

Customer Code : _____

DATASHEET

DAPU P/N: CM33P-S128-20.00MHz

Customer P/N: _____

DAPU			Customer Approval
Drew	Audited	Approved	Stamp, please! Thanks!
Date: 2015.05.19			

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1. Electrical Parameters

	Parameters	Min.	Typ.	Max.	Unit.	Test Condition
	1 PPS Reference Input	Waveform	HCMOS			
High-Level Output Voltage (V_{IH})		2.7			V	50 Ω
Low-Level Output Voltage (V_{IL})				0.4	V	
Pulse Width		10			μ s	
Connector		Pin 4				
PTP Interface	Parameters	Min.	Typ.	Max.	Unit.	Test Condition
	SGMII Rx analogue supply voltage DC, 1.2 V.	-0.5		1.4	V	
	SGMII Tx analogue supply voltage DC, 1.2 V	-0.5		1.4	V	
	SGMII Rx analogue supply DC, 3.3 V	-0.5		3.7	V	
	SGMII TX analogue supply DC, 3.3 V.	-0.5		3.7	V	
	SGMII digital supply DC, 1.2 V	-0.5		1.4	V	
	SGMII RX analogue supply DC, 1.2 V.	-0.5		1.4	V	
	SGMII TX analogue supply DC, 1.2 V	-0.5		1.4	V	
	SGMII RX analogue supply DC, 3.3 V.	-0.5		3.7	V	
	SGMII TX analogue supply DC, 3.3 V	-0.5		3.7	V	
FORCE HOLD	Parameters	Min.	Typ.	Max.	Unit.	Test Condition
	Lock Enable	2.7			V	<5mA Load
	Force Hold			0.4	V	<5mA Load
	Connector	Pin 3				
Holdover Capability	Holdover Time	Min.	Typ.	Max.	Unit.	Test Condition
	24 Hours	-44		44	μ s	$\Delta T = \pm 5^{\circ}C$, 24 hours holdover after turn on and lock 3 days. Temperature variable speed less than 1 $^{\circ}C$ per minute



