

SM5605F

LSI for Quartz Crystal
Oscillating Module

OS LSI for quartz oscillating module. Each LSI has a high
and dividers with low current consumption. One of the output
frequency and the others are divided frequencies. This series have two
One is built-in capacitor for oscillating, and the other is the type of

o 6V)
tance of inverter

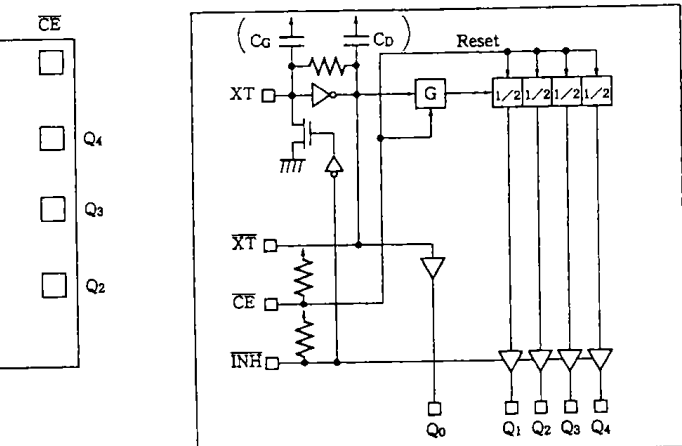
y and divided

scillating (FC type)

0pF (TYP)

- Maximum frequency ... 30MHz
- Low current consumption
- Fan out 2TTL
- Standby function
- Chip form

■ BLOCK DIAGRAM



SM5605F

MAXIMUM RATING (V_{SS}=0V)

SYMBOL	CONDITIONS	UNIT
V _{DD}	V _{SS} -0.5 to V _{SS} +7.0	V
V _{IN}	V _{SS} -0.5 to V _{DD} +0.5	V
V _{OUT}	V _{SS} -0.5 to V _{DD} +0.5	V
T _{STG}	-65 to +150	°C

OPERATIONAL CONDITIONS (V_{SS}=0V)

SYMBOL	MIN	TYP	MAX	UNIT
V _{DD}	3		6	V
V _{IN}	V _{SS}		V _{DD}	V
T _{OPR}	-40		+85	°C

CHARACTERISTICS

V_{DD}=5V, Ta=-40°C ~ +85°C

SYMBOL	CONDITIONS		MIN	TYP	MAX	UNIT
I _{OH1}	Exclude XT terminal	V _{DH} = 0.9V _{DD}	1.0			mA
I _{OL1}	Fig. 1, V _{DD} = -5V ±0.5V	V _{OL} =0.1V _{DD}	3.2			
I _{OH2}	Exclude XT terminal	V _{OH} =2.4V	1.0			mA
I _{OL2}	Fig. 1, V _{DD} =5V ±0.5V	V _{OL} =0.4V	3.2			
I _{OH3}	V _{OH} =4.5V	Ta=25°C, V _{DD} = 5V	3.5	5	6.5	mA
I _{OL3}	V _{OL} =0.5V	XT terminal, Fig. 6	3.5	5	6.5	
V _{IH}	INH, CE terminal		0.8V _{DD}			V
V _{IL}	V _{DD} =-5V ±0.5V		0.2V _{DD}			
V _{XBS}	XT terminal Ta=25°C		2.2	2.5	2.8	V
I _{DD1}	CE, INH=OPEN		Fig. 3			
I _{DD2}	CE="L", INH=OPEN		Fig. 3			mA
I _{DD3}	INH="L", CE=OPEN		Fig. 3			
R _{UP}	Ta=25°C		20	40	80	kΩ
R _F	Ta=25°C		Fig. 5			
CG	f=1MHz		10	20	35	pF
CD	f=1MHz		10	20	35	

CHARACTERISTICS f=16MHz (Except XT terminal), V_{DD}=-5V ±0.5V, Ta=25°C

SYMBOL	CONDITIONS		MIN	TYP	MAX	UNIT
T _{r1}	Fig. 3, Circuit-2, 0.1V _{DD} → 0.9V _{DD}			5	10	nS
T _{r2}	Fig. 3, Circuit-1, 0.4V _{DD} → 2.4V _{DD}			5	10	
T _{f1}	Fig. 3, Circuit-2, 0.9V _{DD} → 0.1V _{DD}			5	10	nS
T _{f2}	Fig. 3, Circuit-1, 2.4V _{DD} → 0.4V _{DD}			5	10	
DUTy1	Fig-3, Circuit-2, V _{DD} =5V		Q0	40	60	%
DUTy2			Q1 to Q4	45	55	
T _{PLH1}	Q1 output monitor			30	60	nS
T _{PHL1}	V _{DD} =5V at INH			35	70	
T _{PLH2}	Q1 output monitor			70	140	nS
T _{PHL2}	V _{DD} =5V at CE			70	140	

f_o: Input frequency to XT terminal

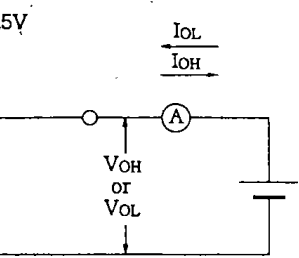


Fig. 1

* Test of I_{DD}

$V_{DD}=5V$

* Test of switching characteristics $V_{DD}=5V \pm 0.5V$

Fig. 2

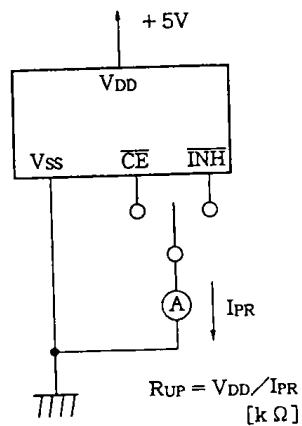
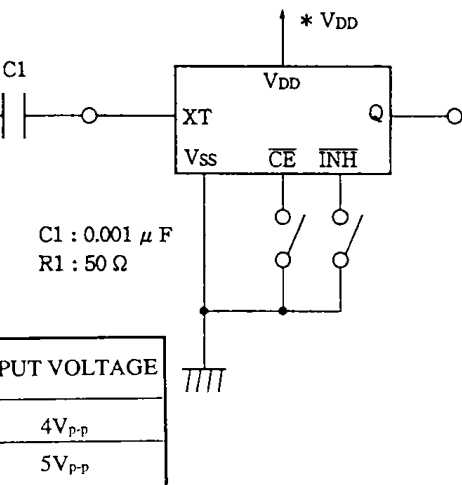
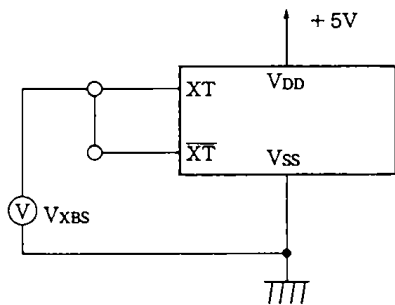


Fig. 4

SM5605F

FOR SWITCHING TIME

