

Travelling Merchant: \_\_\_\_\_

# DATASHEET

Standard: CM55F-T129-10.00MHz

P/N: \_\_\_\_\_

Plot			The Label
Drew	Audited	Approved	Stamp, please! Thanks!
Date: 2018.01.09			

## Guangdong Dapu Telecom Technology Co.,Ltd

Bldg13-16,.N.Ind.Zone,SSL Industry Park, GuangDong City, Guangdong Province, China

TEL: 0086-0769-88010888 FAX: 0086-0769-81800098





## 1、Electrical Parameters

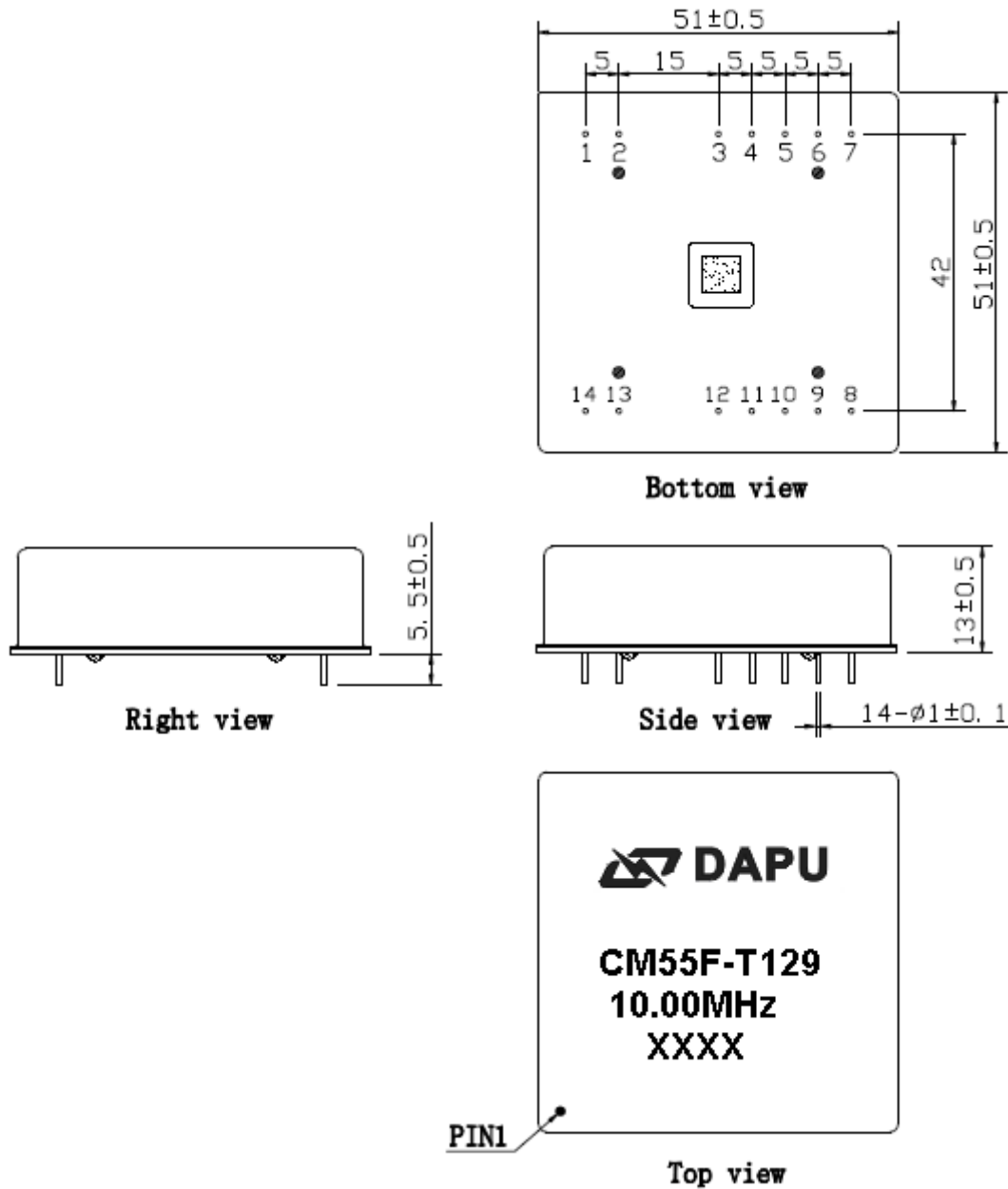
1 PPS Reference Input	Parameters	Min.	Typ.	Max.	Unit.	Test Condition		
	Waveform	HCMOS						
High-Level Input Voltage ( $V_{IH}$ )	2.7				Vdc			
Low-Level Input Voltage ( $V_{IL}$ )				0.4	Vdc			
Pulse Width	10				uSec			
Connector	Pin 10							
State Input	Parameters	Min.	Typ.	Max.	Unit.	<5mA Load		
	Lock Enable	2.7			Vdc			
	Lock Disable			0.4	Vdc	<5mA Load		
	Connector	Pin 8						
RF Output	Parameters	Min.	Typ.	Max.	Unit.	Test Condition		
	Nominal Frequency		10		MHz			
	Waveform	HCMOS						
	High-level Output voltage ( $V_{OH}$ )	2.7				Vdc	<5mA Load	
	Low-level Output voltage ( $V_{OL}$ )				0.4	Vdc	<5mA Load	
	Rise/Fall Time				8	nSec	<5mA Load	
	Duty Cycle	45	50	55		%	<5mA Load	
	Accuracy	-1			1	E-12	24 hour average when locked to 1 PPS	
	Short-term stability				2	E-11	Temperature stability,no EMI/EMC or other interference,test after power for 1 hour ref. to 25°C; 1s, using PN9000 equipment.	
	Phase noise (All conditions)			-118			dBc/Hz	@ 10Hz offset
				-138			dBc/Hz	@ 100Hz offset
				-148			dBc/Hz	@ 1KHz offset
				-150			dBc/Hz	@ 10KHz offset
				-150			dBc/Hz	@ 100KHz offset
			-150			dBc/Hz	@ 1MHz offset	
Connector	Pin 14							
Holdover Capability	Holdover Time	Min.	Typ.	Max.	Unit.	$\Delta T = \pm 5^\circ C$ , 4hours holdover after turn on and lock 2days. Temperature variable speed less than 1°C per minute		
	4hours	-8		+8	uSec			



