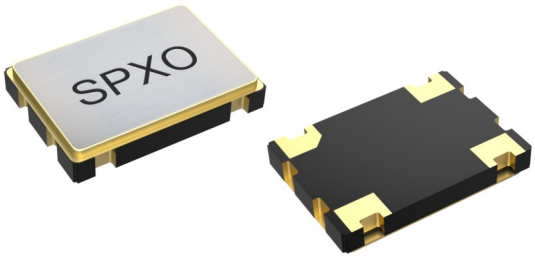
PETERMANN TECHNIK
FREQUENCY CONTROLLED PRODUCTS
ENGINEERED FOR RELIABILITY

PETERMANN-TECHNIK GmbH
Lechwiesenstr. 13 • 86899 Landsberg am Lech / Germany
Tel: +49/8191/305395 • Fax: +49/8191/305397
info@petermann-technik.de • www.petermann-technik.de

LOW POWER SMD MHz QUARTZ OSZILLATOR

SERIES "SXO-02520 / 1.8 ~ 3.3 VDC" (2.5 x 2.0 mm)

FEATURES



+ Low power version / 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 SPXO package up to –40/125°C available

GENERAL DATA

PARAMETERS			PRODUCT FEATURES AND CONDITIONS	
SMD-OSCILLATOR SERIES			SXO-02520	
PACKAGE			Ceramic package 2.0 x 2.5 x 1.0 mm³	
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	

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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)	

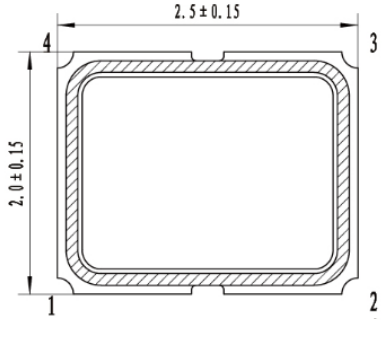
Note:
1.The reference temperature for all specified values and tests is +25°C.
2.Do not use cleaning baths operating at ultrasonic frequencies or ultrasonic welding processes.
3.Do not solder by hot air gun.

LIST OF STANDARD FREQUENCIES

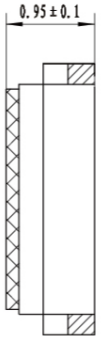
0.032768 MHz	1.0000 MHz	1.8432 MHz	2.0000 MHz	2.0480 MHz	3.579545 MHz	3.6864 MHz	4.0000 MHz
4.0960 MHz	4.3320 MHz	4.91252 MHz	6.0000 MHz	7.3728 MHz	7.6800 MHz	8.0000 MHz	8.1920 MHz
10.0000 MHz	10.7000 MHz	11.0592 MHz	11.2896 MHz	12.0000 MHz	12.2880 MHz	12.5000 MHz	13.0000 MHz
14.3181 MHz	14.7456 MHz	15.0000 MHz	16.0000 MHz	16.3840 MHz	18.4320 MHz	19.2000 MHz	20.0000 MHz
22.5792 MHz	24.0000 MHz	24.5760 MHz	24.99875 MHz	25.0000 MHz	26.0000 MHz	27.0000 MHz	27.1200 MHz
29.4912 MHz	29.9580 MHz	30.0000 MHz	32.0000 MHz	32.7680 MHz	33.0000 MHz	33.33333 MHz	37.1250 MHz
38.4000 MHz	38.880972 MHz	40.0000 MHz	44.0000 MHz	45.0000 MHz	45.1584 MHz	48.0000 MHz	49.1520 MHz
50.0000 MHz	54.0000 MHz	62.5000 MHz	64.0000 MHz	66.0000 MHz	66.6660 MHz	66.6670 MHz	68.0000 MHz
75.0000 MHz	77.7600 MHz	80.0000 MHz	100.0000 MHz	125.0000 MHz	156.2500 MHz		

