

# 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.

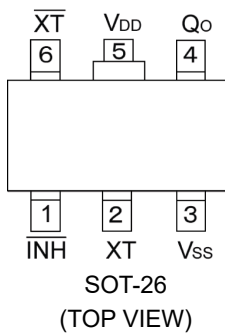
### ■ APPLICATIONS

- 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 (Fosc=53MHz)
- Stand-By Function**
- CMOS** : Low Power Consumption
- Ultra Small Package** : SOT-26 (150mW)
- Environmentally Friendly** : EU RoHS Compliant, Pb Free

### ■ PIN CONFIGURATION



### ■ 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

XC21①②③④⑤⑥⑦⑧-⑨<sup>(\*)</sup>

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 <sub>DD</sub> /2)
④	Fixed Number	2	: Fixed
⑤	Divider Ratio	1	: f <sub>0</sub> /1
⑥	Fundamental / Overtone Rf, Cg, Dc	A	: No Rf, Cg, Cd = 2pF
⑦⑧-⑨	Packages Taping Type <sup>(*)</sup>	MR-G	: SOT-26

<sup>(\*)</sup> The "-G" suffix indicates that the products are Halogen and Antimony free as well as being fully RoHS compliant.

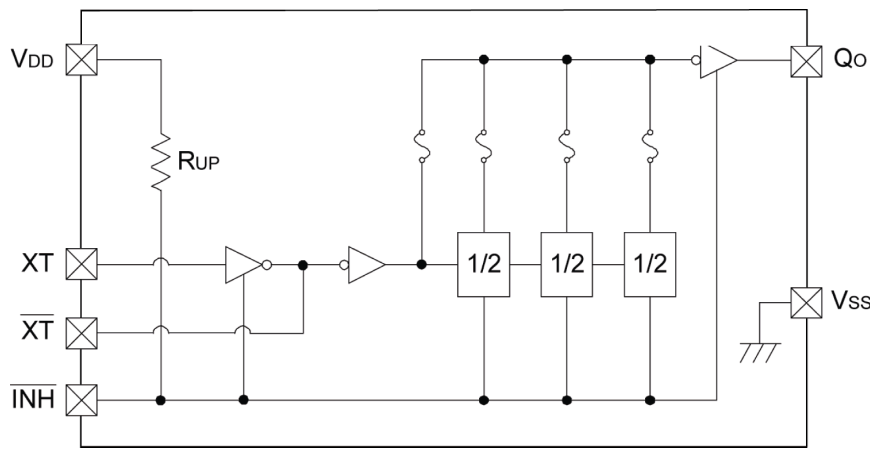
<sup>(\*)</sup> The device orientation is fixed in its embossed tape pocket. For reverse orientation, please contact your local Torex sales office or representative. (Standard orientation: ⑦R-⑨, Reverse orientation: ⑦L-⑨)

## ■ STANDARD PARTS

PART NUMBER	DUTY LEVEL	DIVIDER	Rf	Cg & Cd
XC2141C21A	CMOS (V <sub>DD</sub> /2)	f <sub>0</sub> /1	External	External

Cg & Cd: Add a 2pF capacitor between V<sub>DD</sub> & XT and/or V<sub>DD</sub> & 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	°C
Storage Temperature Range	Tstg	-55 ~ +125	°C

