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.

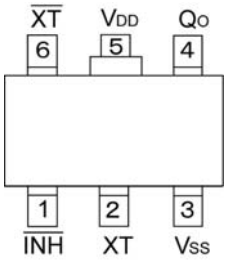
■APPLICATIONS

- ●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 Funct
CMOS : Low Power Consumption
Ultra Small Package : SOT-26 (150mW)
Environmentally Friendly : EU RoHS Compliant, Pb Free

■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

XC21①②③④⑤⑥⑦⑧-⑨(*1)

DESIGNATOR	DESCRIPTION	SYMBOL	DESCRIPTION
①	Supply Voltage	4	: 3.5V
②	Product Series	1	: Large output capability, fundamental & overtone
③	Duty Level	C	: CMOS (VDD/2)
④	Fixed Number	2	: Fixed
⑤	Divider Ratio	1	: f0/1
⑥	Fundamental / Overtone Rf, Cg, Dc	A	: No Rf, Cg, Cd = 2pF
⑦⑧-⑨	Packages Taping Type (*2)	MR-G	: SOT-26

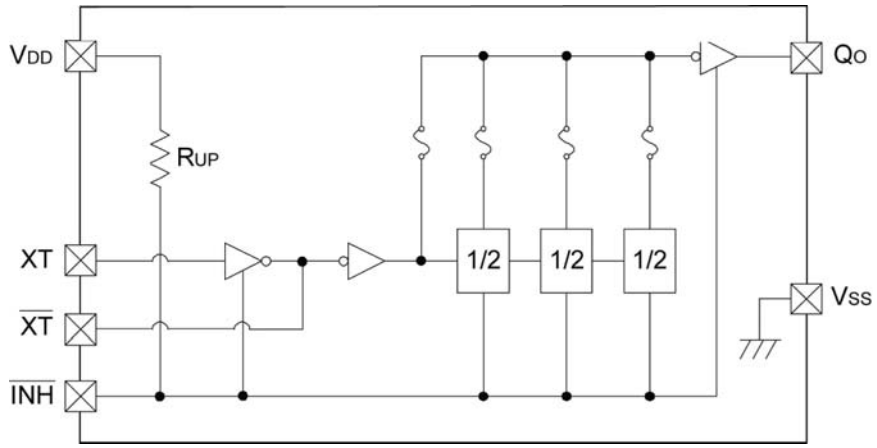
(*1) The “-G” suffix indicates that the products are Halogen and Antimony free as well as being fully RoHS compliant.
(*2) The device orientation is fixed in its embossed tape pocket. For reverse orientation, please contact your local Torex sales office or representative. (Standard orientation: ⑦R-⑨, Reverse orientation: ⑦L-⑨)

■STANDARD PARTS

PART NUMBER	DUTY LEVEL	DIVIDER	Rf	Cg & Cd
XC2141C21A	CMOS (VDD/2)	f0/1	External	External

Cg & Cd: Add a 2pF capacitor between VDD & XT and/or VDD & 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	V_{DD}	V_{SS} - 0.3 ~ V_{SS} + 7.0	V
Input Voltage	V_{IN}	V_{SS} - 0.3 ~ V_{DD} + 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

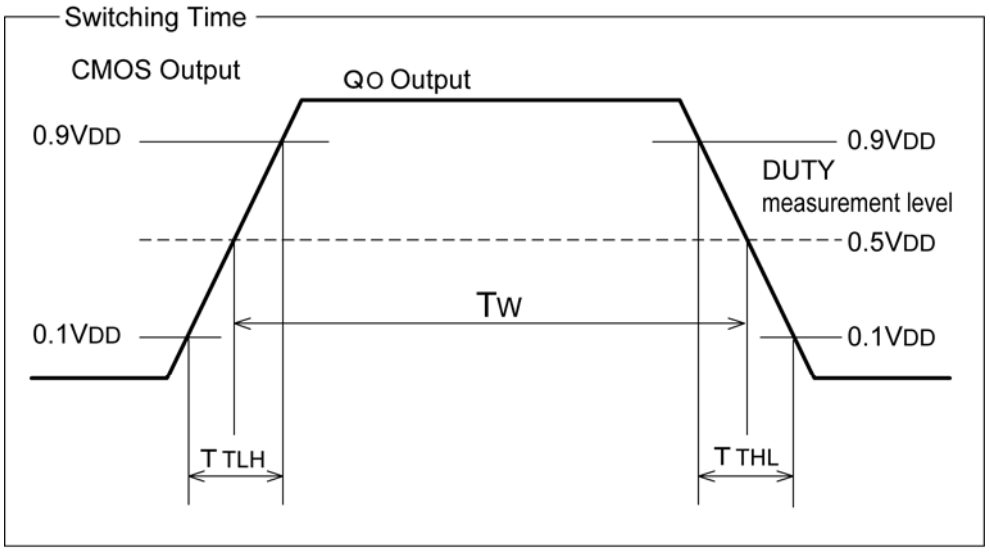
V_{DD}=3.5V, F_{OSC}=53MHz, Rf=7.5kΩ, No Load, Ta = 25℃

