Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832
Email & Skype: info@chipsmall.com Web: www.chipsmall.com
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

STG719

LOW VOLTAGE 4Ω SPDT SWITCH

- HIGH SPEED:
  t_{PD} = 0.3ns (TYP.) at V_{CC} = 5V
  t_{PD} = 0.4ns (TYP.) at V_{CC} = 3.3V
- LOW POWER DISSIPATION:
  I_{CC} = 1μA(MAX.) at T_A=25°C
- LOW "ON" RESISTANCE:
  R_{ON} = 4Ω (MAX. T_A=25°C) AT V_{CC} = 5V
  R_{ON} = 6Ω (TYP.) AT V_{CC} = 3V
- WIDE OPERATING VOLTAGE RANGE:
  V_{CC} (OPR) = 1.8V TO 5.5V SINGLE SUPPLY

SOT23-6L

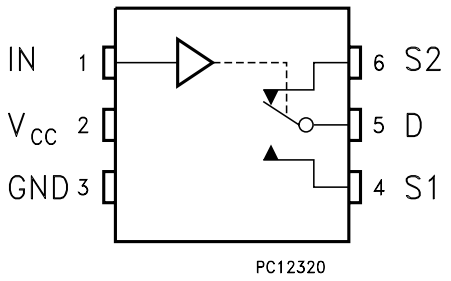
DESCRIPTION

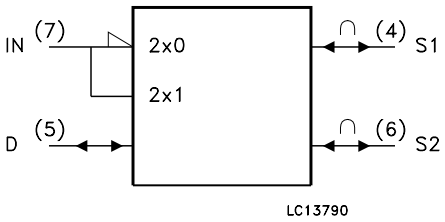
The STG719 is an high-speed spdt CMOS SWITCH fabricated in silicon gate C^2MOS tecnology. It designed to operate from 1.8V to 5.5V, making this device ideal fro prtable applications. It offers 4Ω ON-Resistance Max at 5V 25°C. Additional key faetures are fast switching speed (tON=7ns, tOFF=4.5ns) and Low Power Consumption (<0.001mW typ.). ESD immunity is higher than 1000V per method 3015.7 of MIL-STD-883B. It's available in the commercial temperature range.

ORDER CODES

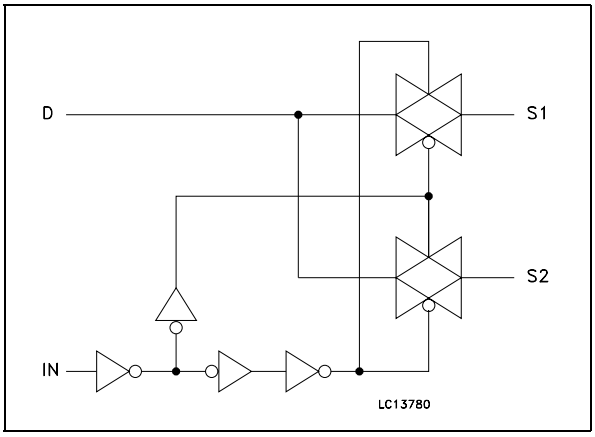
PACKAGE	T & R
SOT23-6L	STG719STR

PIN CONNECTION AND IEC LOGIC SYMBOLS





INPUT EQUIVALENT CIRCUIT



PIN DESCRIPTION

PIN No	SYMBOL	NAME AND FUNCTION
1	IN	Control
4, 6	S1, S2	Independent Channel
5	D	Common Channel
2	V_{CC}	Positive Supply Voltage
3	GND	Ground (0V)