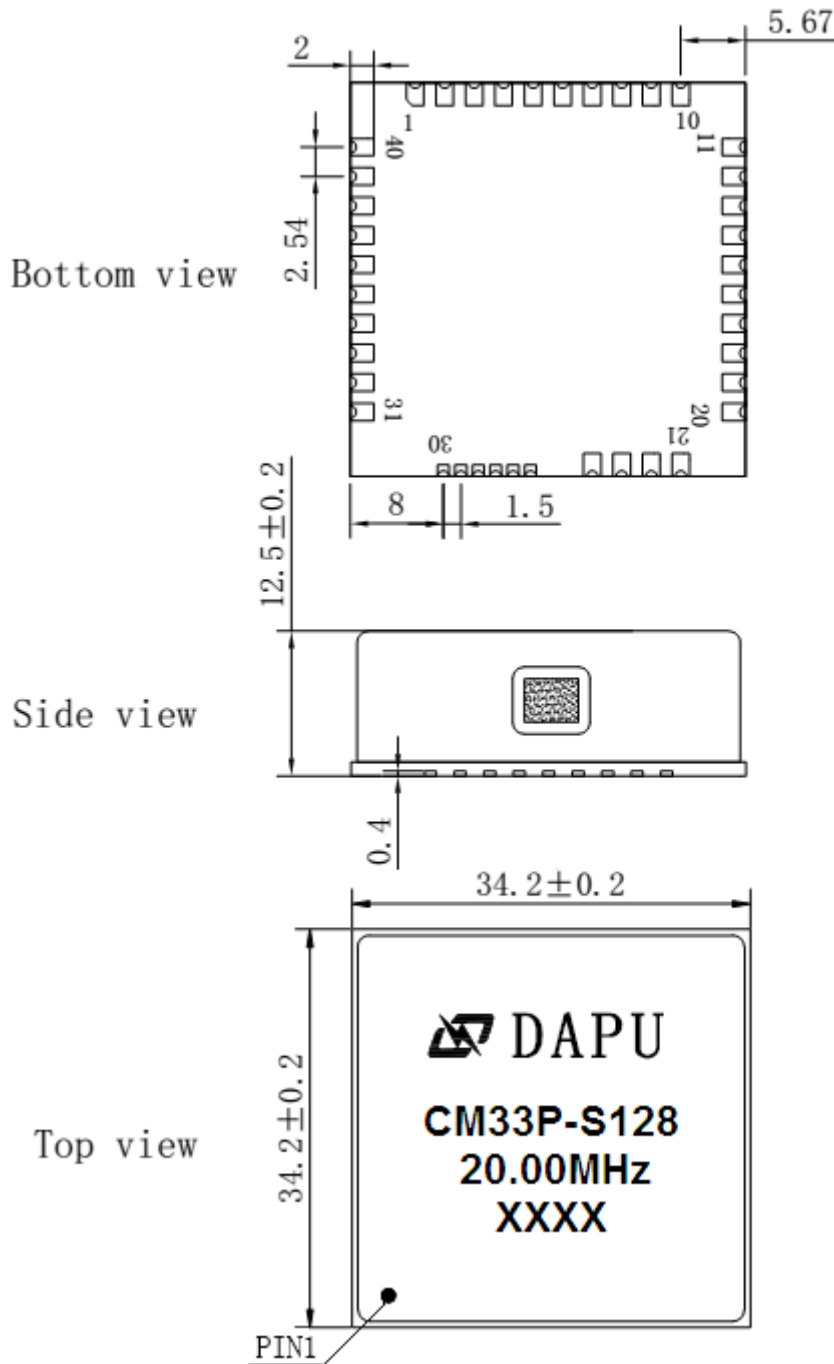
Supply Voltage	Parameters	Min.	Typ.	Max.	Unit.	Test Condition
	Supply Voltage	4.75	5.0	5.25	V	
	Current Consumption			700	mA	During Warm-up
				400	mA	During steady state operation @25°C
	AC Ripple			50	mV pk-pk	10Hz to 1MHz
	Connector	Pin11				
1 PPS Output Waveform Characteristics	Parameters	Min.	Typ.	Max.	Unit.	Test Condition
	Waveform	HCMOS				
	High-Level Output Voltage(V_{OH})	2.7			V	50Ω
	Low-level Output voltage (V_{OL})			0.4	V	
	Pulse Width		100		ms	
	Connector	Pin 16				
LOCK Status output	Parameters	Min.	Typ.	Max.	Unit.	Test Condition
	Lock	2.7			V	<5mA Load
	Free run/Holdover			0.4	V	<5mA Load
	Connector	Pin 32				
Serial Interfaces	Parameters	Min.	Typ.	Max.	Unit.	Test Condition
	Rx high-level Input Voltage (VH)	2.7			V	
	Rx low-level Input Voltage (VL)			0.4	V	
	Tx high-level Output Voltage (VH)	2.7			V	
	Tx low-level Output Voltage (VL)			0.4	V	
	Serial Protocol	9600-N-8-1				
Connector	Pin 17/18 Pin 19/20					



	Parameters	Min.	Typ.	Max.	Unit.	Test Condition
	RF Output 1/ RF Output 2	Frequency	1 Hz and programmable frequency 1 kHz to 62.5MHz			
Waveform		HCMOS				
High-Level Output Voltage(V_{OH})		2.7			V	
Low-level Output voltage (V_{OL})				0.4	V	
Rise/Fall Time				8	ns	
Connector		Pin 14/34				
Environmental Conditions	Parameter	Conditions				
	Operating temperature	-40°C to +85°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 hour. (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 ±0.20mm without mark