Supply Voltage	Parameters	Min.	Typ.	Max.	Unit.	
	Supply voltage	4.75	5.0	5.25	Vdc	
	Current consumption			1400	mA	During Warm-up
				600	mA	During steady state operation @25°C
	AC ripple			50	mVpk-pk	10Hz to 1MHz
Connector	Pin 3					
1 PPS Output Waveform Characteristics	Parameters	Min.	Typ.	Max.	Unit.	
	Waveform	HCMOS				
	High-Level Output Voltage(V <sub>OH</sub> )	2.7			Vdc	50 Ohms
	Low-level Output voltage (V <sub>OL</sub> )			0.4	Vdc	
	Pulse width	10			uSec	
	Connector	Pin 12				
State Output	Parameters	Min.	Typ.	Max.	Unit.	
	Lock	2.7			Vdc	<5mA Load
	Holdover			0.4	Vdc	<5mA Load
	Connector	Pin 5				
Environmental Conditions	Parameter	Conditions				
	Operating temperature	-20°C to +75°C				
	Storage Temperature	-55°C to +105°C				
	Storage humidity	30%~80%				
	ESD Level	Human Body Model,class2: 2000V to 4000V; ANSI/ESDA/JEDEC JS-001-2010.				
		Machine Model, class B: 200V to 400V; ANSI/ESDA/JEDEC JS-001-2010.				
	Moisture Sensitivity Level	Not humidity sensitive.				
	Vibration	Test Condition: 0.75mm ;acceleration:10g;10Hz~500Hz, one cycle per 30 min, test 2 hours. (3 times for each 3 directions X , Y , Z), IEC 68-2-06 Test Fc.				
Shock	50g; 11ms; half sine wave (3 times for each 3 directions X , Y , Z ),IEC 68-2-27 Test Ea/Severity 50A.					
Full Package Storage	Relative humidity (%)	20%~70%				
	Temperature (°C)	-10~35°C				