TRUTH TABLE

CONTROL	SWITCH S1	SWITCH S2
L	ON	OFF
H	OFF	ON

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CC}	Supply Voltage	-0.5 to +7.0	V
V_I	DC Input Voltage	-0.5 to V_{CC} + 0.5	V
V_{IC}	DC Control Input Voltage	-0.5 to V_{CC} + 0.5	V
V_O	DC Output Voltage	-0.5 to V_{CC} + 0.5	V
I_{IK}	DC Input Diode Current	± 20	mA
I_{OK}	DC Output Diode Current	± 20	mA
I_O	DC Output Current	± 50	mA
I_{CC} or I_{GND}	DC V_{CC} or Ground Current	± 50	mA
T_{stg}	Storage Temperature	-65 to +150	°C
T_L	Lead Temperature (10 sec)	300	°C

Absolute Maximum Ratings are those values beyond which damage to the device may occour. Functional operation under these condition is not implied

RECOMMENDED OPERATING CONDITIONS

Symbol	Parameter	Value	Unit
V_{CC}	Supply Voltage (note 1)	1.8 to 5.5	V
V_I	Input Voltage	0 to V_{CC}	V
V_{IC}	Control Input Voltage	0 to V_{CC}	V
V_O	Output Voltage	0 to V_{CC}	V
T_{op}	Operating Temperature	-55 to 125	°C
dt/dv	Input Rise and Fall Time (note 2)	0 to 10	ns/V

1) Truth Table guaranteed: 1.2V to 6V
2) V_{IN} from 30% to 70% of V_{CC}

DC SPECIFICATION

Symbol	Parameter	Test Condition		Value							Unit
		V_{CC} (V)		T_A = 25°C			-40 to 85°C		-55 to 125°C		
				Min.	Typ.	Max.	Min.	Max.	Min.	Max.	
V_{IHC}	High Level Control Input Voltage	3.3(*)		2.0			2.0		2.0		V
		5.0(**)		2.4			2.4		2.4		
V_{ILC}	Low Level Control Input Voltage	3.3(*)				0.4		0.4		0.4	V
		5.0(**)				0.8		0.8		0.8	
R_{ON}	ON Resistance	3.3(*)	V_S = 0 to V_{CC} I_S = 10mA		6	7		10			Ω
		5.0(**)				4		5			
ΔR_{ON}	ON Resistance	3.3(*)	V_S = 0 to V_{CC} I_S = 10mA		0.1			0.4			Ω
		5.0(**)			0.1			0.4			
R_{FLATON}	ON Resistance fLATNESS	3.3(*)	V_S = 0 to V_{CC} I_S = 10mA		2.5						Ω
		5.0(**)			0.75						
I_{SOFF}	Source OFF Leakage	3.3(*)	V_S =1V or V_{CC} V_{DD} = V_{CC} or 1V V_{IN} = V_{CC} or GND		±0.01	±0.25		± 0.35		± 0.35	µA
		5.0(**)			±0.01	±0.25		± 0.35		± 0.35	
I_{SON}	Channel ON Leakage	3.3(*)	V_S=V_D=1V to V_{CC}-2.5V V_{IN} = V_{IHC}		±0.01	±0.25		± 0.35		± 0.35	µA
		5.0(**)			±0.01	±0.25		± 0.35		± 0.35	
I_{IN}	Control Input Leakage Current	3.3(*)	V_I = V_{IH} or V_{IL}		0.005			±0.1			µA
		5.0(**)			0.005			±0.1			
I_{CC}	Quiescent Supply Current	3.3(*)	V_I = V_{CC} or GND		0.001	1		1			µA
		5.0(**)			0.001			1			

(*) Voltage range is 3.3V ± 0.3V
(**) Voltage range is 5V ± 0.5V

AC ELECTRICAL CHARACTERISTICS (C_L = 35pF, R_L = 300Ω)

