

Customer Code : \_\_\_\_\_

# DATASHEET

DAPU P/N : CM65A-Y125-10.00MHz

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

DAPU			Customer Approval
Drew	Audited	Approved	Stamp, please! Thanks!
Date: 2018.06.11			

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### 1. Electrical Parameters

1 PPS Reference Input	Parameters	Min.	Typ.	Max.	Unit.	Test Condition
	Waveform	HCMOS				
	High-Level Input Voltage ( $V_{IH}$ )	2.7			V	
	Low-Level Input Voltage ( $V_{IL}$ )			0.4	V	
	Pulse Width	10			$\mu$ s	
Connector	Pin 10					
State Input	Parameters	Min.	Typ.	Max.	Unit.	Test Condition
	Lock Enable	2.7			V	<5mA Load
	Lock Disable			0.4	V	<5mA Load
	Connector	Pin 8				
RF Output	Parameters	Min.	Typ.	Max.	Unit.	Test Condition
	Nominal Frequency	10.00			MHz	
	Waveform	HCMOS				
	High-level Output Voltage ( $V_{OH}$ )	2.7			V	<5mA Load
	Low-level Output Voltage ( $V_{OL}$ )			0.4	V	<5mA Load
	Rise/Fall Time			8	ns	<5mA Load
	Duty Cycle	45	50	55	%	<5mA Load
	Accuracy	-1		+1	$\times 10^{-12}$	24 hours average when locked to 1 PPS
	Short-term Stability			5	$\times 10^{-12}$	Temperature stability, no EMI/EMC or other interference, test after power for 1 hour ref. to 25°C; 1s, using PN9000 equipment.
	Aging Tolerance Per Day	-0.2		+0.2	$\times 10^{-9}$	$V_{cc}, T_A$ constant measurement referenced to frequency observed with $T_A=25^\circ\text{C}, V_{cc}=5.0\text{V}$ , in FREE RUN condition and after 30 days of operation.
	Aging Tolerance 1 Year	-0.01		+0.01	$\times 10^{-6}$	
	Phase Noise (All conditions)			-125	-115	
				-145	-135	
				-150	-145	
			-152	-147		
			-155	-150		
			-155	-150		
Connector	Pin 2					



	Parameters	Min.	Typ.	Max.	Unit.	Test Condition
Holdover Capability	Holdover Time					
	24 Hours	-10		+10	μs	ΔT=±10°C, 24 hours holdover after turn on and lock 24 hours. Temperature variable speed less than 1°C per minute
Supply Voltage	Parameters	Min.	Typ.	Max.	Unit.	Test Condition
	Supply Voltage	4.75	5.0	5.25	V	
	Current Consumption			3000	mA	During Warm-up
				1000	mA	During steady state operation @25°C
	AC Ripple			50	mVpk-pk	10Hz to 1MHz
Connector	Pin 12					
1 PPS Output Waveform Characteristics	Parameters	Min.	Typ.	Max.	Unit.	Test Condition
	Waveform	HCMOS				
	High-Level Output Voltage(V <sub>OH</sub> )	2.7			V	50Ω
	Low-level Output voltage (V <sub>OL</sub> )			0.4	V	
	Pulse Width		100		ms	
	Connector	Pin 3				
State Output	Parameters	Min.	Typ.	Max.	Unit.	Test Condition
	Lock	2.7			V	<5mA Load
	Free run/Holdover			0.4	V	<5mA Load
	Connector	Pin 5				
Serial Interfaces	Parameters	Min.	Typ.	Max.	Unit.	Test Condition
	Rx high-level Input Voltage (V <sub>H</sub> )	2.7			V	
	Rx low-level Input Voltage (V <sub>L</sub> )			0.4	V	
	Tx high-level Output Voltage (V <sub>H</sub> )	2.7			V	
	Tx low-level Output Voltage (V <sub>L</sub> )			0.4	V	
	Serial Protocol	9600-N-8-1				
	Connector	Pin6 and Pin7				
Environmental Conditions	Parameter	Conditions				
	Operating temperature	-40°C to +70°C				
	Storage Temperature	-55°C to +105°C				

