FEATURES

- Precision monitoring of 3V, 3.3V, and 5V supply voltages
- Minimum 140ms reset pulse width
  - KTF809 - active-low output RSTB
  - KTF810 - active-high output RST
- Low supply current – 7uA typical
- Guaranteed RESET assertion down to VCC=1.0V

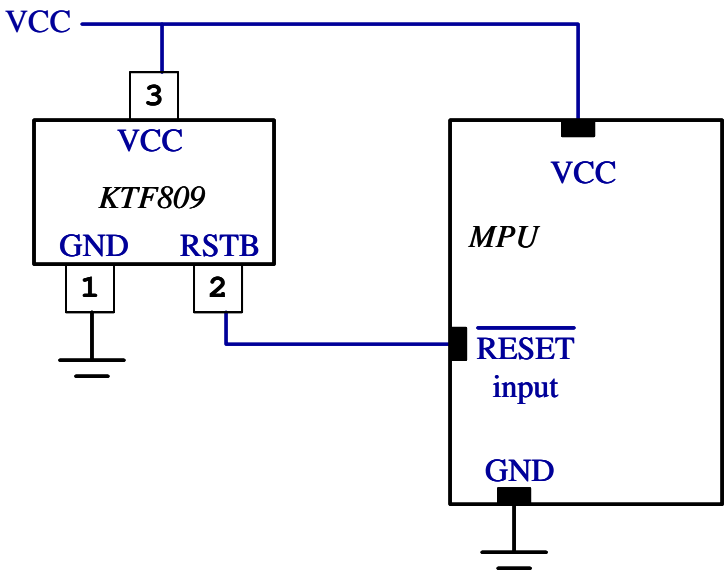
OVERVIEW

The KTF809/810 Microprocessor Reset Circuits are low-power supervisory devices used to monitor power supplies. They perform a single function: asserting a reset signal whenever the VCC supply voltage drops below a preset value and keeping it asserted until VCC has risen above the preset threshold for a minimum period of time.

APPLICATIONS

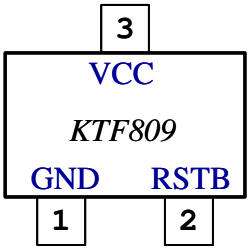
Computers
Controllers
Battery-powered instrument
Microprocessor systems

TYPICAL APPLICATION CIRCUIT

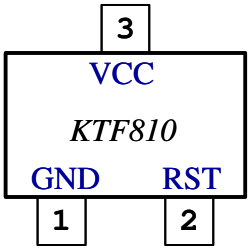


PACKAGE

KTF809/810 are packaged in 3-lead SOT23 package. The connection diagrams are as follow:



KTF809 Connection Diagram



KTF810 Connection Diagram

PIN DESCRIPTION

Pin No	Symbol	Description
1	GND	Ground
2	RSTB (*KTF809*)	RSTB active low output, asserted when VCC fall below the reset threshold. Remain low for a minimum of 140ms after VCC rises above the threshold.
	RST (*KTF810*)	RST active high output, asserted when VCC fall below the reset threshold. Remain high for a minimum of 140ms after VCC rises above the threshold.
3	VCC	Supply voltage

DEVICE OPERATION

Reset Output
KTF809/810 is a microprocessor supervisory IC which asserts reset signal when VCC falls below the reset threshold voltage (VTH). This reset signal remains valid as long as VCC is above 1V. When VCC rises and come back above the reset threshold, KTF809/810 waits for at least 140ms before de-asserting the reset signal.

VCC Glitches
KTF809/810 can tolerate negative-going VCC transients. VCC can fall 100mV below the reset threshold voltage for typically 20µs before KTF809/810 captures the event and assert the reset signal. It is advisable to put 0.1uF bypass capacitor as close as possible to the VCC pin to provide additional immunity to the VCC transients.

