 6.0	V
	/RESET	-0.3 to 6.0	
Input Current	V_{CC}	20	mA
	/RESET	20	
Thermal Resistance		300	°C/W
Operating Temperature		-40 to 125	°C
Lead Temperature Range (soldering 10s)		300	°C
Storage Temperature		-65 to 150	°C
ESD HBM, JEDEC: JESD22-A114		4500	V

DC Electrical Characteristics

Typical value: $V_{CC}=3V$, $T_A=25^{\circ}C$, unless otherwise noted.

Parameters	Symbol	Test Conditions	Min	Typ	Max	Unit
Maximum input voltage	V_{CCMAX}				5.5	V
Minimum input voltage	V_{CCMIN}		1.0			V
Supply current	I_{VCC}	$V_{CC}=2.0V$		8		uA
		$V_{CC}=3.0V$		10		
		$V_{CC}=5.0V$		14		
Reset Threshold	V_{RES}	DIO6803S	2.75	2.93	3.05	V
		DIO6803R	2.53	2.63	2.73	
Temperature coefficient of reset threshold	T_C			21		ppm/ $^{\circ}C$
Reset Threshold hysteresis	V_{HYST}			$0.03V_{RES}$		V
V_{CC} to /RESET Delay		V_{CC} transitions from $V_{RES}+0.1V$ to $V_{RES}-0.1V$		23		us
/RESET Output Voltage Low	V_{OL}	$V_{CC}=2V$, $V_{RES}>2V$, $I_{SINK}=1.5mA$			0.3	V
Reset Pulse Width	T_{RES}		140	240	500	ms

Specifications subject to change without notice.

Detailed Description

A microprocessor's (μP 's) reset input starts the μP in a known state. The DIO6803 series assert reset to prevent code-execution errors during power-up, power-down, or brownout conditions. The device consists of a comparator, a low current high precision voltage reference, voltage divider, output delay circuit and output driver. They assert a reset signal whenever the V_{CC} supply voltage declines below a preset threshold, keeping it asserted for at least 140ms after V_{CC} has risen above the reset threshold.

The DIO6803 has an open drain output stage. The DIO6803 have an active-low /RESET output, The reset comparator is designed to ignore fast transients on V_{CC} , and the outputs are guaranteed to be in the correct logic state for V_{CC} down to 1.0V over the temperature range.

The operation of the device can be best understood by referring to figure 2.

