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TK8813B/C/D

Three Key Touch Detector

DATA SHEET Rev 0.91

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AMENDMENT HISTORY

Version	Date	Description
V0.90	May,2020	New release.
V0.91	Aug,2020	Modify Device & Package List

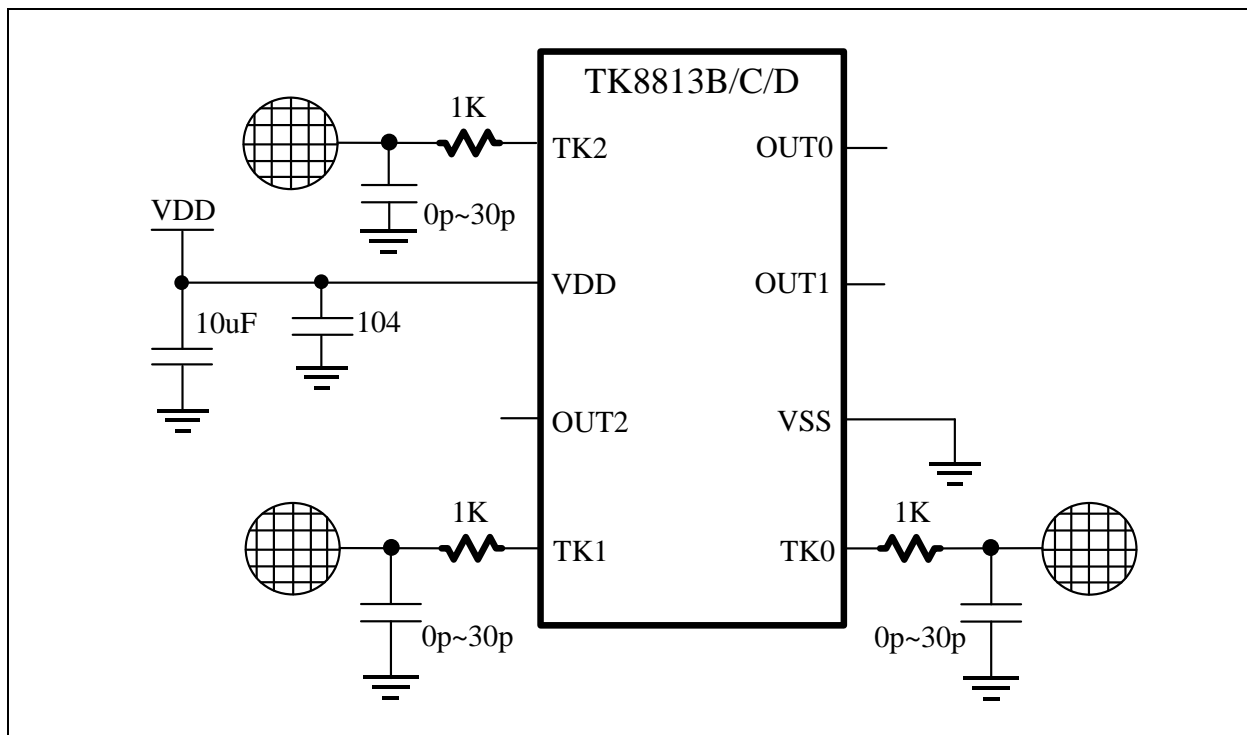
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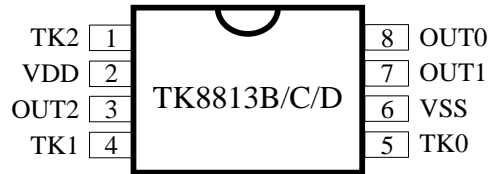
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FEATURES

1. Three Key Touch Detector
2. Operation Voltage: 2.2V~5.5V
3. Operation Current(TK8813C1): Normal mode =5.3uA, Low Power mode=2.1uA @V_{DD}=3V
4. Enter Low Power mode after no activity for 10 second
5. Response Time: Normal mode < 60mS; Low Power mode < 120mS
6. Sensitivity adjusted by TK pin capacitor (0pF~30pF)
7. Selectable output level: Active High, Active Low or Open Drain
8. 8 second key press timeout reset
9. Built-in 2.3V LDO
10. LVR=2.0V
11. SOP8 package

APPLICATION CIRCUIT



PIN ASSIGNMENT

PIN DESCRIPTION

Name	In/Out	Pin Description
OUT0, OUT1, OUT2	O	Touch Key output
TK0, TK1, TK2	I	Touch Key input
VDD, VSS	P	Power input pin and ground