Valid /RST Output Down to VCC = 0V
KTF809 RSTB output becomes an open circuit when VCC falls below 1V. If an application requires RSTB signal to be valid down to 0V, a 100KΩ pull-down resistor should be connected to RSTB pin. Similarly, for KTF810, a 100KΩ pull-up resistor should be connected to RST pin for the same purpose.

DEVICE OPTIONS
See ORDERING INFORMATION section.

ABSOLUTE MAXIMUM RATING

Symbol	Parameter	Value	Unit
VCC	Supply Voltage	-0.3 to 7.0	V
IO	Output Current	20	mA
T_{STG}	Storage Temperature	-65 to +150	°C
T_{SOL}	Soldering Temperature	300	°C

Note: Stress greater than those listed under ABSOLUTE MAXIMUM RATINGS may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect reliability.

DC AND AC CHARACTERISTICS

Symbol	Parameter	Test Conditions		Min	Typ	Max	Unit
VCC	Operating Voltage	-40 to 85℃		1.0		5.5	V
ICC	VCC Supply Current	VCC < 3.6V			7.0	10.0	μA
		VCC < 5.5V			9.0	15.0	μA
VOL	(KTF809) RSTB output low voltage	(KTF809T-2.63/2.93/3.08) VCC = VTH(min), IOL=1.2mA				0.3	V
		(KTF809T-4.00/4.38/4.63) VCC = VTH(min), IOL=3.2mA				0.4	V
		VCC > 1.0, IOL=50uA				0.3	V
VOH	(KTF809) RSTB output high voltage	(KTF809T-2.63/2.93/3.08) VCC > VTH(max), IOH=500uA		0.8*VCC			V
		(KTF809T-4.00/4.38/4.63) VCC > VTH(max), IOH=800uA		0.8*VCC			V
VOL	(KTF810) RST output low voltage	(KTF810T-2.63/2.93/3.08) VCC = VTH(max), IOL=1.2mA				0.3	V
		(KTF810T-4.00/4.38/4.63) VCC = VTH(max), IOL=3.2mA				0.4	V
VOH	(KTF810) RST output high voltage	1.8V < VCC < VTH(min), IOH=150uA		0.8*VCC			V
RESET THRESHOLD							
VTH	Reset Threshold	KTF8xxT-4.63	25℃	4.56	4.63	4.70	V
			-40 to 85℃	4.50		4.75	
		KTF8xxT-4.38	25℃	4.31	4.38	4.45	
			-40 to 85℃	4.25		4.50	
		KTF8xxT-4.00	25℃	3.93	4.00	4.06	
			-40 to 85℃	3.89		4.10	
		KTF8xxT-3.08	25℃	3.04	3.08	3.11	
			-40 to 85℃	3.00		3.15	
		KTF8xxT-2.93	25℃	2.89	2.93	2.96	
			-40 to 85℃	2.85		3.00	
		KTF8xxT-2.63	25℃	2.59	2.63	2.66	
			-40 to 85℃	2.55		2.70	
	VTH Temperature Coefficient	VCC = 3.3V			45		ppm/C
	VCC to reset delay	VCC=VTH to (VTH – 100mV)			20		μs
	Reset pulse width			140	240	560	ms

Note: Production test is done at +25℃ only, over temperature limit is guaranteed by design.

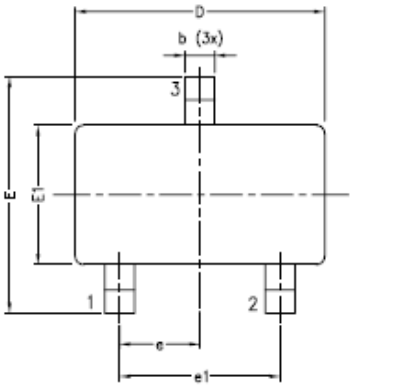
ODERING INFORMATION

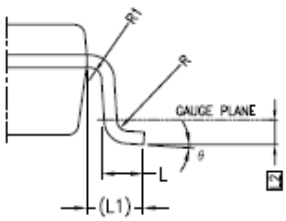
Reset Threshold	KTF809 Part Number	SOT-23 Package Top Mark
4.63V	KTF809T-4.63	946
4.38V	KTF809T-4.38	943
4.00V	KTF809T-4.00	940
3.08V	KTF809T-3.08	930
2.93V	KTF809T-2.93	929
2.63V	KTF809T-2.63	926