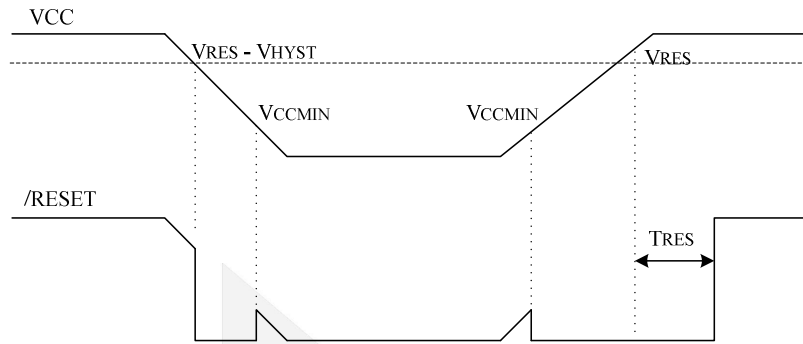


Figure 2 Timing Waveform

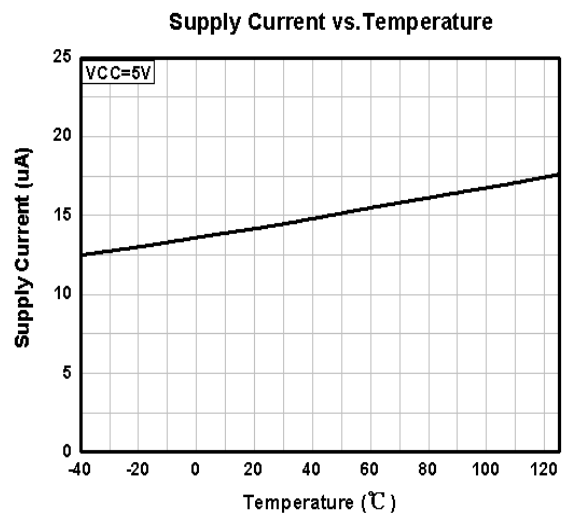
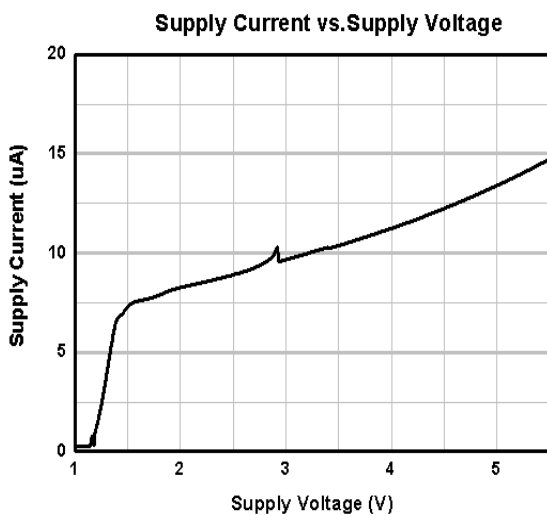
Applications Information

Negative-Going V_{CC} Transients

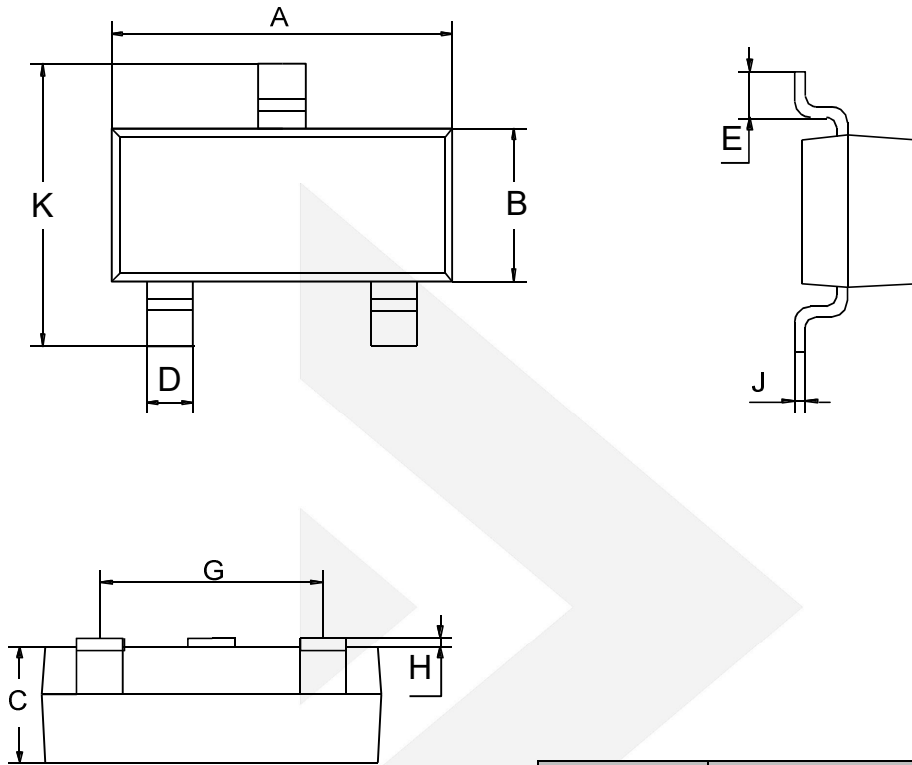
In addition to issuing a reset to the μP during power-up, power-down, and brownout conditions, the DIO6803 series are relatively immune to short-duration negative-going V_{CC} transients (glitches). As the magnitude of the transient increases (goes farther below the reset threshold), the maximum allowable pulse width decreases. Typically, a V_{CC} transient that goes 100mV below the reset threshold and lasts 10 μ s or less will not cause a reset pulse. A 0.1 μ F bypass capacitor mounted as close as possible to the V_{CC} pin provides additional transient immunity.