OUTLINE DRAWING

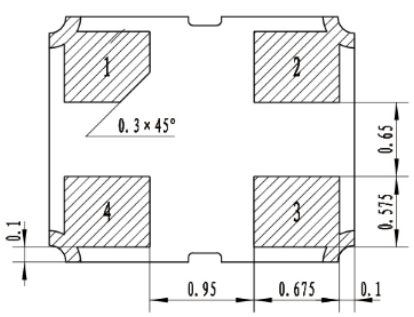
(Top View)



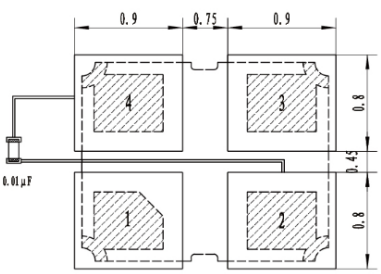
(Side View)



(Bottom View)



(Recommended Soldering Pattern)



PAD	FUNCTION
1	Enable/Disable
2	NC
3	GND
4	OUT
5	OUTN
6	VDD

Unit: mm

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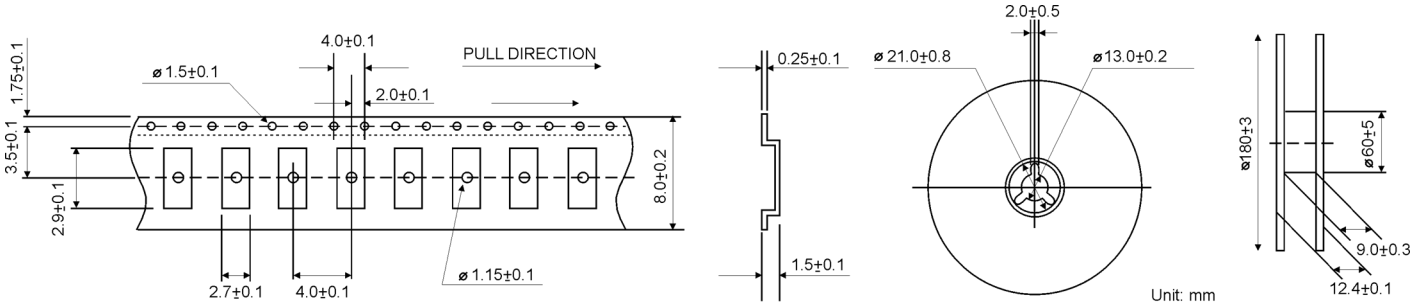
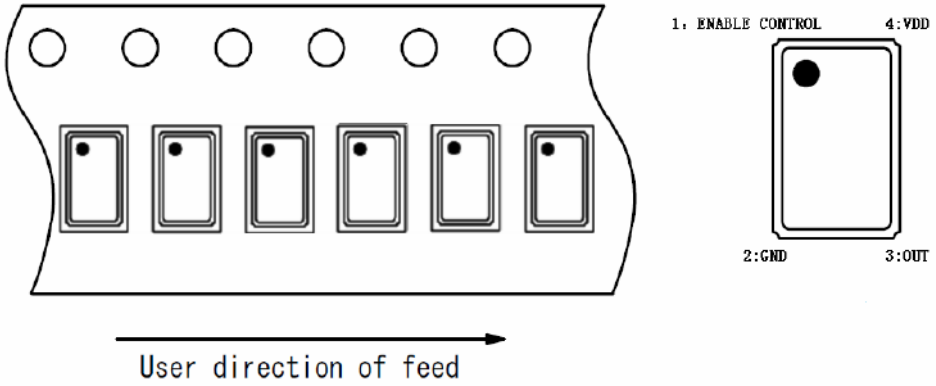
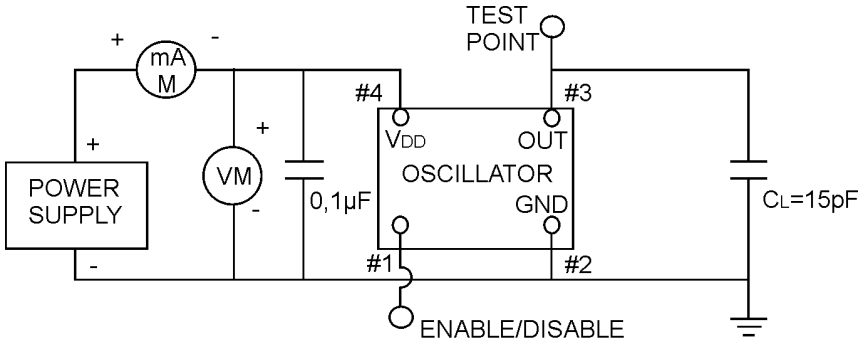
REEL SPECIFICATION