Reset Threshold	KTF810 Part Number	SOT-23 Package Top Mark
4.63V	KTF810T-4.63	A46
4.38V	KTF810T-4.38	A43
4.00V	KTF810T-4.00	A40
3.08V	KTF810T-3.08	A30
2.93V	KTF810T-2.93	A29
2.63V	KTF810T-2.63	A26

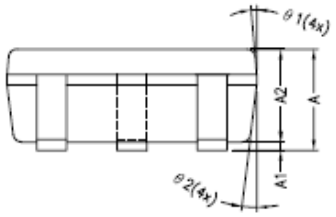
PACKAGE INFORMATION

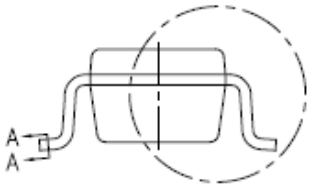
SOT-23



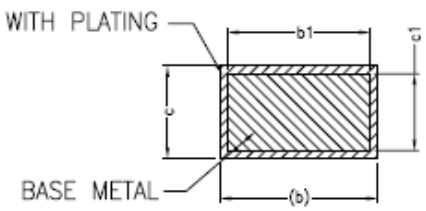


VIEW B





SEE VIEW B



SECTION A–A

SYMBOLS	DIMENSIONS IN MILLIMETERS		
	MIN	NOM	MAX
A	1.05	1.20	1.35
A1	0.05	0.10	0.15
A2	1.00	1.10	1.20
b	0.30	———	0.50
b1	0.30	0.35	0.45
c	0.08	———	0.22
c1	0.08	0.13	0.20
D	2.80	2.90	3.00
E	2.60	2.80	3.00
E1	1.50	1.60	1.70
e	0.95 BSC		
e1	1.90 BSC		
L	0.35	0.43	0.60
L1	0.60 REF		
L2	0.25 BSC.		
R	0.10	———	———
R1	0.10	———	0.25
θ	0°	4°	8°
θ1	5°	6°	15°
θ2	5°	8°	15°

NOTE :

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSION D DOES NOT INCLUDE MOLD FLASH, PROTRUSION OR GATE BURRS. MOLD FLASH PROTRUSIONS OR GATE BURRS SHALL NOT EXCEED 0.25 mm PER END. DIMENSION E1 DOES NOT INCLUDE INTERLEAD FLASH OR PROTRUSION. INTERLEAD FLASH OR PROTRUSION SHALL NOT EXCEED 0.25 mm PER SIDE.
3. THE PACKAGE TOP MAY BE SMALLER THAN THE PACKAGE BOTTOM. DIMENSIONS D AND E1 ARE DETERMINED AT THE OUTERMOST EXTREMES OF THE PLASTIC BODY EXCLUSIVE OF MOLD FLASH, TIE BAR BURRS, GATE BURRS AND INTERLEAD FLASH, BUT INCLUDING ANY MISMATCH BETWEEN THE TOP AND BOTTOM OF THE PLASTIC BODY.
4. DIMENSION "b" DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.08 mm TOTAL IN EXCESS OF THE "b" DIMENSION AT MAXIMUM MATERIAL CONDITION. THE DAMBAR CANNOT BE LOCATED ON THE LOWER RADIUS OF THE FOOT. MINMUM SPACE BETWEEN PROTRUSION AND AN ADJACENT LEAD SHALL NOT BE LESS THAN 0.07 mm.
5. LEAD FRAME MATERIAL : EFTEC 64T