鴻宇半導體股份有限公司
COSMOSIC SEMICONDUCTOR CO.

FM MODULATOR - INFRARED TRANSMITTER

GENERAL DESCRIPTION

The hs2k219 is high speed ic types are frequency modulator. fabricated withsilicon gate CMOS technology .

It achieves the high speed operation similar to equivalent LSTTL while maintaining the CMOS low power dissipation. all inputs are equipped with protection circuits against static discharge or transient excess voltage .

FEATURE:

- Output frequency range 50khz ~ 15Mhz .
- Automatic power on/off function .
- Low voltage and low power consumption .
- High speed ..... max(3v=10Mhz);(5v=15Mhz)
- Low power dissipation ..... icc=4uA(max.)at ta=25℃
- Wide operating voltage range ..... vcc(opr)=2 ~ 5v

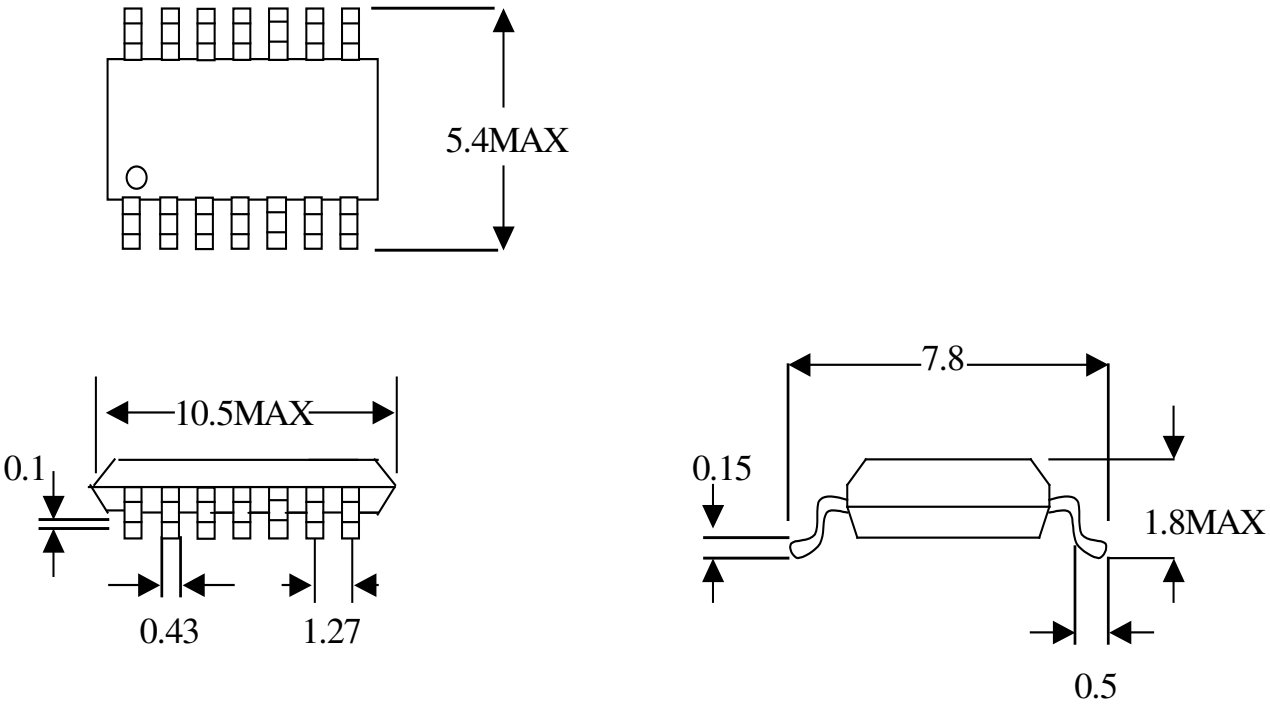
＊RECOMMENDED OPERATING CONDITIONS:

- Supply voltage vcc 2.5v to 5v

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	VALUE	UNIT
Supply voltage range	Vcc	-0.5 ~ 7	V
DC vcc/ground current	Icc	+_50	mA
Power dissipation	PD	180 (MFP)	mW
Storage temperature	Tstg	- 20 ~ 120	℃
Lead temperature 10sec	TL	300	℃