## 2、Mechanical Structure(mm)



**Note1:** Tolerance  $\pm 0.2$ mm without mark

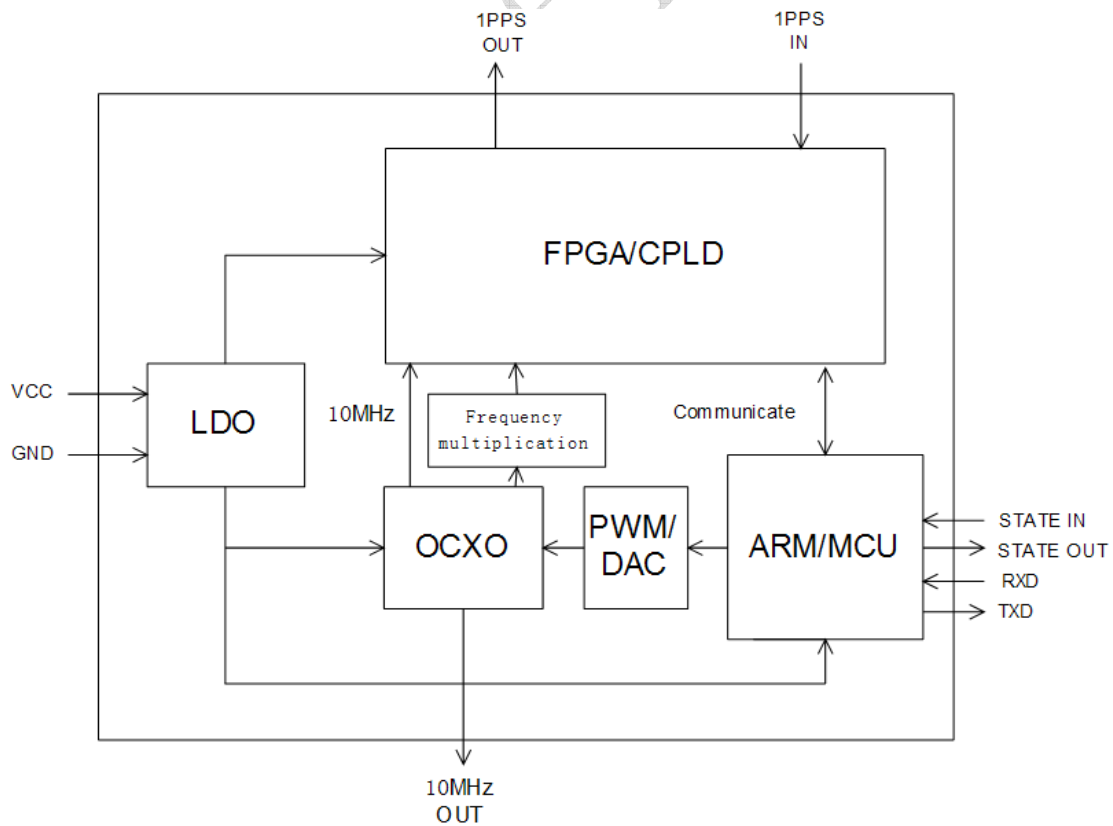
**Note2:** The first two xx representative: week  
After two xx representative: year