**■ ELECTRICAL CHARACTERISTICS**

XC2141C21AMR (Overtone) f0/1

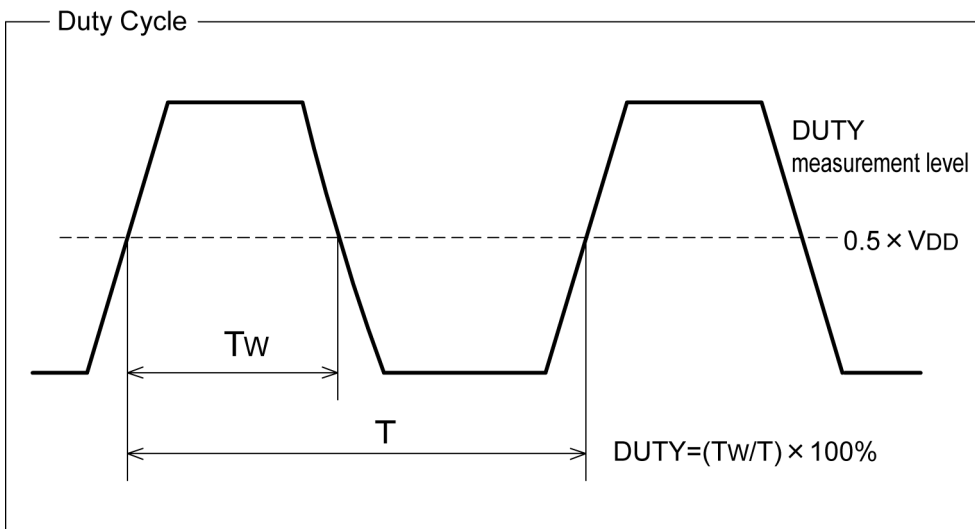
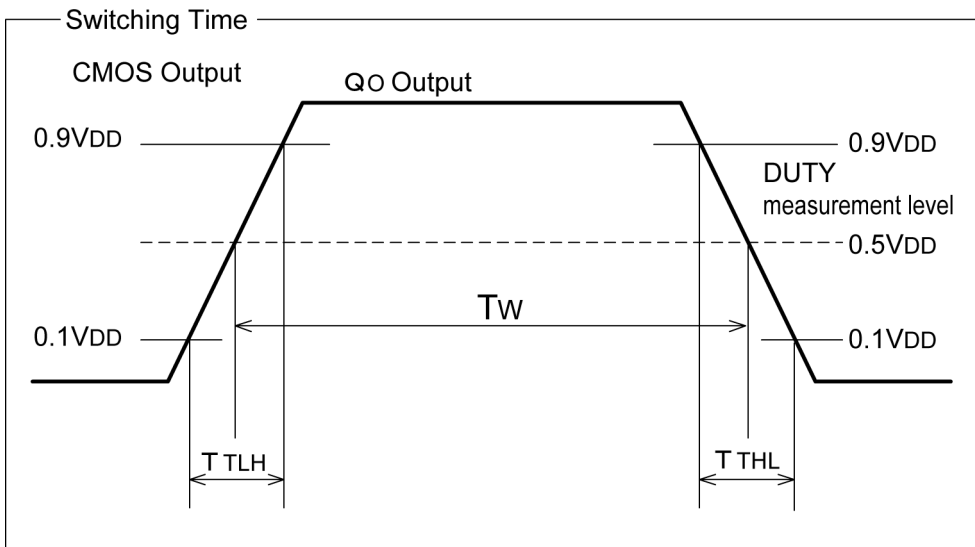
VDD=3.5V, Fosc=53MHz, Rf=7.5kΩ, No Load, Ta = 25°C

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

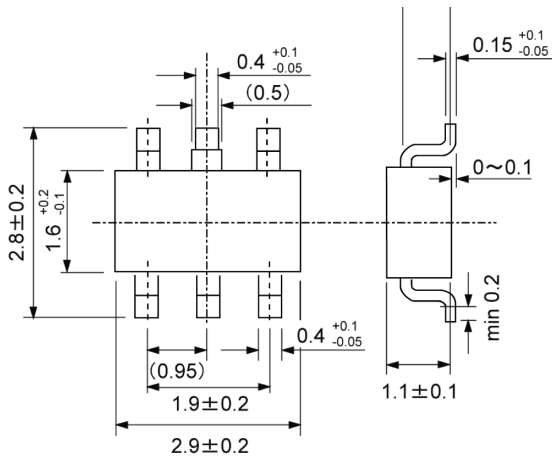
CMOS Duty,  $V_{DD}=3.5V$ , Load = 15pF,  $T_a = 25^\circ C$

PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Output Rise Time	$T_{TLH}$	$0.1V_{DD} \xrightarrow{\hspace{2cm}} 0.9V_{DD}$	-	-	9	ns
Output Fall Time	$T_{THL}$	$0.9V_{DD} \xrightarrow{\hspace{2cm}} 0.1V_{DD}$	-	-	8	ns
Duty Cycle 1	DUTY 1	at $V_{DD}/2$ , $f_0/f_1$ Output	40	-	60	%

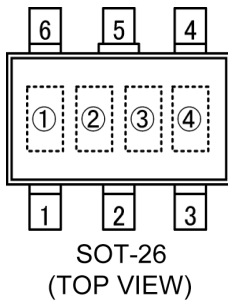


## PACKAGING INFORMATION

### ● SOT-26



## MARKING RULE



① Represents divider ratio

MARK	RATIO
E	f0/1

② Represents duty level

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

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

④ Represents assembly lot number  
(based on internal standards)

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