DEVICE LIST

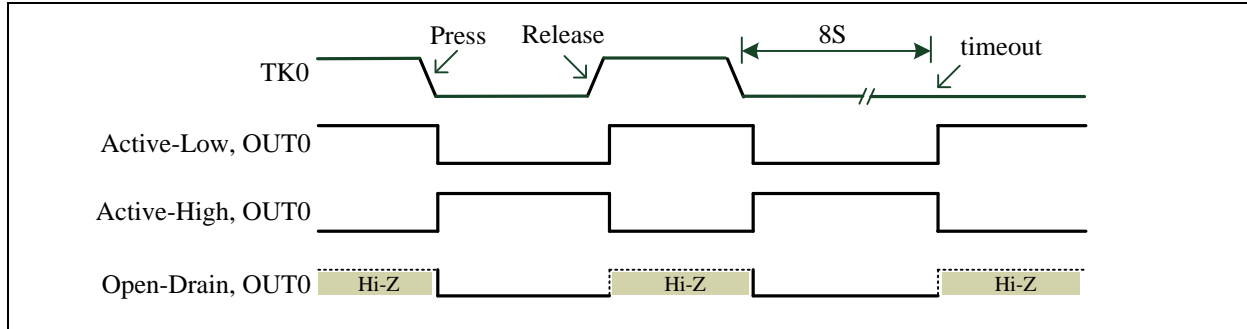
	Max. time for key press timeout	OUT pin output level	Sensitivity	2.3V LDO
TK8813B1	8S	CMOS Active High	High	Enable
TK8813C1	8S	CMOS Active Low	High	Enable
TK8813D1	8S	Open Drain Active Low	High	Enable

Note: The standard parts TK8813C1 and TK8813D1 are recommended.

FUNCTIONAL DESCRIPTION

1. Output Pin Function

OUT0~OUT2 are direct mode output. The output voltage level can be active high, active low or open drain, defined by the device's part number.



2. Touch Sensitivity Adjustment

The sensitivity of touch key can be adjusted by the capacitance of TK pin. The adjustment range is from 0pF to 30pF. Smaller capacitance can make higher sensitivity.

3. Key Press Timeout Reset

Long press on the touch key will generate a timeout reset. The maximum time is 8 seconds.

4. Normal mode and Low Power mode

The chip starts at Normal mode after reset. If no event occurred for 10 second, it switches to Low Power mode. It switches back to Normal mode after sampling TK pin's capacitance variation event.

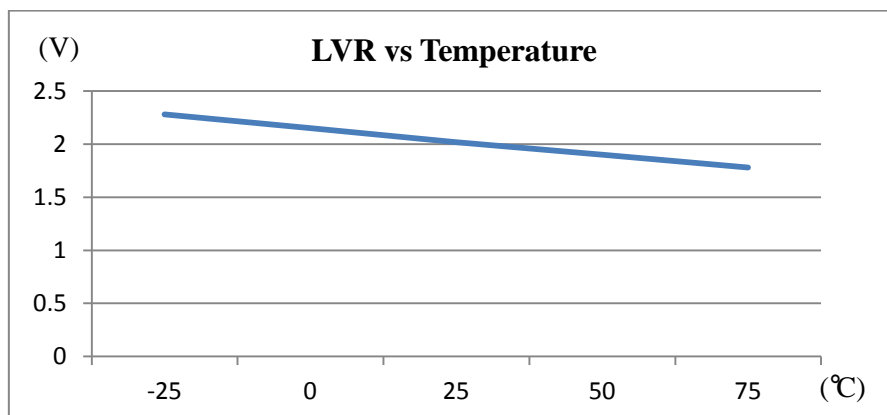
ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings

Parameter	Rating	Unit
Supply voltage	$V_{SS}-0.3 \sim V_{SS}+5.5$	V
Input voltage	$V_{SS}-0.3 \sim V_{DD}+0.3$	
Operating temperature	-20 ~ +70	°C
Storage temperature	-65 ~ +150	

DC Characteristics (TA=25°C)

