XC2141 Series

ICs for use with Crystal Oscillators

■GENERAL DESCRIPTION

The XC2141 series are a group of high frequency, CMOS low power crystal oscillators with on-chip divider circuitry that operate from a supply voltage of 3.5V.

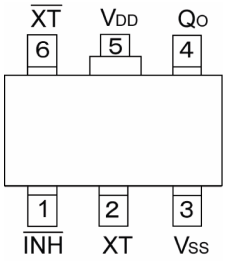
■APPLICATIONS

- ●Crystal oscillator modules
- ●Communication equipment
- ●Microcomputers
- ●Clock units in motor control
- ●System clocks on boards
- ●Timers
- ●Palmtops

■FEATURES

Oscillation Frequency : 20MHz ~ 58MHz
Divider Ratio : f0/1
Output : 3-State
Operating Voltage Range : 3.5V ±10%
Small Quiescent Current : 10mA (F_{OSC}=53MHz)
Stand-By Function
CMOS : Low Power Consumption
Ultra Small Package : SOT-26 (150mW)

■PIN CONFIGURATION



SOT-26
(TOP VIEW)

■PIN ASSIGNMENT

PIN NUMBER	PIN NAME	FUNCTION
1	/INH	Control *
2	XT	Oscillator Connection (Input)
3	VSS	GND
4	Q0	Output
5	VDD	Power Supply
6	/XT	Oscillator Connection (Output)

* Control pin has pull-up resistor built-in.

■INH, Q0 PIN FUNCTION

/INH	Q0
"H"	Output
open	Output
"L"	High Impedance (oscillation stopped)

"H" = High level
"L" = Low level

■PRODUCT CLASSIFICATION

●Ordering Information

XC21①②③④⑤⑥⑦⑧

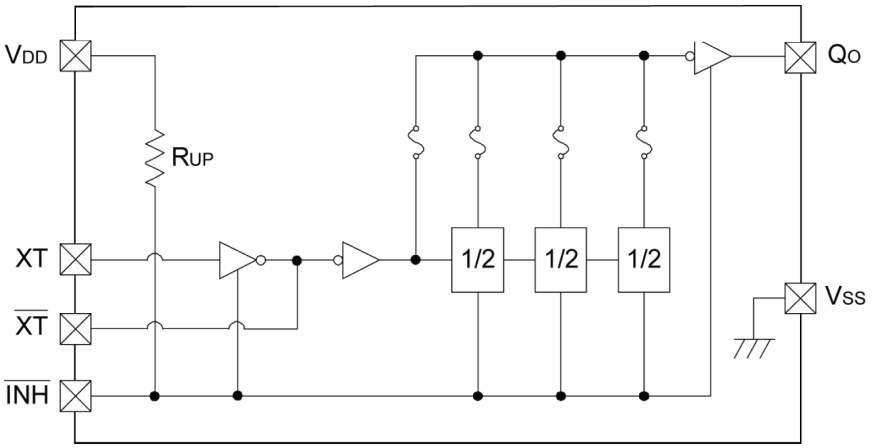
DESIGNATOR	DESCRIPTION	SYMBOL	DESCRIPTION
①	Supply Voltage	4	: 3.5V
②	Product Series	1	: Large output capability, fundamental & overtone
③	Duty Level	C	: CMOS (V_{DD}/2)
④	Fixed Number	2	: Fixed
⑤	Divider Ratio	1	: f0/1
⑥	Fundamental / Overtone Rf, Cg, Dc	A	: No Rf, Cg, Cd = 2pF
⑦	Package	M	: SOT-26
⑧	Device Orientation	R	: Embossed tape, standard feed
		L	: Embossed tape, reverse feed

■STANDARD PARTS

PART NUMBER	DUTY LEVEL	DIVIDER	Rf	Cg & Cd
XC2141C21A	CMOS (V_{DD}/2)	f0/1	External	External

Cg & Cd: Add a 2pF capacitor between V_{DD} & XT and/or V_{DD} & XT/. As the parasitic capacitance, Cg and Cd's capacitance is equivalent of 2pF.

■BLOCK DIAGRAM



■ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	CONDITIONS	UNITS
Supply Voltage	VDD	VSS - 0.3 ~ VSS + 7.0	V
Input Voltage	VIN	VSS - 0.3 ~ VDD + 0.3	V
Power Dissipation	Pd	150	mW
Operating Temperature Range	Topr	-30 ~ +75	℃
Storage Temperature Range	Tstg	-55 ~ +125	℃

■ELECTRICAL CHARACTERISTICS

XC2141C21AMR (Overtone) f0/1

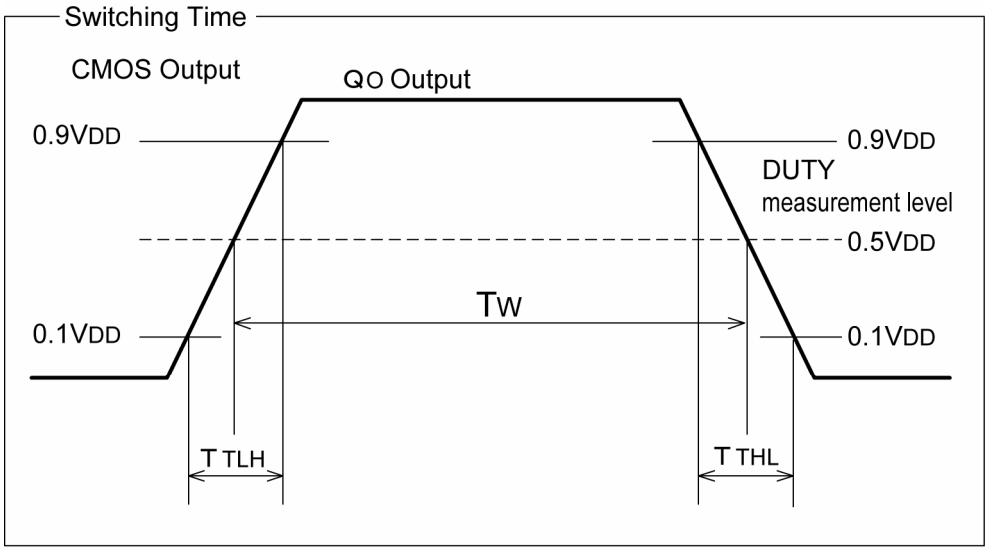
VDD=3.5V, FOSC=53MHz, Rf=7.5kΩ, No Load, Ta = 25℃