Typical Performance Characteristics

All typical value: $V_{CC}=5V$, $T_A=25^\circ C$, unless otherwise specified.

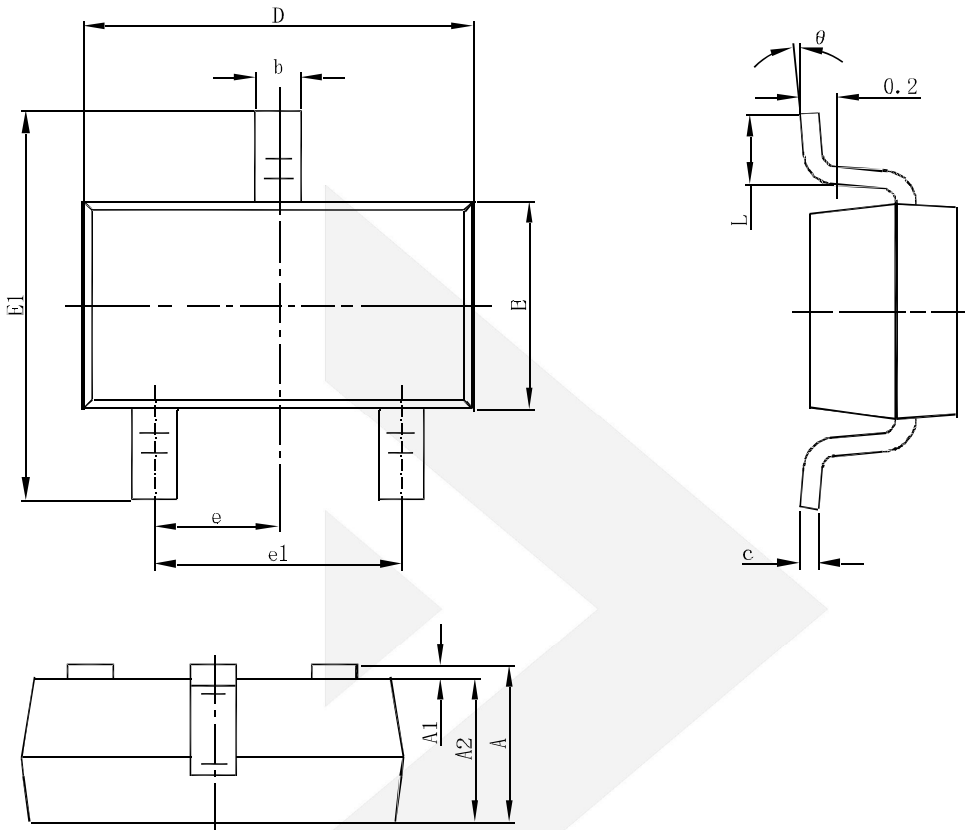


Physical Dimensions: SOT23



Symbol	Dimensions In Millimeters	
	Min	Max
A	2.70	3.10
B	1.10	1.50
C	1.0 Typical	
D	0.4 Typical	
E	0.35	0.48
G	1.80	2.00
H	0.02	0.1
J	0.1 Typical	
K	2.20	2.60

Physical Dimensions: SOT23-3



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	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
Theta	0°	8°	0°	8°

CONTACT US

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For additional product information, or full datasheet, please contact with our Sales Department or Representatives.

A large, light gray watermark of the Dioo logo is centered on the page. It consists of a stylized arrow pointing right, followed by the word "dioo" in a lowercase, sans-serif font.