**Note3:** Referential Weight  $52 \pm 5$ g



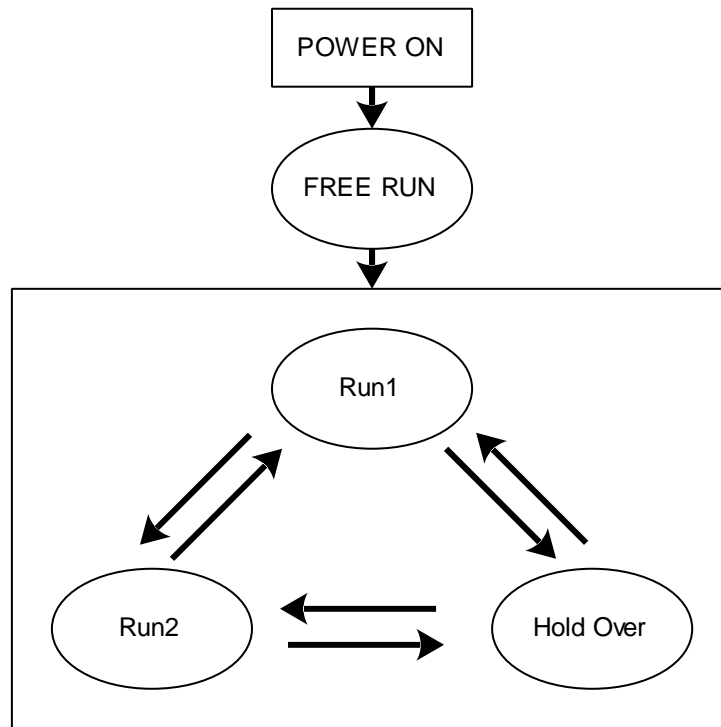
PIN DEFINITION			
PIN	Name	DESCRIPTION	
3	Vcc +5.0Vdc	Power supply input,4.75V to 5.25V.	
5	Lock OUTPUT	State output. Output high level when the work state is Run2(See section 4),others low level.	
6	RX INPUT	Asynchronous serial data input.9600-N-8-1.	
7	TX OUTPUT	Asynchronous serial data output(See section 5).9600-N-8-1.	
8	State INPUT	H: Lock Enable	The work state is set to normal operation when the state input is high.
		L: Lock Disable	The work state is set to hold over when the state input is low.
9	NC	Not connected.	
10	1PPS INPUT	1PPS reference input.	
12	1PPS OUTPUT	The clock module 1PPS output.	
14	10MHz OUTPUT	10MHz OCXO frequency output.	
1、2	NC	Not connected.	
4、11、13	GND	GND	

### 3、 Functional Block Diagram





#### 4、Workflow Diagram



Run1: Fast track. Adjust the OCXO 10MHz output frequency quickly to track the 1PPS of 10MHz with 1PPS reference.

Run2: Slow track. Adjust the OCXO 10MHz output frequency slowly when the phase error is in the define range.

Holdover: GPS 1PPS reference miss, an algorithm has been developed which enables adaptive modeling of the frequency stability of an OCXO with reference to a GPS timing signal.

Free Run: Clock module power on without 1PPS reference anyway.



## 5、 The Product Test Output Message

All sentences start with '\$' and end with <CR><LF>.

hh stands for xor of all characters between '\$' and '\*'(\$ and \* not included).

Default setting is 115200-N-8-1.

- a) Format of TOD input statement.

\$GPZDA, <1>,<2>,<3>,<4>,<5>,<6>\*HH<CR><LF>

Item	Parameter Name	Format	Description
<1>	UTC time	hhmmss.ss	Hour, minute, second, 9 characters
<2>	Day	dd	Range 01~31
<3>	month	mm	Range 01~12
<4>	year	yyyy	4 characters
<5>	void	00	Fill with two '0'
<6>	void	00	Fill with two '0'

Note: behind \*, there are checksums and <CR><LF> as the end.  
e.g. \$GPZDA,010516.00,26,11,2008,00,00\*6B

- b) Format of TOD and status output sentence format

\$ESZDA, <1>,<2>,<3>,<4>,<5>,<6>,<7>,<8>,<9>,<10>\*HH<CR><LF>

Item	Parameter Name	Format	Description
<1>	UTC time	hhmmss	Hour, minute, second, 6 characters
<2>	date	dd	Range 01~31, 2 characters
<3>	month	mm	Range 01~12, 2 characters
<4>	year	yyyy	4 characters
<5>	System state	xx	00 Free run, 01 Fast track, 10 Lock, 11 Holdover
<6>	Lock indicator	x	0 unlocked, 1 locked
<7>	Internal temperature	xxx	Unit 0.1°C e.g. 234 means 23.4°C
<8>	Has normal input or not	x	1 has input, 0 has no input
<9>	Has GPZDA time signal input or not	x	1 has input, 0 has no input
<10>	reserved	0	--