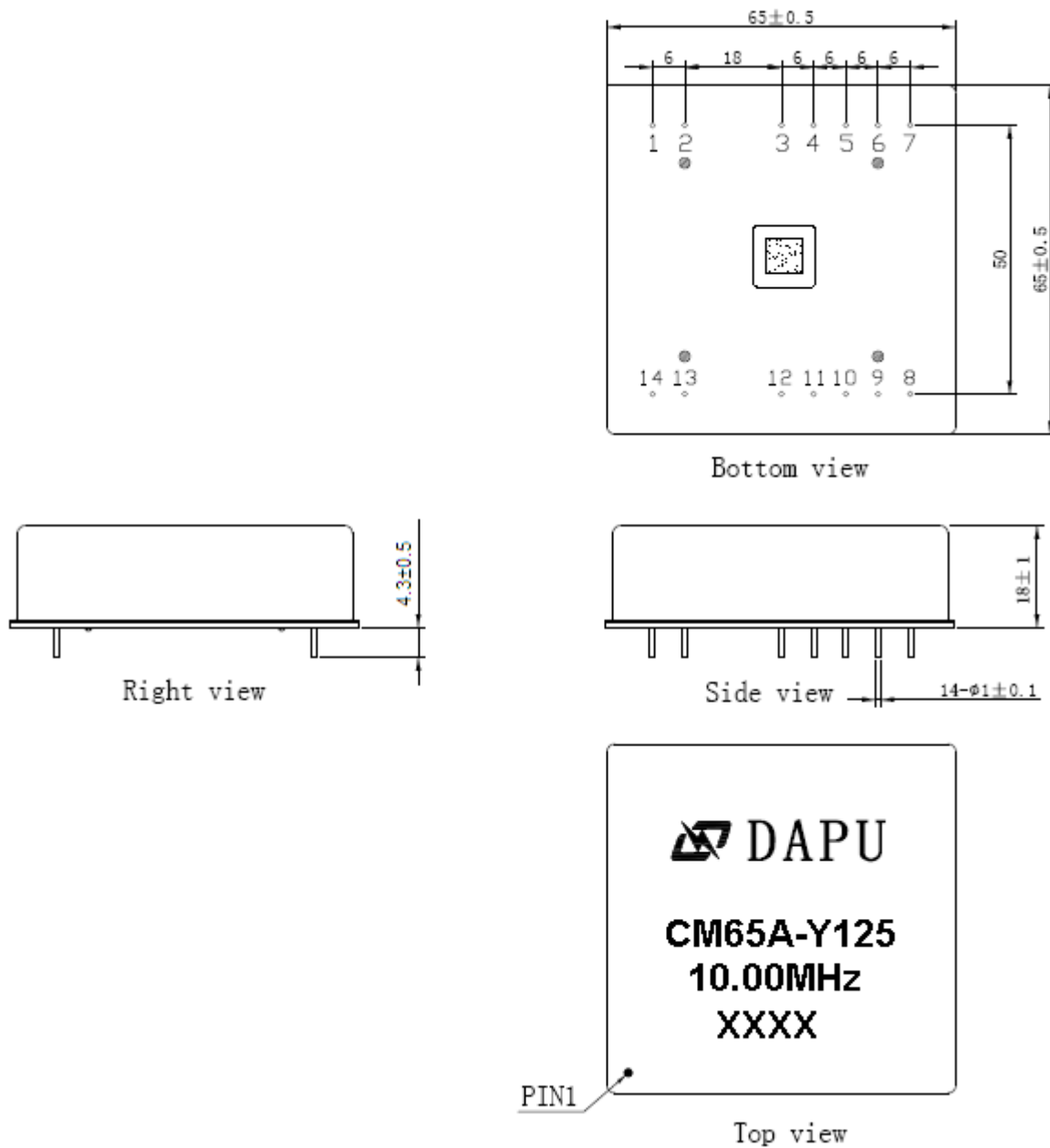


	Storage humidity	30%~80%
	ESD Level	Human Body Model,class2: 2000V to 4000V; ANSI/ESDA/JEDEC JS-001-2010.
		Machine Model, class B: 200V to 400V; ANSI/ESDA/JEDEC JS-001-2010.
	Moisture Sensitivity Level	Not humidity sensitive.
	Vibration	Test Condition: 25.4mm ;acceleration:15g;5.5Hz~200Hz, 15 min, Maximum test time 30min.
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

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## 2. Mechanical Structure(mm)



- Note1:** Tolerance  $\pm 0.20$ mm without mark
- Note2:** The first two xx representative: week  
After two xx representative: year
- Note3:** Referential weight  $135 \pm 15$ g

**PIN DEFINITION**

PIN	Name	DESCRIPTION
2	10MHz OUTPUT	10MHz OCXO frequency output.
3	1PPS OUTPUT	The clock module 1PPS output.
5	State OUTPUT	State output. Output high level when the CM is locked and stable, others low level.
6	RX INPUT	Asynchronous serial data input.9600-N-8-1.
7	TX OUTPUT	Asynchronous serial data output.9600-N-8-1.
8	State INPUT	H: Lock Enable The work state is set to normal operation when the state input is high level.
		L: Lock Disable The module cannot be locked when the state input is low level.
10	1PPS INPUT	1PPS reference input.
12	VCC	Power supply input, 4.75V to 5.25V.
1、14	NC	Not connected.
4、9、11、13	GND	GND

**3. Holdover capability Reference**

First holdover time X(hour)	$\pm 1.5\mu\text{S}$ Holdover capability(hour) after GPS recover 1~47hours	
	Training time $\geq 7$ days	Training time =4~6days
1	$\geq 23$	$\geq 12$
2	$\geq 23$	$\geq 12$
3	$\geq 22$	$\geq 11$
4	$\geq 21$	$\geq 10$
5	$\geq 21$	$\geq 10$
6	$\geq 20$	$\geq 10$
7	$\geq 19$	$\geq 9$
8	$\geq 19$	$\geq 9$
9	$\geq 18$	$\geq 9$
10	$\geq 17$	$\geq 8$
11	$\geq 16$	$\geq 8$
12	$\geq 16$	$\geq 8$
13	$\geq 15$	$\geq 7$
14	$\geq 15$	$\geq 7$
15	$\geq 14$	$\geq 7$
16	$\geq 13$	$\geq 6$
17	$\geq 12$	$\geq 6$
18	$\geq 12$	$\geq 6$
19	$\geq 11$	$\geq 5$
20	$\geq 10$	$\geq 5$
21	$\geq 9$	$\geq 4$