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

**Pin Description**

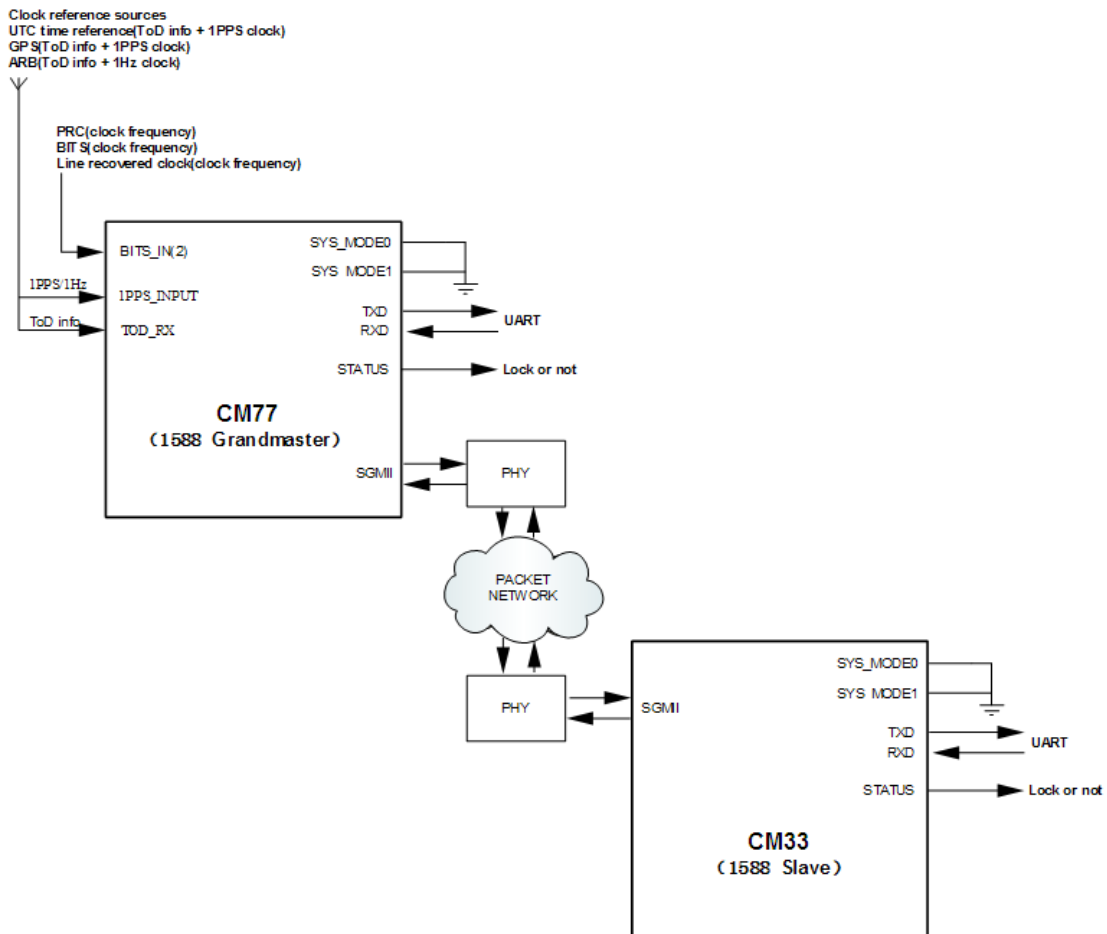
PIN	NAME	I/O	DESCRIPTION
1	OSC_CLK_OUTPUT	O	The output from the local oscillator in the clock module
2	CLK_SEL	I	System clock select: 1: the system clock use the local oscillator 0: the system clock the external reference
3	FORCE_HOLD	I	1: Force the clock module into holdover mode 0: Normal mode
4	1PPS_IN	I	1PPS input clock, it can come from GPS receiver or other 1PPS reference
5,15,25,30 35,37,39	GND		GND
6	SLVINT	I	SPI interface, The serial peripheral interface (SPI) is a slave port for communication with a serial microprocessor bus, allowing the module to be controlled by an external processor
7	SLVCSB	I	
8	SLVSCLK	O	
9	SLVMISO	I	
10	SLVMOSI	O	
11	VCC		VCC
12	NC		NC
13	PROGRAM	I	1: Update Bootcode 0: Normal Mode
14	FREQ_OUT0	O	Time-aligned output pair: 1 PPS and 125 MHz divided by n (n = 4 to 125000) Frequency-aligned outputs:
34	FREQ_OUT1	O	1 Hz and programmable frequency 1 kHz to 62.5MHz Low jitter frequency-aligned outputs: SONET and SDH OC-n rates: 3.84 MHz to 155.52 MHz SyncE rates: 25 MHz, 50 MHz, 62.5 MHz and 125 MHz
16	1PPS_OUT	O	The clock module 1PPS output
17	TOD1_TX	O	Time of day output interface, NMEA 0183, The UART has an integrated baud rate generator using 1 stop bit and no parity. The maximum baud rate of the UART port is 19200 baud
18	TOD1_RX	I	
19	TOD0_RX	I	
20	TOD0_TX	O	
21	MDC		MII CLK
22	MDIO	I/O	MII data input/output
23	OSCFSEL0	I	Oscillator frequency select pins, which set the expected local oscillator frequency
33	OSCFSEL1	I	OSCFSEL1/0=00 local oscillator frequency 20MHz OSCFSEL1/0=01 local oscillator frequency 10MHz OSCFSEL1/0=10 local oscillator frequency 12.8MHz
24	RST_N	I	Reset the clock module