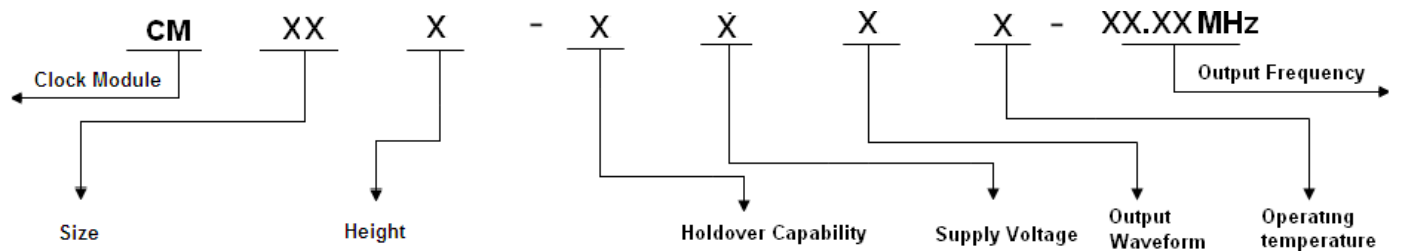
Note: behind \*, there are checksums and <CR><LF> as the end.  
e.g. \$ESZDA,010517,26,11,2008,10,1,315,1,1,0\*72





