TS803R

Microprocessor Reset Circuit

SOT-23

Pin assignment
TS803R
1. RESET
2. Gnd
3. Vcc

Open Drain
Threshold Voltage Option
2.7V, 2.93V, 4.2V

General Description

The TS803R are microprocessor (μP) supervisory circuit used to monitor the power supplies in μP and digital systems. They provide excellent circuit reliability and low cost by eliminating external components and adjustments when used with +5V, +3.3V, +3.0V powered circuits. These circuits perform a single function: they assert a reset signal whenever the VCC supply voltage declines below a preset threshold, keeping it asserted for at least 140ms after VCC has risen above the reset threshold. Reset thresholds suitable for operation with a variety of supply voltages are available. The TS803R are open –drain outputs. The TS803R have an active low RESET output, while the TS803R has an active high RESET output. The reset comparator is designed to ignore fast transients on VCC, and the output guaranteed to be in the correct logic state for VCC down to 1V. Low supply correct makes the TS803R ideal for use in portable equipment.
The TS803R is available in a 3-pin SOT-23 package.

Features

- ✧ Precision monitoring of +3V, +3.3V and +5V power supply voltage
- ✧ Fully specified over temperature
- ✧ Available in three output configurations
- ✧ Open – Drain RESET low output
- ✧ 3uA supply current
- ✧ Guaranteed reset valid to Vcc = +1V
- ✧ Power supply transient immunity
- ✧ No external components

Ordering Information

Part No.	Enable Function	Threshold Voltage	Package
TS803RCX **B**	Active-Low	4.2V	SOT-23
TS803RCX **E**	Active-Low	2.93V	
TS803RCX **F**	Active-Low	2.7V	

Note: **x** is the threshold voltage type, option as
B: 4.20V
E: 2.93V
F: 2.70V

Applications

- ✧ Computers
- ✧ Controllers
- ✧ Intelligent instruments
- ✧ Critical uP and uC power monitoring
- ✧ Portable / Battery powered equipment
- ✧ Automotive

Pin Descriptions

Pin No.	Name	Description
1	RESET	Reset output pin **(Active- Low)**
2	Gnd	Ground
3	Vcc	Operating voltage input

Absolute Maximum Rating

Supply Voltage	V_{CC}	7	V
RESET & (RESET) push-pull	V_{RESET}	- 0.3 ~ (V_{CC} +0.3)	V
Input Current, Vcc	I_{CC}	20	mA
Output Current, RESET	I_O	20	mA
Rate of Rise, Vcc	V_R	100	V/uS

Recommended Operating Conditions

Supply Voltage	V_{CC}	<5	V
Operating Ambient Temperature Range	Ta(op)	-40 ~ +105	°C
Operating Junction Temperature Range	Tj(op)	-40 ~ +125	°C
Storage Temperature Range	T_{STG}	-65 ~ +150	°C
Thermal Resistance	Θjc	325	°C /W
Power Dissipation	P_D	350	mW
Lead Soldering Temperature (260 °C)	T_{LEAD}	10	S

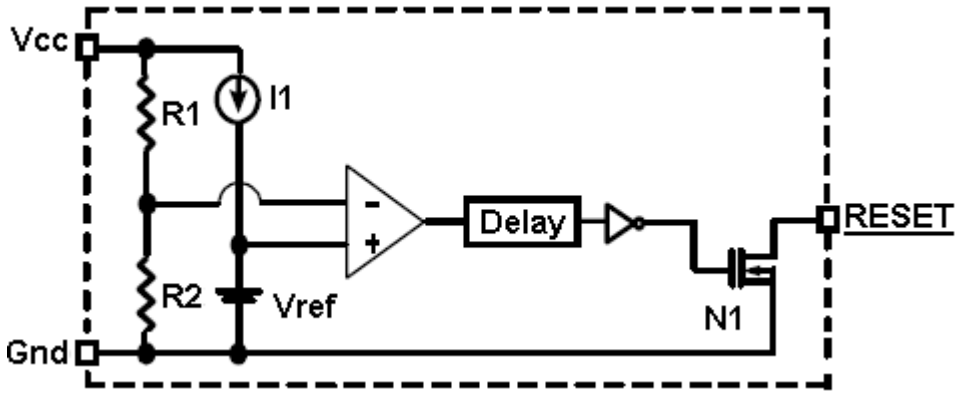
Electrical Characteristics

Ta = 25 °C, unless otherwise specified.

