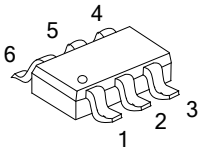
1 KEY TOUCH PAD DETECTOR IC



SOT-26

■ DESCRIPTION

The **UCS223** is a touch pad detector IC which offers 1 touch key. The touching detection IC is designed for replacing traditional direct button key with diverse pad size.

Low power consumption and wide operating voltage are the contact key features for DC or AC.

■ FEATURES

* Operating voltage: 2.0V~5.5V
* Low current consumption: 3uA
* Sensitivity can adjust by the capacitance outside
* Provides direct mode, toggle mode by pad option(STG pin)
* 1-Channel capacitive sensor with auto sensitivity calibration

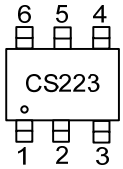
■ ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
UCS223L-AG6-R	UCS223G-AG6-R	SOT-26	Tape Reel

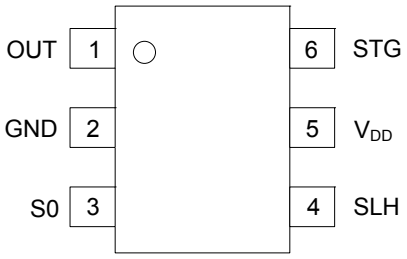
Note: Pin Assignment: G: Gate D: Drain S: Source

UCS223G-AG6-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) AG6: SOT-26 (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN No.	PIN NAME	Description
1	OUT	Touch detect output
2	GND	Supply ground
3	S0	Capacitive sensor input
4	SLH	Output active high or low selection, 1=>Active Low; 0(Default)=>Active high
5	V_{DD}	Positive power supply
6	STG	Output type option pin, 1=>Toggle mode; 0 (Default) => Direct mode

■ OUT MODE

STG	SLH	Output features
0	0	Direct mode, CMOS active high output
0	1	Direct mode, CMOS active low output
1	0	Toggle mode, Power on state=0
1	1	Toggle mode, Power on state=1

■ ABSOLUTE MAXIMUM RATING (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{DD}	5.5	V
Input Voltage	V_{IN}	5.5	V
Operating Temperature	T_{OPR}	-20 ~ +75	°C
Storage Temperature	T_{STG}	-50 ~ +150	°C

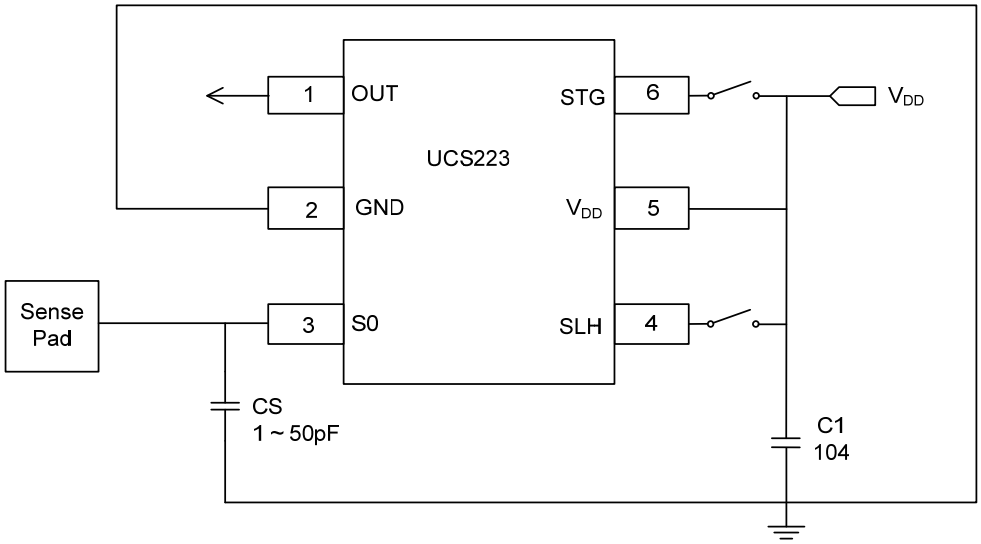
Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ ELECTRICAL CHARACTERISTICS (V_{DD}=3.0V, T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Operating Supply Voltage	V_{DD}		2.0	3.0	5.5	V
Operating Current	I_{DD}	V_{DD}=3.0V		3.5		μA
Input Low Voltage	V_{IL}		0		0.2	V_{DD}
Input High Voltage	V_{IH}		0.8		1.0	V_{DD}
Output Response Time (Note)	T_R	Fast mode			60	ms
		Low power mode			220	ms

Note: After power on, the UCS223 is in Low Power mode. When detecting key touch, it will switch to Fast mode. 12sec after the release of the key touch, it will return to Low Power mode.

■ TYPICAL APPLICATION CIRCUIT



Notes: 1. On PCB, the length of lines from t ouch pad to IC pin shorter is better. And the lines do not parallel and cross with other lines.

2. The power supply must be stable. If th e supply voltage drift or sh ift quickly, maybe causing sensitivity anomalies or false detections.
3. The material of panel covering on the PCB can not include the metal or the electric element. The paints on the surfaces are the same.
4. The capacitance Cs can be used to adjust the sensitivity. The value of Cs use smaller, then the sensitivity will be better. The sensitivit y adjustment must according to the practical application on PCB. The range of Cs value is 1~50pF.
5. The C1 capacitor must be used between V_{DD} and V_{SS}; and should be routed with very short tracks to the device's V_{DD} and V_{SS} pins (SOT-26).
6. The value of capacitors can be used by the real application for Ci and Co capacitors.
7. The sensitivity adjustment capacitors (Cs) must use smaller temperature coefficient and more stable capacitors. Such are X7R, NPO for example. So for touch application, recommend to use NPO capacitor, for reducing that the temperature varies to affect sensitivity.