Parameter	Sym	Conditions		Min	Typ	Max	Unit
Input High Voltage	V_{IH}	all Input	-	$0.8V_{DD}$			V
Input Low Voltage	V_{IL}			-	-	$0.2V_{DD}$	
I/O Port Source Current	I_{OH}	all Output	$V_{DD}=3.0V$ $V_{OH}=2.7V$	-	5	-	mA
			$V_{DD}=5.0V$ $V_{OH}=4.5V$	-	10	-	
I/O Port Sink Current	I_{OL}	all Output	$V_{DD}=3.0V$ $V_{OL}=0.3V$	-	15	-	
			$V_{DD}=5.0V$ $V_{OL}=0.5V$	-	30	-	
Power Supply Current (TK8813B1/C1/D1)	I_{DD}	Normal mode	$V_{DD}=4.2V$	-	6.6	-	µA
			$V_{DD}=3.0V$	-	5.3	-	
		Low Power mode	$V_{DD}=4.2V$	-	2.5	-	
			$V_{DD}=3.0V$	-	2.1	-	
Power Supply Current (TK8813B0/C0/D0)	I_{DD}	Normal mode	$V_{DD}=4.2V$	-	15.5	-	µA
			$V_{DD}=3.0V$	-	7.7	-	
		Low Power mode	$V_{DD}=4.2V$	-	5.7	-	
			$V_{DD}=3.0V$	-	2.6	-	
Timeout Lead Time	T_{LT}		$V_{DD}=3.0V$	-	8	-	S
LVR Voltage	V_{LVR}	TA=25°C		1.8	2.0	2.2	V

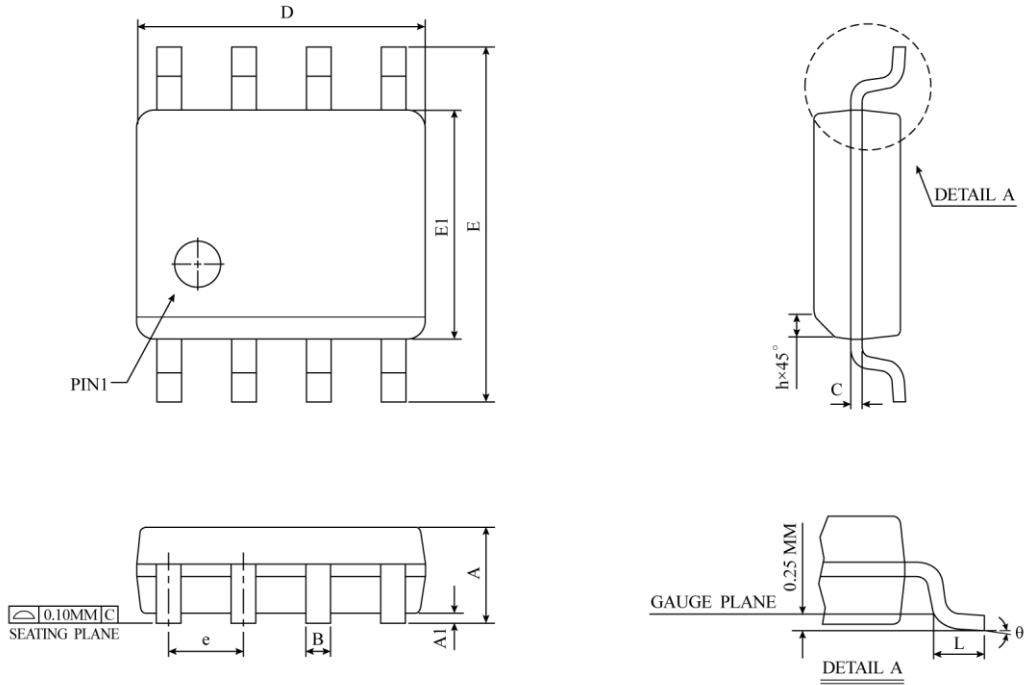


PACKAGE INFORMATION

Please note that the package information provided is for reference only. Since this information is frequently updated, users can contact Sales to consult the latest package information and stocks.

Ordering Information

Ordering number	Package
TK8813B1-305- 14	SOP8 (150mil)
TK8813C1-301- 14	SOP8 (150mil)
TK8813D1-311- 14	SOP8 (150mil)

Package Information
• SOP-8 (150mil) Package Dimension


SYMBOL	DIMENSION IN MM			DIMENSION IN INCH		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.35	1.55	1.75	0.0532	0.0610	0.0688
A1	0.10	0.18	0.25	0.0040	0.0069	0.0098
B	0.33	0.42	0.51	0.0130	0.0165	0.0200
C	0.19	0.22	0.25	0.0075	0.0087	0.0098
D	4.80	4.90	5.00	0.1890	0.1939	0.1988
E	5.80	6.00	6.20	0.2284	0.2362	0.2440
E1	3.80	3.90	4.00	0.1497	0.1536	0.1574
e	1.27 BSC			0.050 BSC		
h	0.25	0.38	0.50	0.0099	0.0148	0.0196
L	0.40	0.84	1.27	0.0160	0.0330	0.0500
θ	0°	4°	8°	0°	4°	8°
JEDEC	MS-012 (AA)					

△ * NOTES : DIMENSION "D" DOES NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.
MOLD FLASH, PROTRUSIONS AND GATE BURRS SHALL NOT EXCEED 0.15 MM (0.006 INCH) PER SIDE.