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Input Supply Voltage	Ta = 0 °C ~ +70 °C	V_{CC}	1.0	--	5.5	V
Supply Current	$V_{CC} \leq$ Vth * 1.1	I_{CC}	--	--	3	uA
	$V_{CC} \leq$ Vth * 1.1, Ta = full range		--	--	5	
Reset Threshold	TS803RCX**B**	V_{TH}	0.985|V_{TH}|	4.20	1.015|V_{TH}|	V
	TS803RCX**E**			2.93		
	TS803RCX**F**			2.70		
Reset Threshold (Full temperature range)	TS803RCX**B**	V_{TH}	0.97|V_{TH}|	4.20	1.03|V_{TH}|	V
	TS803RCX**E**			2.93		
	TS803RCX**F**			2.70		
Reset Threshold Temperature Coefficient		V_{TH}	--	30	--	ppm/ °C
V_{CC} to Reset Delay	V_{CC} = V_{TH} to (V_{TH} - 100mV)	T_{DELAY}	--	40	--	uS
Reset Active Timeout Period	Ta = 0 °C ~ +70 °C		0.5	1.5	5	mS
RESET Output Voltage Low	V_{CC} < $V_{TH(MIN)}$, I_{SINK} =1.2mA,	V_{OL}	--	--	0.5	V
RESET Output Voltage High	V_{CC} > $V_{TH(MAX)}$, I_{SOURCE} =500uA V_{CC} > 1.8V	V_{OH}	0.8 V_{CC}	--	--	V
	V_{CC} > $V_{TH(MAX)}$, I_{SOURCE} =150uA, 1.8V >= V_{CC} > 1V					

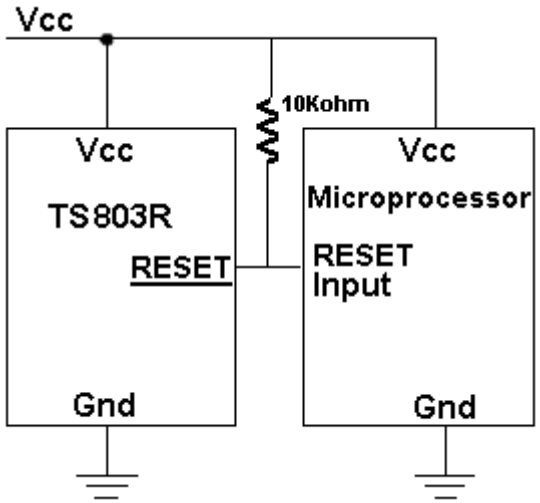
Note 1 : The data based on V_{TH} = 2.7V part type.