Symbol	Parameter	Test Condition		Value							Unit
		V_{CC} (V)		T_A = 25°C			-40 to 85°C		-55 to 125°C		
				Min.	Typ.	Max.	Min.	Max.	Min.	Max.	
t_{PD}	Delay Time	3.3(*)	V_S = 3V square wave f = 1MHz t_r = t_f = 6ns		0.4	0.8		1.2			ns
		5.0(**)			0.3	0.6		1.0			
t_{ON}	ON Channel Time	3.3(*)	V_S = 2V		10			16			ns
		5.0(**)	V_S = 3V		7			11			
t_{OFF}	OFF Channel Time	3.3(*)	V_S = 2V		5.5			7			ns
		5.0(**)	V_S = 3V		4.5			6			
t_D	Break Before Make Time Delay	3.3(*)	V_S = 2V	1	4						ns
		5.0(**)	V_S = 3V	1	4						
C_{SOFF}	OFF Channel Capacitance										pF
C_{SON}	ON Channel Capacitance										pF

(*) Voltage range is 3.3V ± 0.3V
(**) Voltage range is 5.0V ± 0.5V

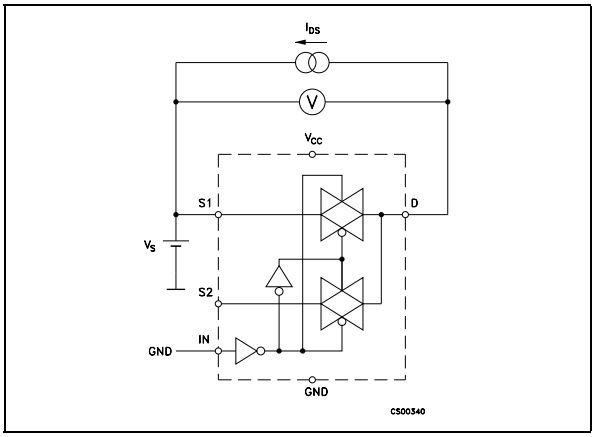
ANALOG SWITCH CHARACTERISTICS (GND = 0V; T_A = 25°C)

Symbol	Parameter	Test Condition		Value	Unit
		V_{CC} (V)		Typ.	
f_{MAX}	Frequency Response (Switch ON)	3.3(*)	Bandwidth at -3dB	200	MHz
		5.0(**)		200	
	Feedthrough Attenuation (Switch OFF)	3.3(*)	f_{IN} = 10MHz sine wave	-40	dB
		3.3(*)	f_{IN} = 1MHz sine wave	-74	
		5.0(**)	f_{IN} = 10MHz sine wave	-40	
		5.0(**)	f_{IN} = 1MHz sine wave	-74	
	Crosstalk (Channel to Chabbel)	3.3(*)	f_{IN} = 10MHz sine wave	-39	dB
		3.3(*)	f_{IN} = 1MHz sine wave	-52	
		5.0(**)	f_{IN} = 10MHz sine wave	-39	
		5.0(**)	f_{IN} = 1MHz sine wave	-52	

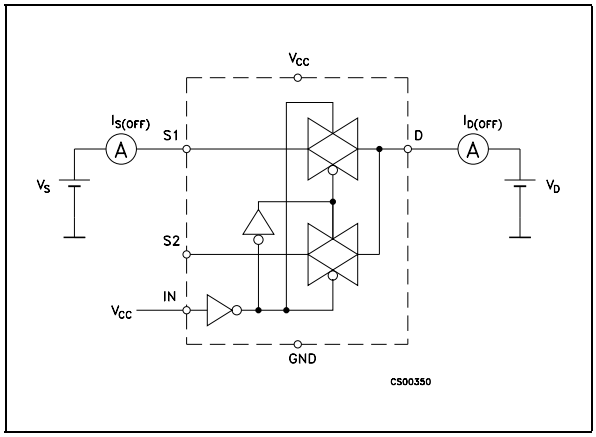
(*)Voltage range is 3.3V ± 0.3V
(**) Voltage range is 5.0V ± 0.5V

