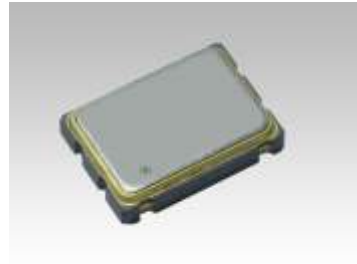


Oscillator SMD, programmable

Features:



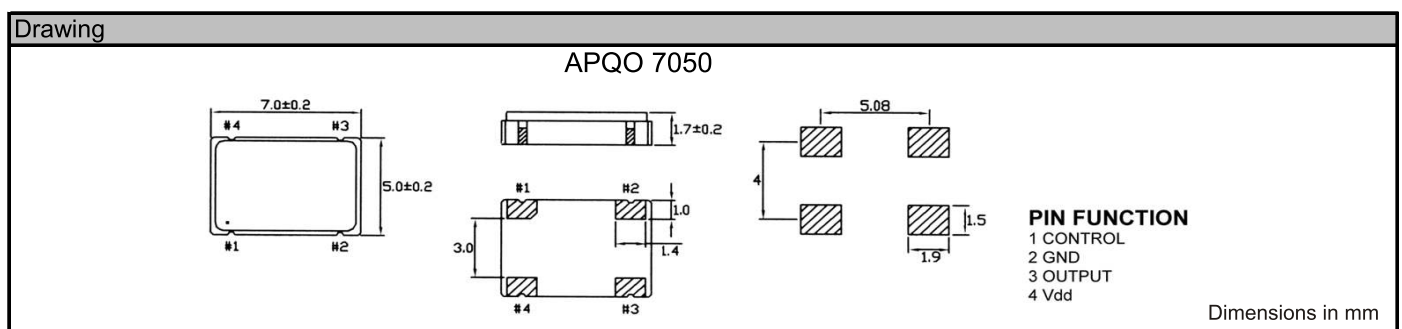
- Small size 7x5mm
- Low cost to performance
- 3.0 ~ 5.5 volt available
- Tolerance and stability to ± 25 ppm
- Ultra low jitter <11ps
- Tristate or power down available



APQO 7050

Specifications		
	APQO 7050	Remarks
Frequency range	1MHz ~ 133MHz	Please specify
Frequency stability	± 25 ppm ~ ± 100 ppm	Please specify
Operating temperature	0°C ~ +70°C - -40°C ~ +85°C	Please specify
Storage temperature	-55°C ~ +125°C	
Programmable voltage 1 ~ 133 MHz	5.0V $\pm 10\%$	
Programmable voltage 1 ~ 100 MHz	3.3V $\pm 10\%$	
Aging (ppm / Year), Ta = 25C, Vdd = 5 / 3.3 V	± 5 ppm	
Programmable output level	CMOS / TTL	

Operating conditions			
	Min	Max	Unit
Vdd Supply voltage	3.0	5.5	V
CTTL Max capacitive load on outputs for TTL levels	4.5 V ~ 5.5 V Vdd \leq 40 MHz	50	pF
	4.5 V ~ 5.5 V Vdd > 40 ~ 133 MHz	25	pF
CCMOS Max capacitive load on outputs for CMOS levels	4.5 V ~ 5.5 V Vdd \leq 66 MHz	50	pF
	4.5 V ~ 5.5 V Vdd > 66 ~ 133 MHz	25	pF
	3.0 V ~ 3.6 V Vdd \leq 40 MHz	30	pF
	3.0 V ~ 3.6 V Vdd > 40 ~ 100 MHz	15	pF



Order key							
Part	Frequency	Type/Package	Tolerance	Voltage	Temperature	Option	Packaging
O	- 10.000000M	- APQO 7050	- 50	- 5.0	- A	/ T	/
O=Oscillator	M=MHz	APQO= programmable QO 7050=SMD 7x5	\pm ppm	5.0=5.0Volt 3.3=3.3Volt	A= 0°C ~ +70°C B= -10°C ~ +60°C C= -10°C ~ +70°C D= -20°C ~ +70°C E= -40°C ~ +85°C	T= Tristate P = Power down	blank = tube

