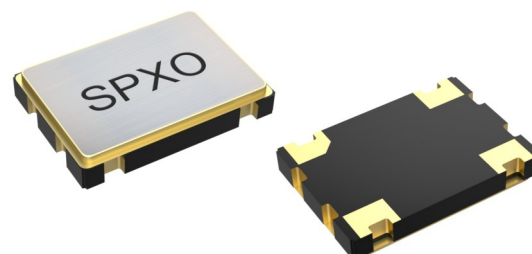


LOW POWER SMD MHz QUARTZ OSCILLATOR

SERIES "SX0-01612 / 1.8 ~ 3.3 VDC" (1.6 x 1.2 mm)

FEATURES

- + High reliability for low cost / Stand-by current 10 µA max.
- + Frequency stability to ± 20 ppm available
- + Available in 1.8, 2.5, 2.8 and 3.3 VDC
- + Low jitter for high performance
- + Tight SMD SPX0 package up to $-40/125^{\circ}\text{C}$ available



GENERAL DATA

PARAMETERS			PRODUCT FEATURES AND CONDITIONS		
SMD-OSCILLATOR SERIES			SX0-01612		
PACKAGE			Ceramic package 1.6 x 1.2 x 0.68 mm ³		
FREQUENCY RANGE			1.0 ~ 285.0 MHz (please ask if your required frequency is developed / use our configurator)		
FREQUENCY STABILITY			0/+70°C ~ -10/+60°C		±20 ~ ±100 ppm
			-20/+70°C		±20 ~ ±100 ppm
			-40/+85°C		±25 ~ ±100 ppm
			-40/+105°C		±50 ~ ±100 ppm
			-40/+125°C		±100 ppm
			±20 ppm and ±25ppm frequency stability: The frequency stability of about ±20 or ±25 ppm contains the frequency tolerance at 25°C, the temperature stability, the supply voltage change of about V _{DD} ±10% and the load change of about ±10%. The aging after first year is ±3ppm max. and has to be added.		
			>=±50ppm frequency stability: The frequency stability of about >= ±50 ppm contains the frequency tolerance at 25°C, the temperature stability, the supply voltage change of about V _{DD} ±10%, the load change of about ±10% and the aging after first year.		
AGING			The aging after first year is ±3 ppm max.		
OPERATING TEMPERATURE RANGE			-10/+60°C ~ -40/+125°C		
STORAGE TEMPERATURE RANGE			-55/+125°C		
INPUT	CURRENT	FREQUENCY	+1.8 VDC ±10%		+2.5 VDC ±10%
		0.4 ~ 32.0 MHz	3.5 mA max. (no load)		4.5 mA max. (no load)
		32.0 ~ 54.0 MHz	8.0 mA max. (no load)		10.0 mA max. (no load)
		54.0 ~ 80.0 MHz	20.0 mA max. (no load)		20.0 mA max. (no load)
		80.0 ~ 100.0 MHz	25.0 mA max. (no load)		30.0 mA max. (no load)
		>100.0 MHz	30.0 mA max. (no load)		40.0 mA max. (no load)
		FREQUENCY	+2.8 VDC ±10%		+3.3 VDC ±10%
		0.4 ~ 32.0 MHz	5.0 mA max. (no load)		8.0 mA max. (no load)
		32.0 ~ 54.0 MHz	15.0 mA max. (no load)		20.0 mA max. (no load)
		54.0 ~ 80.0 MHz	25.0 mA max. (no load)		30.0 mA max. (no load)
		80.0 ~ 100.0 MHz	30.0 mA max. (no load)		40.0 mA max. (no load)
		>100.0 MHz	40.0 mA max. (no load)		50.0 mA max. (no load)
OUTPUT	SYMMETRY	STANDARD	40/60% at 50% VDD Level		
		OPTION	45/55% at 50% VDD Level		
	RISE AND FALL TIME		5 ns max. (10 ~ 90% VDD Level) for all supply voltages		
	"0" LEVEL	CMOS	10% VDD max.		
	"1" LEVEL		90% VDD min.		
	LOAD	CMOS	15 pF max.		
RMS Jitter			1 ps max. (f ₀ offset: 12 kHz ~ 20 MHz)		
PIN1		STANDARD	WITH ENABLE / DISABLE FUNCTION		

Note:

1. The reference temperature for all specified values and tests is $+25^{\circ}\text{C}$.
2. Do not use cleaning baths operating at ultrasonic frequencies or ultrasonic welding processes.
3. Do not solder by hot air gun.