TEST CIRCUITS

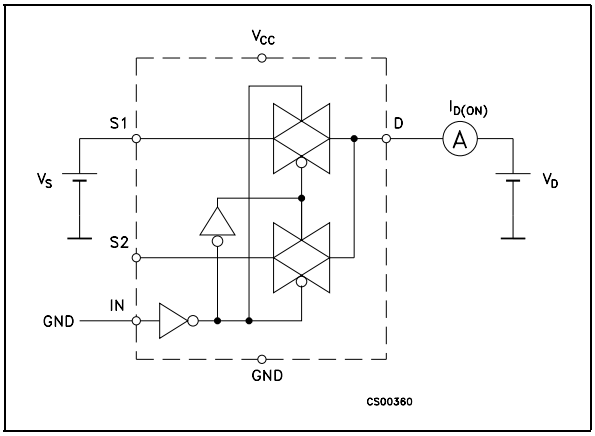
ON RESISTANCE



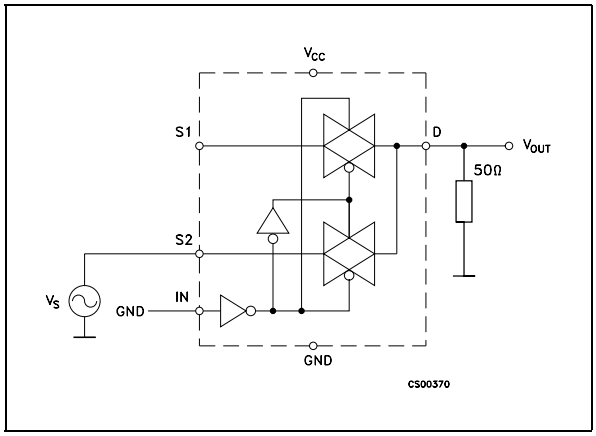
OFF LEAKAGE



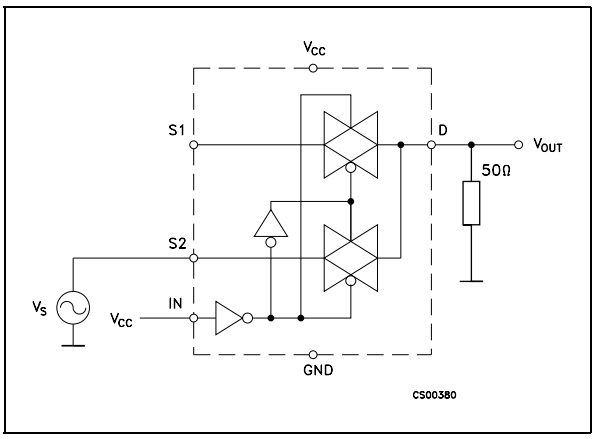
ON LEAKAGE



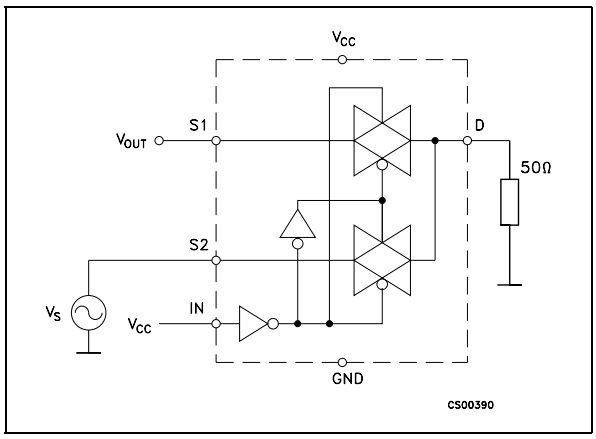
OFF ISOLATION



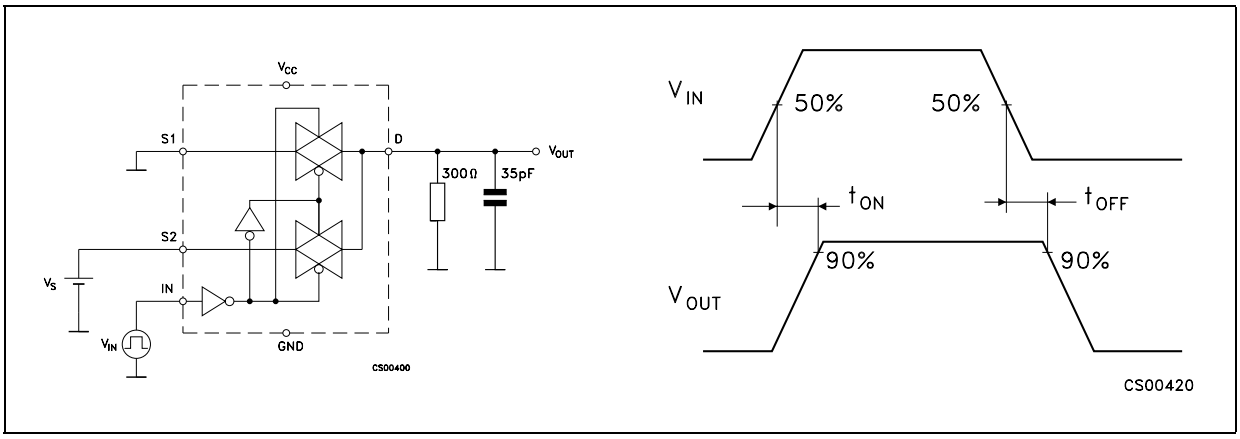
BANDWIDTH



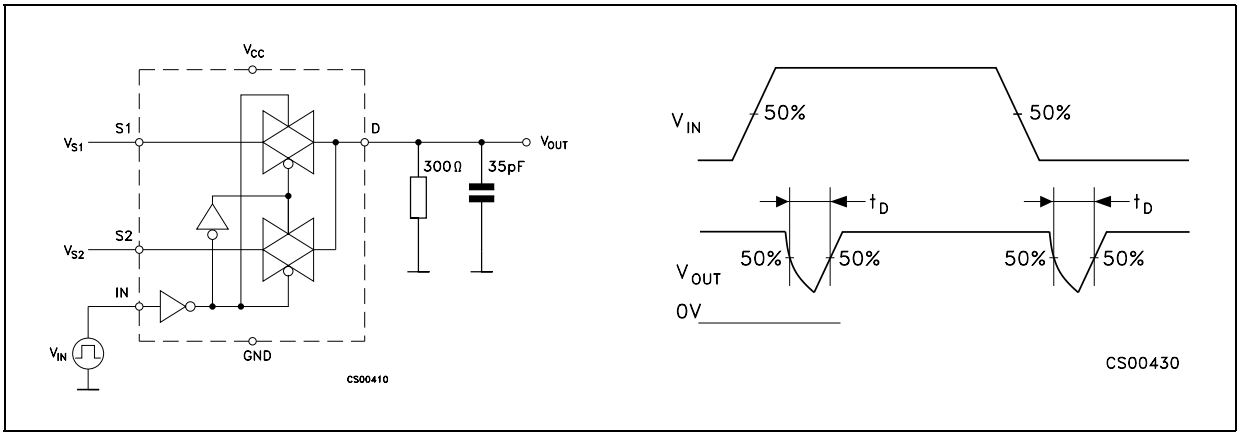
CHANNEL TO CHANNEL CROSSTALK



SWITCHING TIMES