REEL SPECIFICATION (continued)

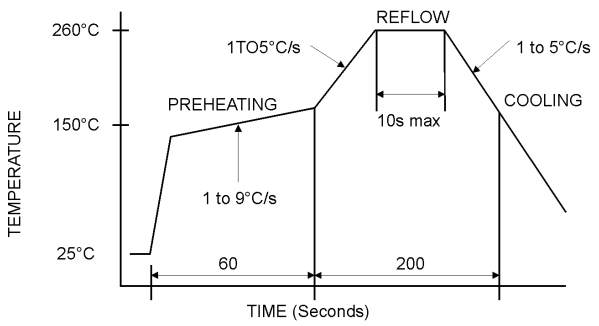


TEST CIRCUIT CMOS

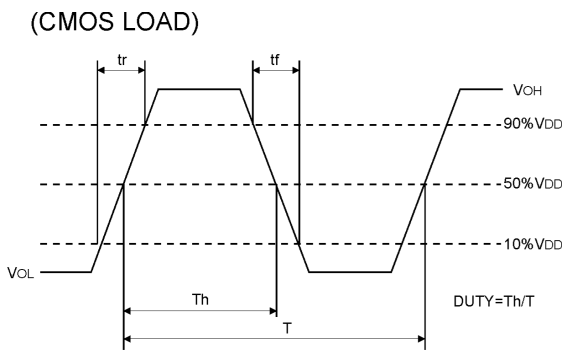


NOTE: CL includes probe and fixture capacitance

REFLOW SOLDER PROFILE



OUTPUT WAVE FORM CMOS



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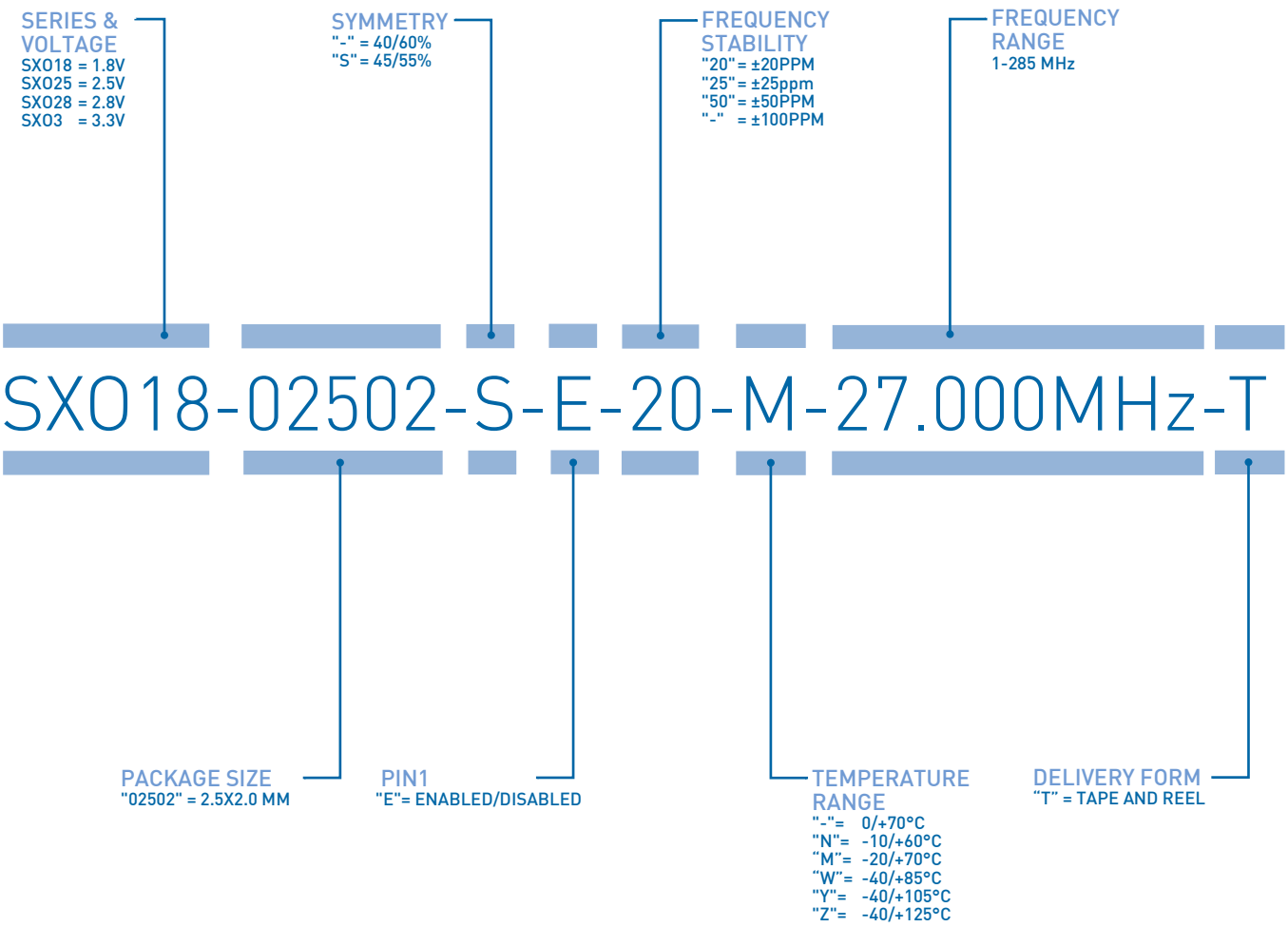
ORDERING INFORMATION



EXAMPLE: SXO18-02502-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

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PREMIUM QUALITY BY PETERMANN-TECHNIK

DMSZ certified according to ISO 9001 QM 00886

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