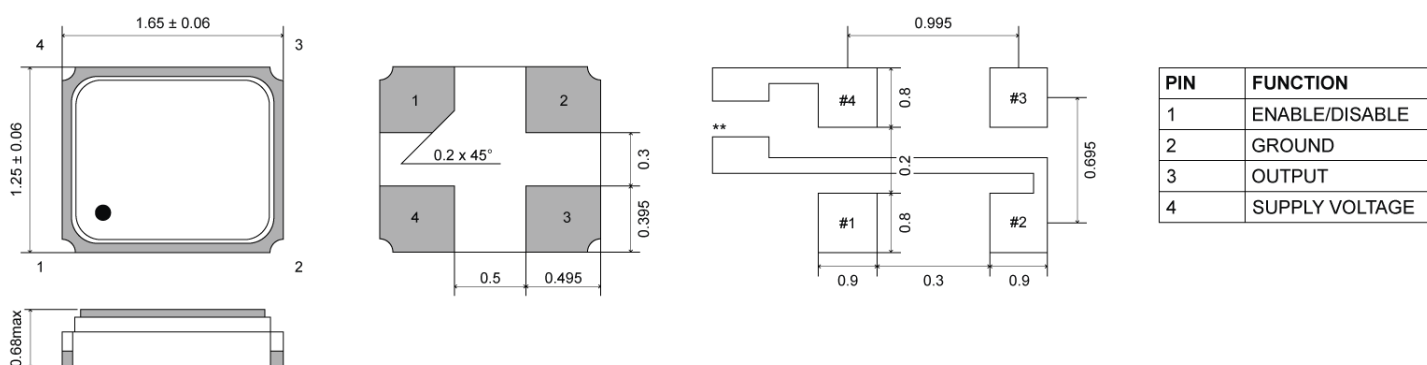
GENERAL DATA (CONTINUED)

PARAMETERS	PRODUCT FEATURES AND CONDITIONS	
ENABLE / DISABLE FUNCTION	PIN #1 (E/D CONTROL)	PIN #3 (OUPUT)
	OPEN	ACTIVE
	HIGH "1" (VIH >70%VDC)	ACTIVE
	LOW "0" (VIL <30%VDC)	HIGH IMPEDANCE
	OUTPUT DISABLE TIME	3 ms. max.
	OUTPUT ENABLE TIME	1 ms max.
	STAND-BY CURRENT 10 µA max.	
DELIVERY FORM	Tape and Reel (3.000 pcs. per reel)	
POP (EU) 2019/1021	No POP substances	
PFAS	No PFAS present	
PROP 65	Compliant to PROP 65	
TSCA	Compliant to TSCA	
RoHS	Lead free and RoHS compliant	
SELECT YOUR REQUIRED OSCILLATOR (PRODUCT CONFIGURATOR)	REQUEST OSCILLATOR SAMPLES (SAMPLE CONFIGURATOR)	

LIST OF STANDARD FREQUENCIES

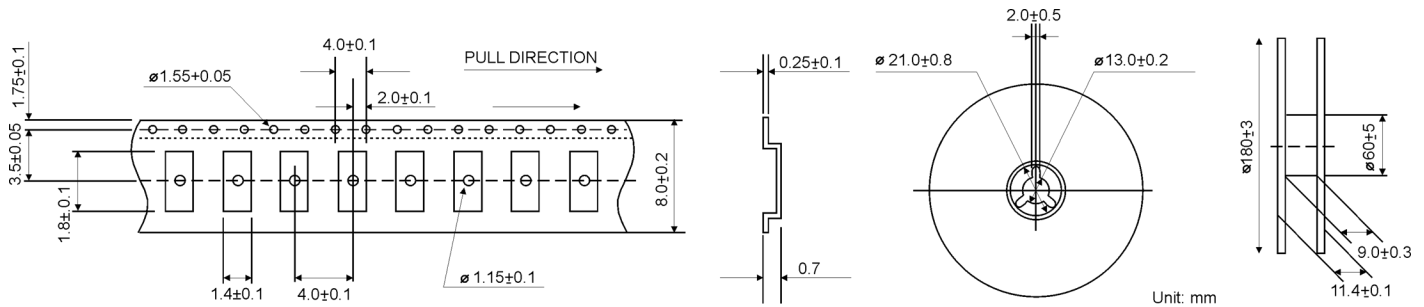
8.000 MHz	12.000 MHz	16.000 MHz	24.000 MHz	24.576 MHz	25.000 MHz	26.000 MHz	27.000 MHz
48.000 MHz	50.000 MHz						