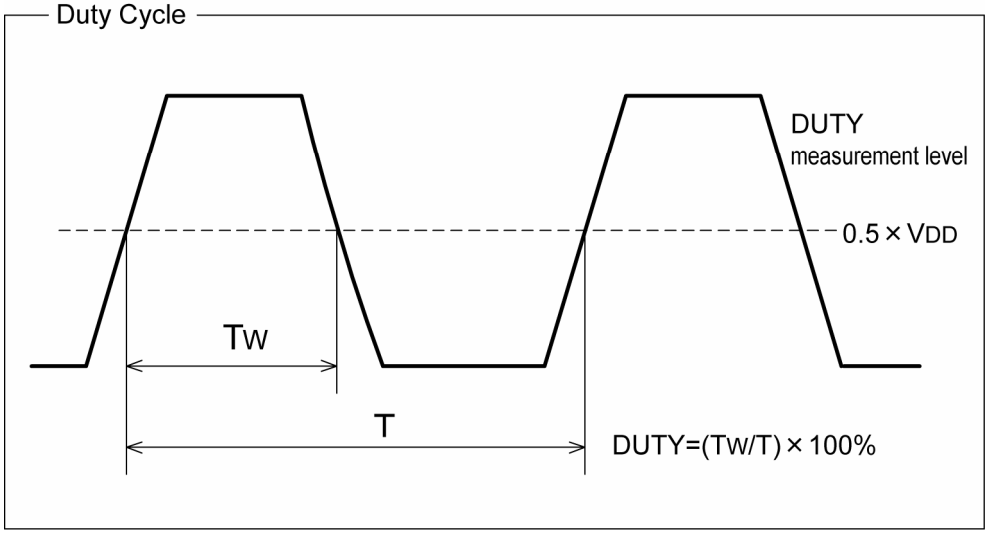
PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Operating Supply Voltage	VDD		3.15	3.50	3.85	V
Oscillation Start-Up Time	TST		—	5.00	—	ms
Input Voltage 'High'	VIH		2.4	—	—	V
Input Voltage 'Low'	VIL		—	—	0.4	V
Output Current 'High'	IOH	VOH = 3.15V	—	- 8	—	mA
Output Current 'Low'	IOL	VOL = 0.35V	—	12	—	mA
Supply Current 1	IDD1	/ INH = OPEN, Q0 = OPEN	—	—	10	mA
Supply Current 2	IDD2	/ INH = "L"	—	—	520	μA
Input Pull-Up Resistance	RUP	/ INH = 3.15V	50	—	200	kΩ
Output Disable Leak Current	IOZ	/ INH = "L"	—	—	10	μA

■SWITCHING CHARACTERISTICS

CMOS Duty, V_{DD}=3.5V, Load = 15pF, Ta = 25℃

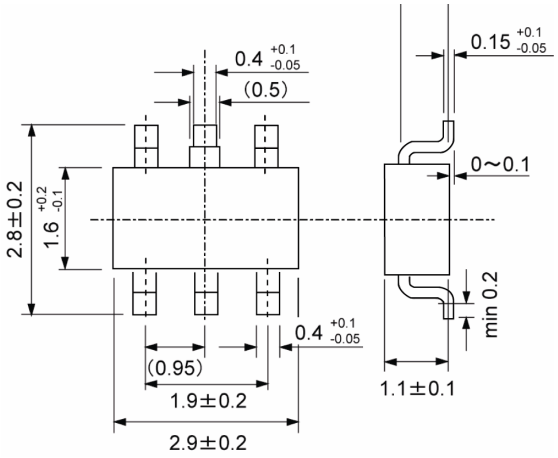
PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Output Rise Time	T_{TLH}	0.1V_{DD} → 0.9V_{DD}	-	-	9	ns
Output Fall Time	T_{THL}	0.9V_{DD} → 0.1V_{DD}	-	-	8	ns
Duty Cycle 1	DUTY 1	at V_{DD}/2, f0/1 Output	40	-	60	%



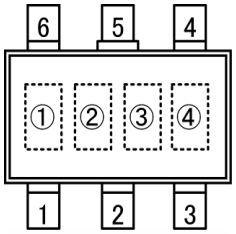


■PACKAGING INFORMATION

●SOT-26



■MARKING RULE



SOT-26
(TOP VIEW)

①Represents divider ratio

MARK	RATIO
E	f0/1

②Represents duty level

MARK	DUTY LEVEL
2	CMOS (V_{DD}/2)

③Represents 'A' which equals 'No Rf, Cg, Cd = 2pF'

④Represents assembly lot number
(based on internal standards)

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