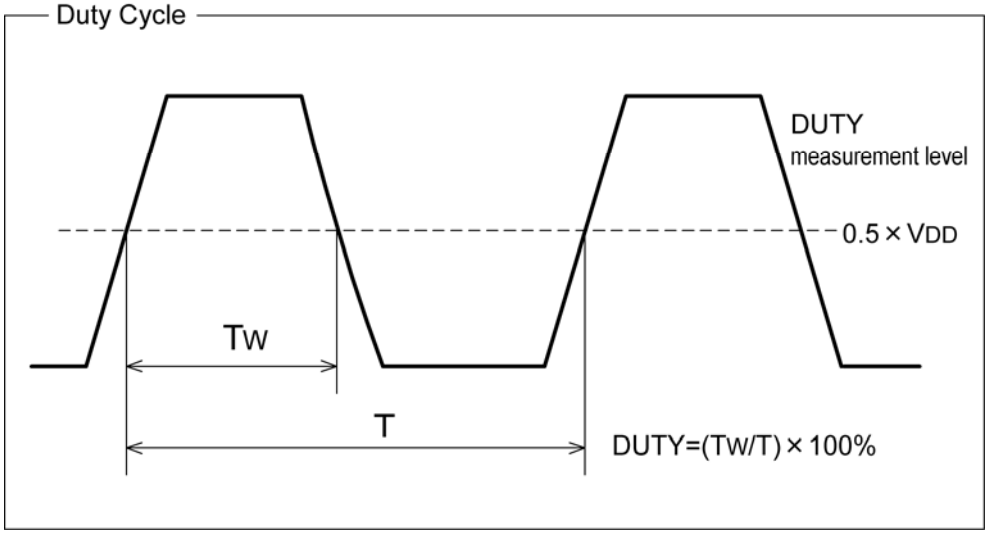
PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Operating Supply Voltage	V_{DD}		3.15	3.50	3.85	V
Oscillation Start-Up Time	T_{ST}		–	5.00	–	ms
Input Voltage 'High'	V_{IH}		2.4	–	–	V
Input Voltage 'Low'	V_{IL}		–	–	0.4	V
Output Current 'High'	I_{OH}	V_{OH} = 3.15V	–	- 8	–	mA
Output Current 'Low'	I_{OL}	V_{OL} = 0.35V	–	12	–	mA
Supply Current 1	I_{DD1}	/ I_{NH} = OPEN, Q0 = OPEN	–	–	10	mA
Supply Current 2	I_{DD2}	/ I_{NH} = "L"	–	–	520	μA
Input Pull-Up Resistance	R_{UP}	/ I_{NH} = 3.15V	50	–	200	kΩ
Output Disable Leak Current	I_{OZ}	/ I_{NH} = "L"	–	–	10	μA

■SWITCHING CHARACTERISTICS

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

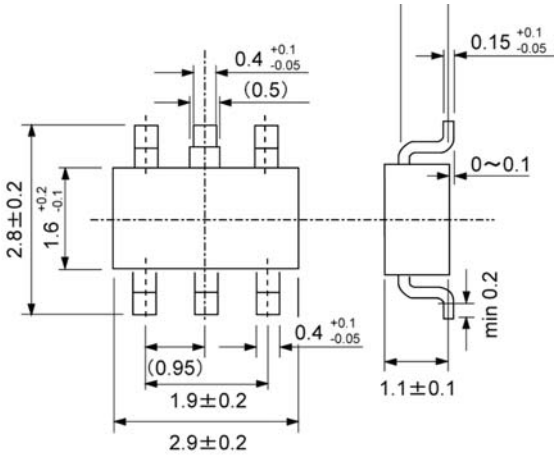
PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Output Rise Time	T_{TLH}	0.1V_{DD} → 0.9V_{DD}	-	-	9	ns
Output Fall Time	T_{THL}	0.9V_{DD} → 0.1V_{DD}	-	-	8	ns
Duty Cycle 1	DUTY 1	at V_{DD}/2, f0/1 Output	40	-	60	%



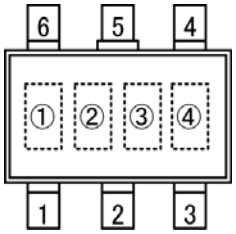


■PACKAGING INFORMATION

●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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