OUTLINE DRAWING

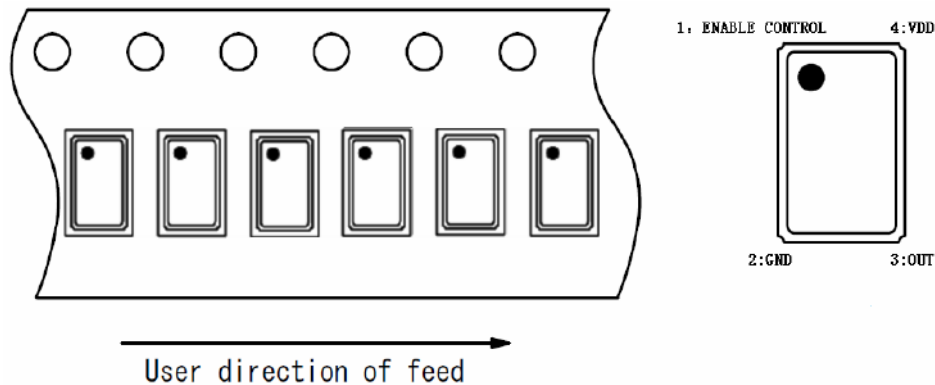


** A capacitor of value of 0.01 μ F or greater between VDD and GND is recommended.
If E/D is not required, please let #1 open. Do not connect #1 to GND.

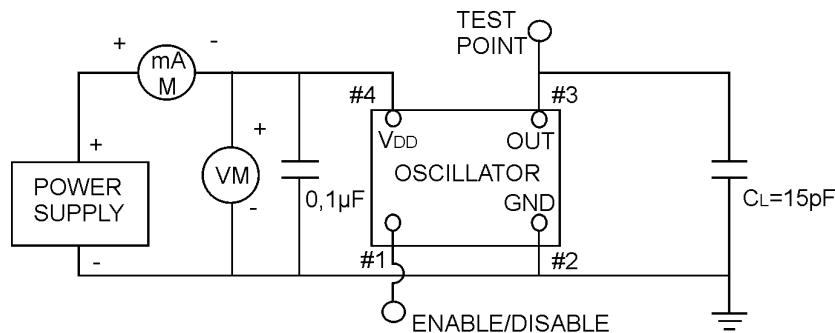
REEL SPECIFICATION



REEL SPECIFICATION (continued)