26	SGMIITXP0		PTP port ,SGMII interface
27	SGMIITXN0		
28	SGMIIRXP0		
29	SGMIIRXN0		
31	FAULT	O	Fault alarm
32	LOCKED	O	State output. Output high level when the CM is locked and stable, others low level
36	125M_IN	I	125MHz SGMII CLK External Input
38	FREQ_IN	I	Clock reference input. Acceptable frequencies into the PTP module from: 1 PPS/1 Hz to 161MHz (input reference for PTP Master)
40	EXT_CLK	I	External clock , back up for the local oscillator

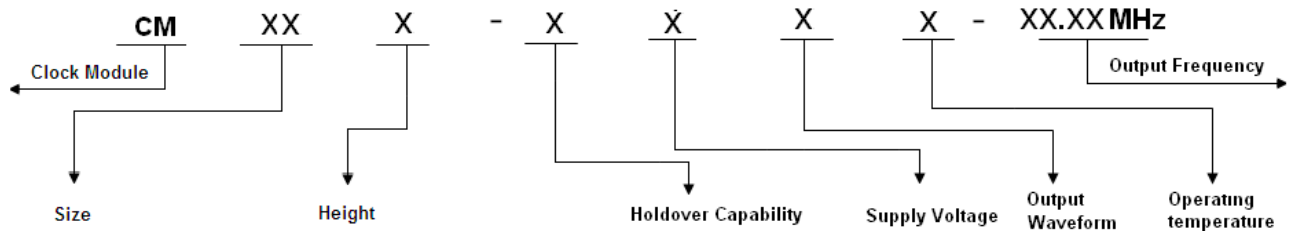
3. Application Information

Typical application 1



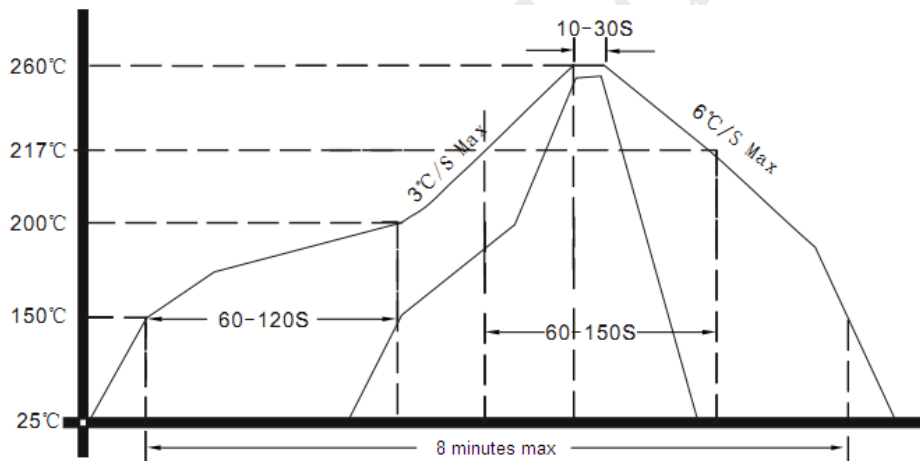


4. Coding Rules



Size	Height	Holdover Capability	Supply Voltage	Output Waveform	Operating temperature
33 34×34 (mm)	A 19mm, single Freq, external GPS receiver	A ±1.5µs ΔT=±30°C 24hours	1 5.0V	1 Sine Wave	9 -20°C~75°C
55 50×50 (mm)	B 19mm, single Freq, internal GPS receiver	B ±3.0µs ΔT=±30°C 24hours		2 HCMOS	8 -40°C~85°C
54 54×50 (mm)	C 19mm, single Freq, internal dual-mode receiver	D ±1.5µs ΔT=±5°C 24hours			
66 60×60 (mm)	F 13mm, single Freq, external GPS receiver	E ±3.0µs ΔT=±5°C 24hours			
65 65×65 (mm)	G 13mm, single Freq, internal GPS receiver	K ±1.5µs ΔT=±2°C 24hours			
77 75×75 (mm)	H 13mm, dual-Freqs, internal GPS receiver	M ±3.0µs ΔT=±2°C 24hours			
	K 13mm, single Freq, internal dual-mode receiver	S ±4.4 µs ΔT=±2°C 24hours			
	L 13mm, dual-Freqs, internal dual-mode receiver				
	P 13mm, for PTP, 1588 applications				
	T 19mm, for PTP, 1588 applications				

5. Reflow Soldering Curve (RoHS)



6. Package (mm)