Function Block

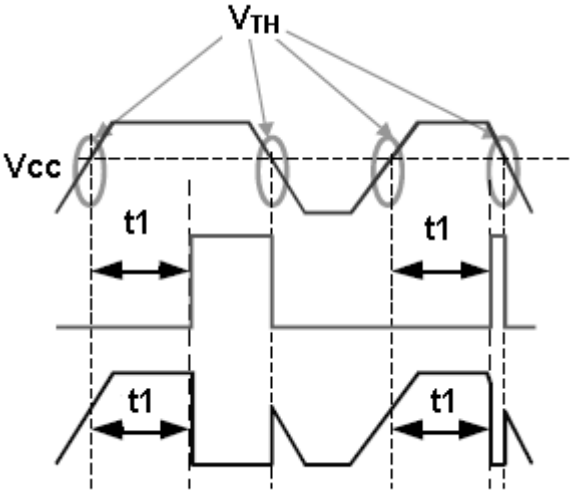


Function Description

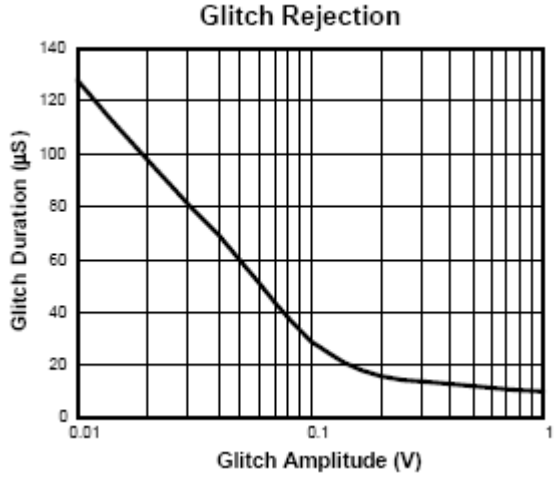
Applications Circuit

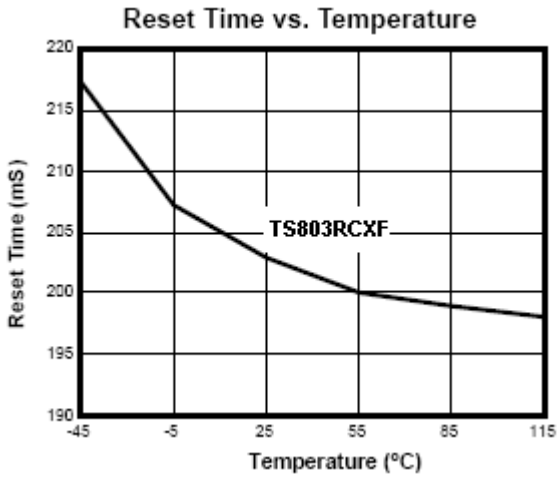


Timing Diagram



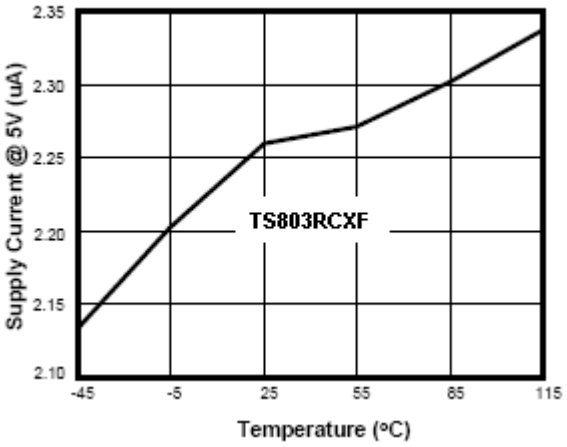
Electrical Characteristics Curve



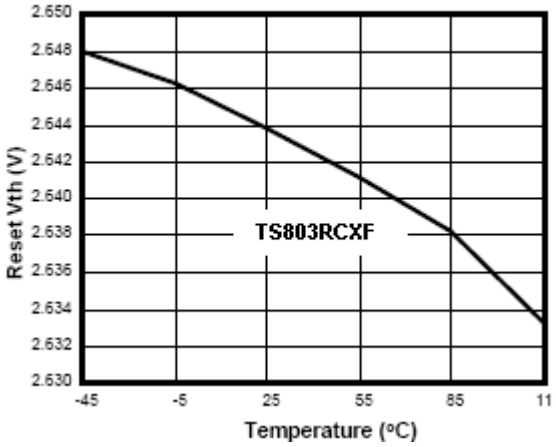


Electrical Characteristics Curve

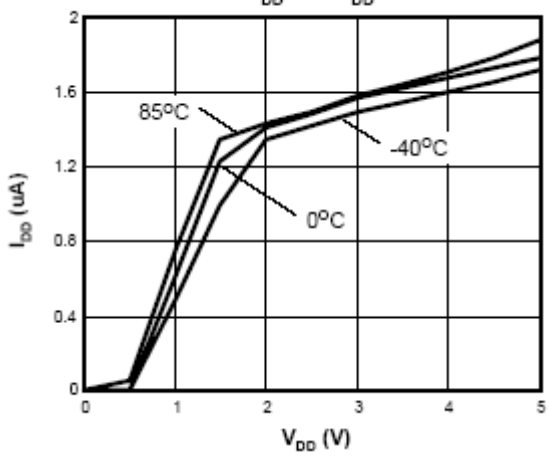
I_{DD} vs. Temperature



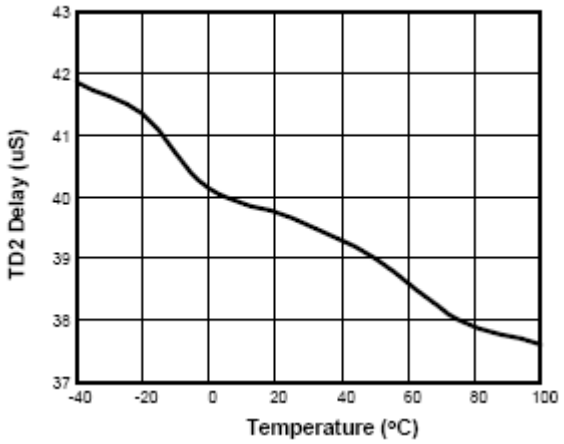
Reset V_{TH} vs. Temperature