PACKAGE OUTLINES



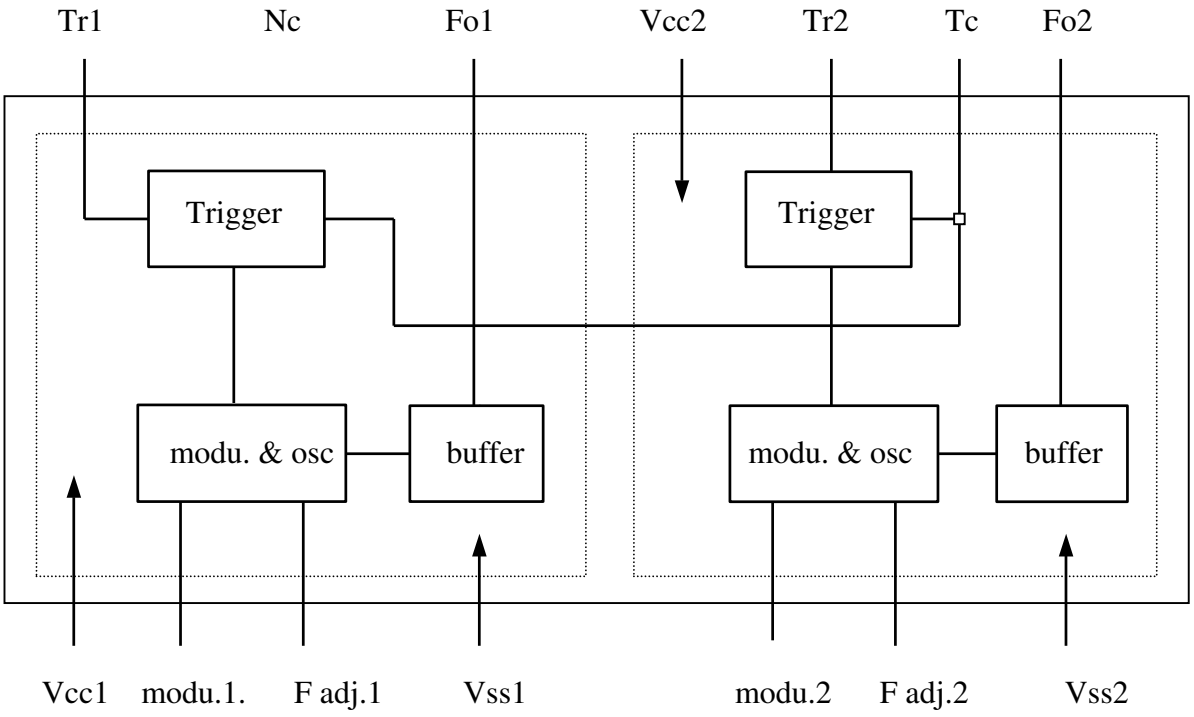
Note〕 Lead pitch is 1.27 and tolerance is ±0.12 against theoretical center of each lead that is obtain on the basis of No.1 and No.14 leads.

HS2k219 : 8-lead DIL ; plastic (with internal heat spreader) (SOT97A) .
HS2k219:8-lead mini-pack ; plastic (DIP16 ; SOT96A) .

Pin functions

pin no.	symbol	Description	pin no.	symbol	Description
1	Vcc1	Power supply	8	Fo2	Frequency out
2	Modu.1	Fm modulation in	9	Tc	Off time control
3	F adj.1	Frequency adjust	10	Tr2	Trigger on
4	Vss1	GND	11	Vcc2	Power supply
5	Modu.2	Fm modulation in	12	Fo1	Frequency out
6	F adj.2	Frequency adjust	13	Nc	
7	Vss2	GND	14	Tr1	Trigger on

block diagram .



HS2K219 APPENDIX
DC ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITION		Ta=25℃			Ta=-40～85℃		UNIT
			VCC	MIN	TYP	MAX	MIN	MAX	
Input Leakage current	I_{IN}	$V_{IN}=V_{CC}$ or GND	6.0	—	—	±0.1	—	±0.1	uA
R/C Terminal off-state current	I_{IN}	$V_{IN}=V_{CC}$ or GND	6.0	—	—	±0.5	—	±0.5	uA
Quiescent Supply Current	I_{CC}	$V_{IN}=V_{CC}$ or GND	6.0	—	—	4.0	—	40.0	uA
Active-State * Supply Current	I_{CC}'	$V_{IN}=V_{CC}$ or GND	2.0 4.5 6.0	— — —	40 0.1 0.2	120 0.3 0.6	— — —	160 0.4 0.8	uA mA mA

AC ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITION		Ta=25℃			Ta=-40～85℃		UNIT
			VCC	MIN	TYP	MAX	MIN	MAX	
Fm modulation in	Vco in	R_{14}=56kΩ	5.0	200	250	300			mv
Output Transition Time	t_{TLH} t_{THL}		2.0 4.5 6.0	— — —	30 8 7	75 15 13	— — —	95 19 16	ns
Output Frequency	f_{WOUT}	VR_1=5kΩ R_{15}=1.5kΩ	3.0 5.0	— —	 3.2	— —	— —	— —	mhz
		VR_1=5kΩ R_{15}=1.8kΩ	3.0 5.0	— —	 2.8	— —	— —	— —	mhz
		VR_1=5kΩ R_{15}=3.3kΩ	3.0 5.0	— —	 2.3	— —	— —	— —	mhz
Output Pulse Width Error Between Circuits〈In same Package〉	Δt_{WOUT}			—	±1	—	—	—	%

AC ELECTRICAL CHARACTERISTICS〈Continuous〉

PARAMETER	SYMBOL	TEST CONDITION		Ta=25℃			Ta=-40～85℃		UNIT
			VCC	MIN	TYP	MAX	MIN	MAX	
Minimum Trigger **Level**			5.0		300				mv
Minimum Trigger Pulse Width	t_W〈H〉 t_W〈L〉		2.0 5.0	— —	0.2 0.06		— —		ms
Trigger Off Time	t_{RR}	C_{19}=0.1u	2 5.0	— —	2 1.2	— —	— —	— —	s
		C_{19}= 22u	2 5.0	— —	80 60	— —	— —	— —	s
Minimum Clear Removal Time	t_{REM}		2.0 5.0	— —	— —	0 0	— —	0 0	us
Power Dissipation Capacitance	C_{PD}			—			—	—	uF

Application Circuit