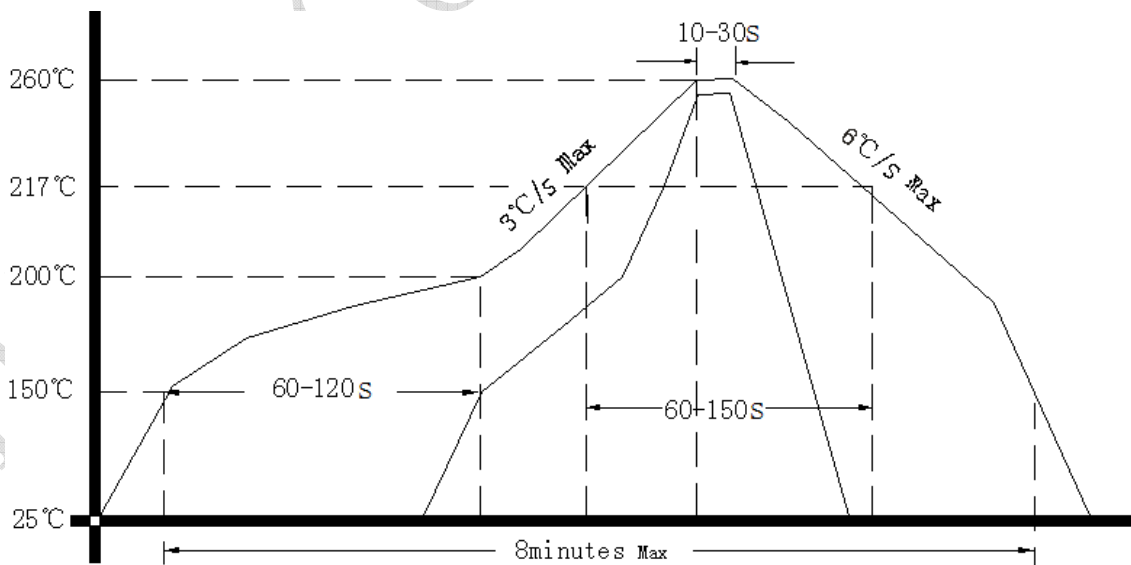


## 7、 Coding Rules



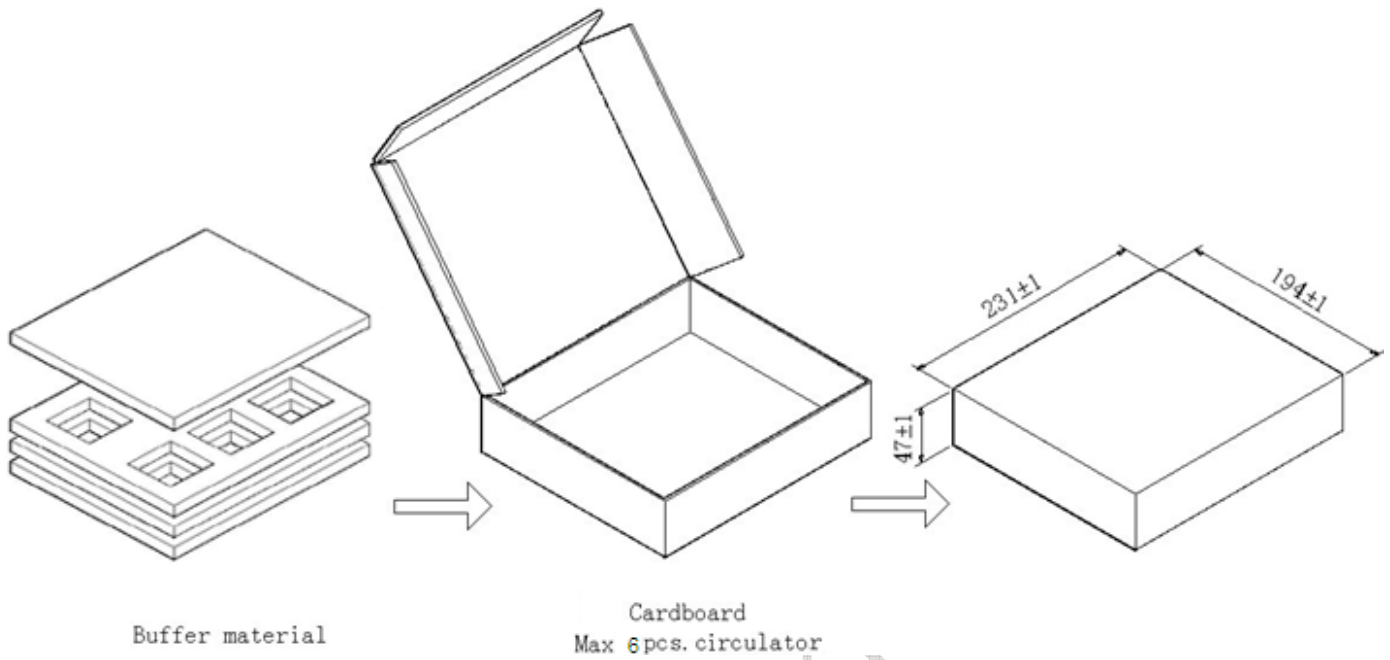
Size	Height	Holdover Capability	Supply Voltage	Output Waveform	Operating temperature
55 50×50 (mm)	A 19mm, single Freq, external GPS receiver	A ±1.5μs 0°C~60°C 24hours	1 5.0V	1 Sine Wave	1 0°C~80°C
66 60×60 (mm)	B 19mm, single Freq, internal GPS receiver	B ±3.0μs 0°C~60°C 24hours		2 HCMOS	2 -10°C~70°C
65 65×65 (mm)	C 19mm, single Freq, internal dual-mode receiver	C ±8.0μs 0°C~60°C 24hours			9 -20°C~75°C
	F 13mm, single Freq, external GPS receiver	D ±1.5μs ΔT=±5°C 24hours			
	G 13mm, single Freq, internal GPS receiver	E ±3.0μs ΔT=±5°C 24hours			
	H 13mm, dual-Freqs, internal GPS receiver	F ±8.0μs ΔT=±5°C 24hours			
	K 13mm, single Freq, internal dual-mode receiver	G ±1.5μs ΔT=±5°C 8hours			
	L 13mm, dual-Freqs, internal dual-mode receiver	H ±3.0μs ΔT=±5°C 8hours			
		I ±8.0μs ΔT=±5°C 8hours			
		K ±1.5μs ΔT=±2°C 24hours			
		M ±3.0μs ΔT=±2°C 24hours			
		N ±8.0μs ΔT=±2°C 24hours			
		O ±1.5μs ΔT=±2°C 8hours			
		P ±3.0μs ΔT=±2°C 8hours			
		Q ±8.0μs ΔT=±2°C 8hours			

## 8、 Reflow Soldering Curve (RoHS)





## 9、Package (mm)



DAPU Config