THIS IS FOR YOU TO ENSURE THAT THE PRINCIPLES OF QUALITY MANAGEMENT ARE FULLY IMPLEMENTED IN OUR QUALITY MANAGEMENT SYSTEM AND QUALITY CONTROL METHODS ALSO DOMINATE OUR QUALITY STANDARDS.

THE HEARTBEAT OF YOUR INNOVATION!

RELIABLE · COST-EFFECTIVE · COMPETENT

DESIGN SMARTER – EMPOWERING YOUR PRODUCTS

FOR ALMOST 30 YEARS, WE HAVE BEEN YOUR SPECIALIST FOR CRYSTALS AND OSCILLATORS – FROM PROVEN STANDARDS TO CUSTOM-TAILORED SOLUTIONS.

YOU DEVELOP WITH THE HIGHEST STANDARDS – WE DELIVER THE COMPONENTS TO MATCH: INNOVATIVE, RELIABLE, AND COST-EFFICIENT.

CHOOSE OUR PRODUCTS AND BENEFIT FROM TOP-TIER QUALITY, INNOVATION, STABLE AND INDEPENDENT SUPPLY CHAINS AND PARTNERSHIP ON HIGHEST LEVEL.

SUSTAINABLE SUCCESS FOR YOU AND YOUR PRODUCTS!

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