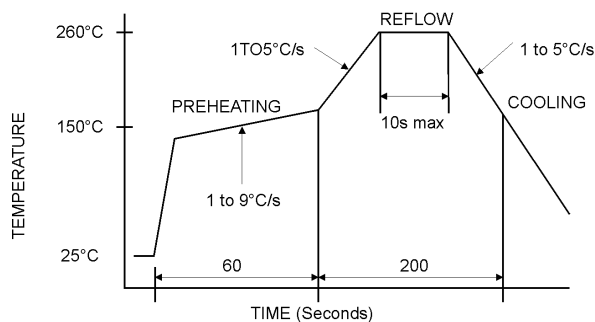


TEST CIRCUIT CMOS

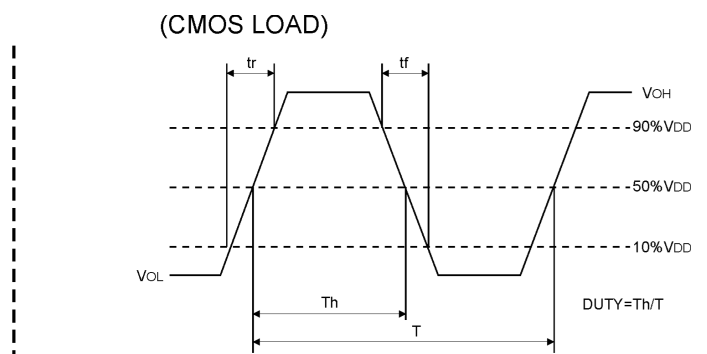


NOTE: CL includes probe and fixture capacitance

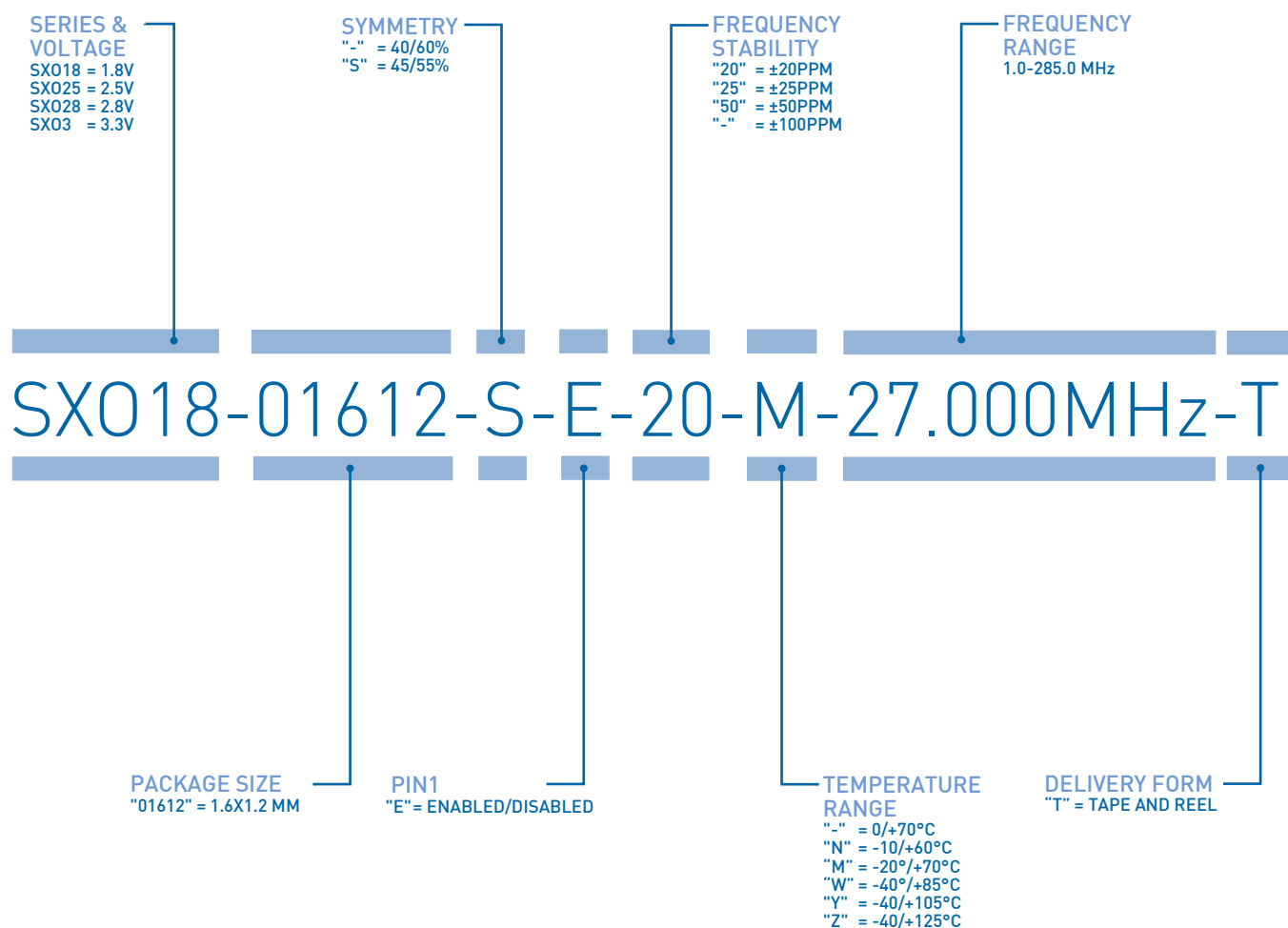
REFLOW SOLDER PROFILE



OUTPUT WAVE FORM CMOS



ORDERING INFORMATION



EXAMPLE: SX018-01612-S-E-20-M-27.000MHz-T
PLEASE INDICATE YOUR REQUIRED PARAMETERS

REVISION HISTORY

REVISION	RELEASE DATE	AMENDMENTS SUMMARY
00	MAY 2017	
01	September 2026	+ Added new standard frequencies



PREMIUM QUALITY BY PETERMANN-TECHNIK



OUR COMPANY IS CERTIFIED ACCORDING TO ISO 9001:2015 IN OCTOBER 2016 BY THE DMSZ CERTIFIKATION GMBH.

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