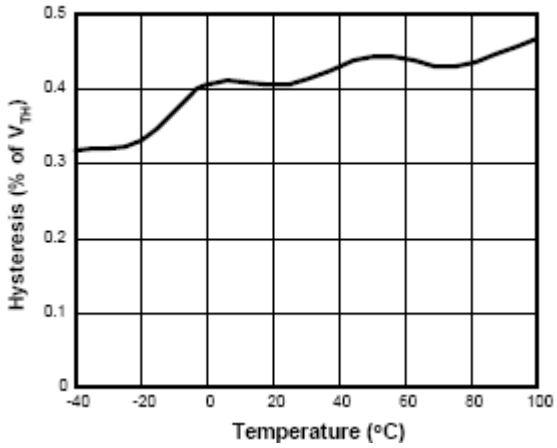
I_{DD} vs. V_{DD}



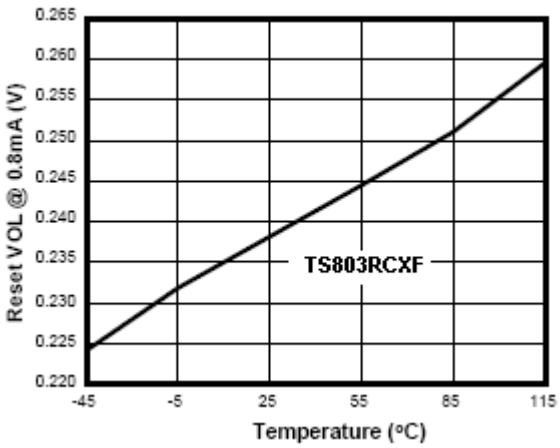
T_{D1} Delay vs. Temperature



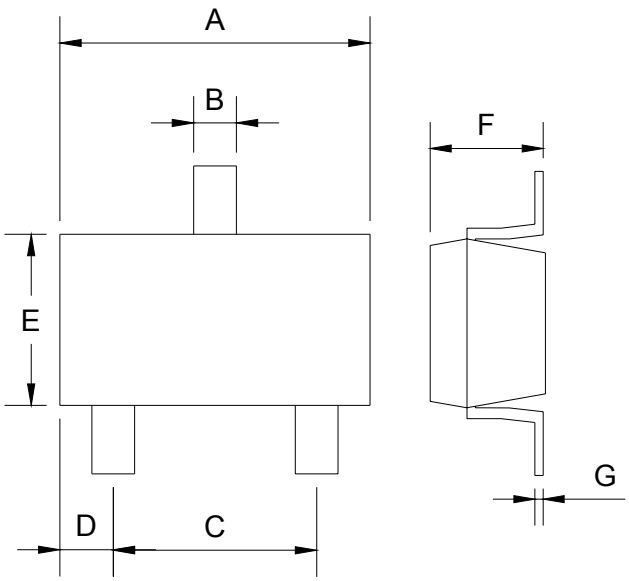
Threshold Hysteresis vs. Temperature



Reset VOL vs. Temperature



SOT-23 Mechanical Drawing



SOT-23 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.88	2.91	0.113	0.115
B	0.39	0.42	0.015	0.017
C	1.78	2.03	0.070	0.080
D	0.51	0.61	0.020	0.024
E	1.59	1.66	0.063	0.065
F	1.04	1.08	0.041	0.043
G	0.07	0.09	0.003	0.004