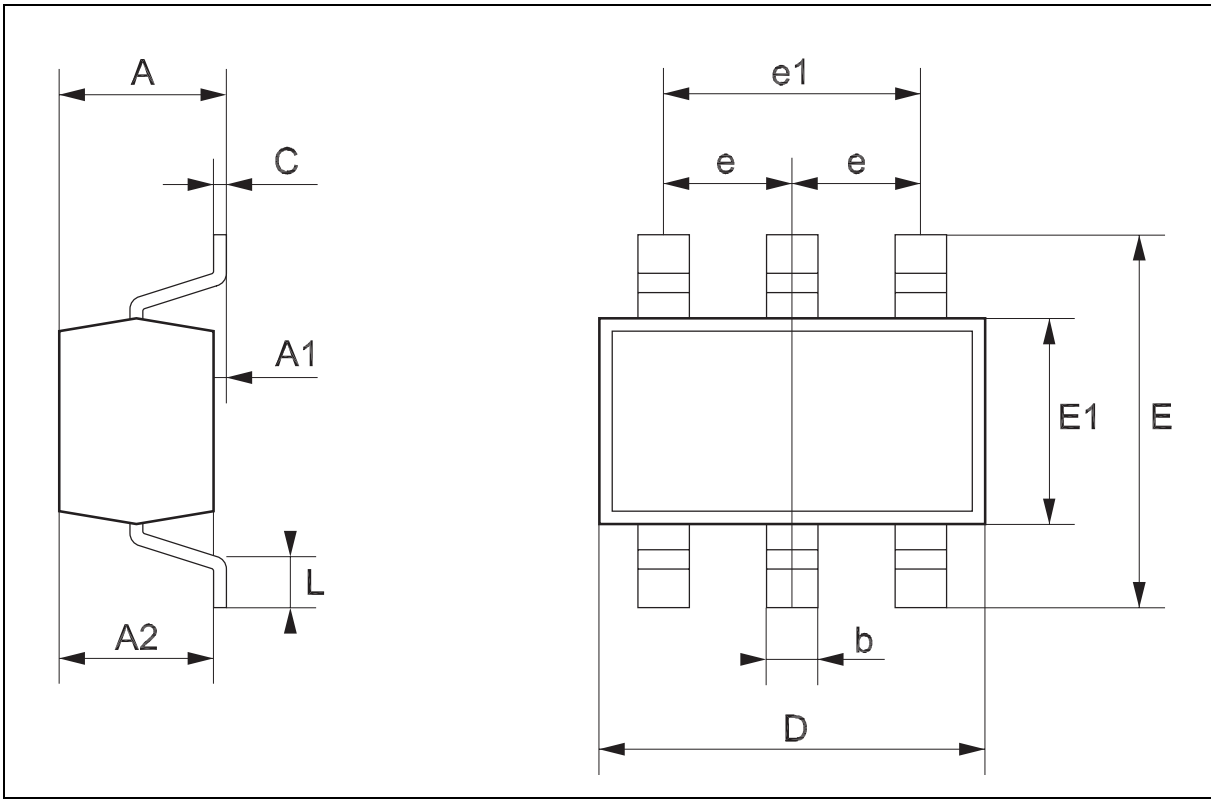


BREAK BEFORE MAKE TIME DLEAY



SOT23-6L MECHANICAL DATA

DIM.	mm.			mils		
	MIN.	TYP	MAX.	MIN.	TYP.	MAX.
A	0.90		1.45	35.4		57.1
A1	0.00		0.15	0.0		5.9
A2	0.90		1.30	35.4		51.2
b	0.35		0.50	13.7		19.7
C	0.09		0.20	3.5		7.8
D	2.80		3.00	110.2		118.1
E	2.60		3.00	102.3		118.1
E1	1.50		1.75	59.0		68.8
e		0.95			37.4	
e1		1.9			74.8	
L	0.35		0.55	13.7		21.6



Tape & Reel SOT23-xL MECHANICAL DATA

DIM.	mm.			inch		
	MIN.	TYP	MAX.	MIN.	TYP.	MAX.
A			180			7.086
C	12.8	13.0	13.2	0.504	0.512	0.519
D	20.2			0.795		
N	60			2.362		
T			14.4			0.567
Ao	3.13	3.23	3.33	0.123	0.127	0.131
Bo	3.07	3.17	3.27	0.120	0.124	0.128
Ko	1.27	1.37	1.47	0.050	0.054	0.0.58
Po	3.9	4.0	4.1	0.153	0.157	0.161
P	3.9	4.0	4.1	0.153	0.157	0.161