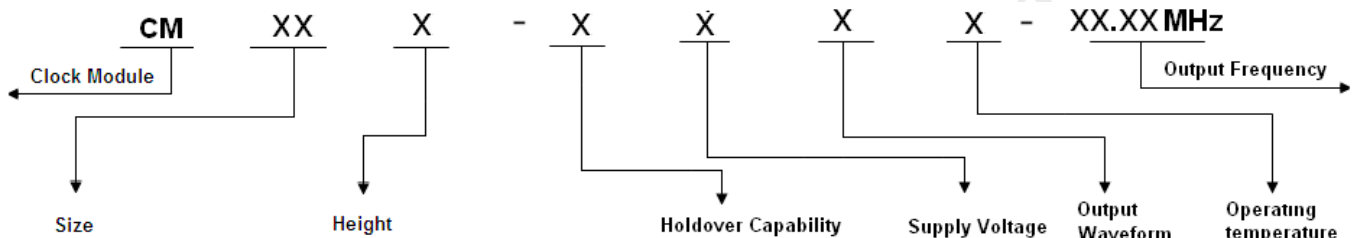
22	≥9	≥4
23	≥8	≥4
24	≥8	≥4
25	≥7	≥3
26	≥6	≥3
27	≥5	≥2
28	≥5	≥2

±1.5μS holdover capability after locked for 4~6days: ≥12hours .

±1.5μS holdover capability after GPS recover over 48hours: ≥24hours (Power on time≥7days)

≥12hours (Power on time=5~6days) .

#### 4. Coding Rules

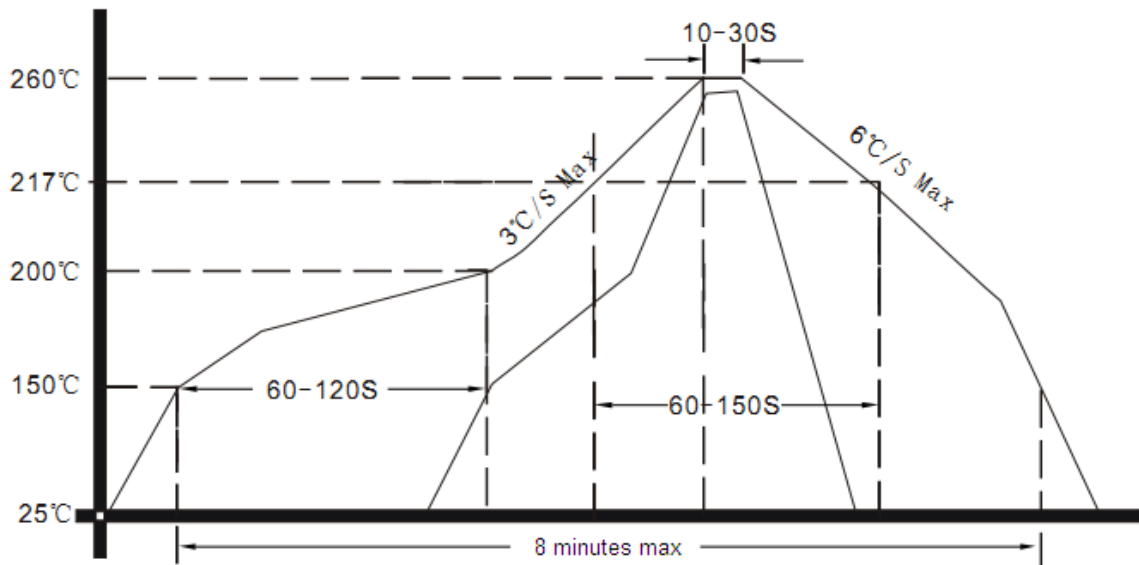


Size	Height	Holdover Capability	Supply Voltage	Output Waveform	Operating temperature
55 50×50 (mm)	A 19mm, single Freq, external GPS receiver	A ±1.5μs 0°C~60°C 24hours	1 5.0V	1 Sine Wave 2 HCMOS	1 0°C~80°C 2 -10°C~70°C
66 60×60 (mm)	B 19mm, single Freq, internal GPS receiver	B ±3.0μs 0°C~60°C 24hours			
65 65×65 (mm)	C 19mm, single Freq, internal dual-mode receiver	C ±8.0μs 0°C~60°C 24hours	1 5.0V	1 Sine Wave 2 HCMOS	9 -20°C~75°C 8 -40°C~85°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				
	U ±1.5μs ΔT=±15°C 12hours				





### 5. Reflow Soldering Curve (RoHS)



### 6. Package (mm)