APQO 7050

Electrical characteristics					
	Test conditions	Min	Typ	Max	Unit
Input characteristics (Pin 1):					
V _{IL} , Low-level input voltage	4.5 ~ 5.5 V V _{dd}			0.8	V
TO Tri-state or power down	3.0 ~ 3.6 V V _{dd}			0.2 V _{dd}	V
V _{IH} , High-level input voltage	4.5 ~ 5.5 V V _{dd}	2.0			V
TO Enable output or no connect	3.0 ~ 3.6 V V _{dd}	0.7 V _{dd}			V
I _{IL} , Input low current	V _{IN} = 0V			10	µA
I _{IH} , Input high current	V _{IN} = V _{dd}			5	µA
Input characteristics					
V _{OL} , Low-level output voltage	4.5 V ~ 5.5 V V _{dd} , 16 mA I _{OL}			0.4	V
V _{OHTTL} , High-level output voltage TTL	3.0 V ~ 3.6 V V _{dd} , 8 mA I _{OL}			0.4	V
V _{OHCOS} , High-level CMOS voltage	4.5 V ~ 5.5 V V _{dd} , -16 mA I _{OL}	2.4			V
	3.0 V ~ 3.6 V V _{dd} , -8 mA I _{OL}	V _{dd} - 0.4			V
		V _{dd} - 0.4			V
Power supply current (unloaded)	4.5 ~ 5.5 V _{dd} , Output-freq ≤ 133 MHz			45	mA
	3.0 ~ 3.6 V _{dd} , Output-freq ≤ 100 MHz			25	mA
Standby current			10	50	µA
Input pull-up resistor (PIN 1)	4.5 ~ 5.5 V _{dd} , V _{IN} = 0V	1.1	3.0	8.0	MΩ
	4.5 ~ 5.5 V _{dd} , V _{IN} = 0.7 V	50	100	200	KΩ
Tri-state leakage current	5.0 V _{dd}		20		µA
Output enable mode	Output is Tri-stated				
Power down mode	Output is Tri-stated				

Output clock switching characteristics					
Description	Test conditions	Min	Typ	Max	Unit
Duty cycle					
TTL @ 1.4 V	≤ 50 MHz, C _L = 50 pF	45		55	%
4.5 ~ 5.5 V _{dd}	50 ~ 66 MHz, C _L = 15 pF	45		55	%
	66 ~ 125 MHz, C _L = 25 pF	40		60	%
	125 ~ 133 MHz, C _L = 15 pF	40		60	%
Duty cycle:					
CMOS @ V _{dd} / 2	≤ 66 MHz, C _L ≤ 25 pF	45		55	%
4.5 ~ 5.5 V _{dd}	66 ~ 125 MHz, C _L ≤ 25 pF	40		60	%
3.0 ~ 3.6 V _{dd}	125 ~ 133 MHz, C _L ≤ 15 pF	40		60	%
	≤ 40 MHz, C _L ≤ 30 pF	45		55	%
	40 ~ 100 MHz, C _L ≤ 15 pF	40		60	%
Output clock rise / fall					
	0.8 V ~ 2.0 V, 4.5 ~ 5.5 V _{dd} , C _L = 50			1.8	ns
	0.8 V ~ 2.0 V, 4.5 ~ 5.5 V _{dd} , C _L = 25			1.2	ns
	0.8 V ~ 2.0 V, 4.5 ~ 5.5 V _{dd} , C _L = 15			0.9	ns
	0.2 ~ 0.8 V _{dd} , 4.5 ~ 5.5 V _{dd} , C _L = 50			3.4	ns
	0.2 ~ 0.8 V _{dd} , 3.0 ~ 3.6 V _{dd} , C _L = 30			4.0	ns
	0.2 ~ 0.8 V _{dd} , 3.0 ~ 3.6 V _{dd} , C _L = 15			2.4	ns
Start up time	From power on			2	ms
Power down delay time					
Synchronous	PWR_DWN pin LOW to output Hi-Z		T / 2	T+10	ns
Asynchronous			10	15	ns
Output disable time					
Synchronous	OE pin LOW to output Hi-Z		T / 2	T+10	ns
Asynchronous	T = Frequency oscillator period		10	15	ns
Output enable time				100	ns
Period Jitter:)	1 - 133MHz		8	11	ps
Peak to peak	≤ 33.000 MHz		65	99	ps
	> 33.000 MHz		65	80	ps