

XTAL

CLK OSC

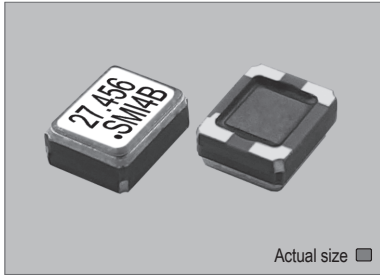
VCXO

TCXO

OCXO

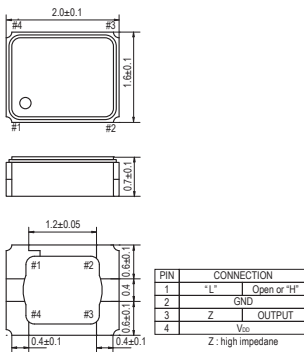
MCF

**SXO-2016ED**

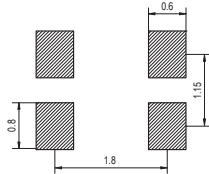


Actual size 0.0086 gm (wt.)

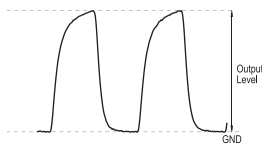
**SXO-2016ED**



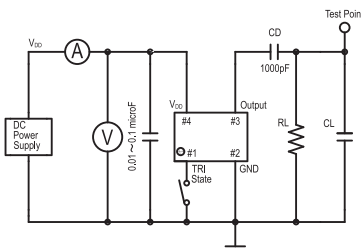
**SOLDERING PATTERN**



**OUTPUT WAVEFORM**



**TEST CIRCUIT**



CD : DC-Cut capacitance  
RL : 10kΩm ± 10%  
CL : 10pF ± 10% including fixture and probe capacitance

**STANDARD SPECIFICATIONS**

- ENABLE / DISABLE OUTPUT CONTROL
- CLIPPED SINE WAVEFORM
- PACKAGE SIZE 2.0x1.6 mm

Item	Specifications	
General part number	SXO-2016ED* <sup>1</sup>	
Frequency range	13.000 MHz to 52.000 MHz	
Initial frequency tolerance at +25°C ±2°C	± 1.5 ppm max.* <sup>2</sup>	
Frequency Stability	Temperature range	±2 ppm max. over -30°C to +85°C (referred to +25°C)
	Input voltage change	±0.1 ppm max. at V <sub>DD</sub> ±5% DC
	Output load change	±0.1 ppm max. at 10 kΩ ±10% with 10 pF ±10%
	Aging	±1 ppm max. per year at +25°C ±3°C
Operating Conditions	Operating temperature	-30°C to +85°C (Standard) -40°C to +85°C (W = Option, frequency dependent)
	Supply voltage (V <sub>DD</sub> )	D = +1.8V, F = +2.5V, H = +2.8V, J = +3.0V, K = +3.3V DC ±5%
	E/D control voltage (Pin#1)	V <sub>IH</sub> : 80% V <sub>DD</sub> min. (Enable) V <sub>IL</sub> : 20% V <sub>DD</sub> max. (Disable)
Absolute Max. Ratings	Supply voltage	-0.6V to +4.6V DC
	E/D Vcontrol voltage (Pin#1)	-0.6V to V <sub>DD</sub> +0.6V (+4.6V max.)
	Storage temperature	-40°C to +85°C
Input current	1.5 mA max. (13.000 MHz to 30.000 MHz) 1.7 mA max. (30.000 MHz to 40.000 MHz) 2 mA max. (40.000 MHz to 52.000 MHz)	
Disable current	2 µA max. (Pin#1 = V <sub>IL</sub> )	
Output (-40°C to +85°C)	Level	0.8 Vp-p min.
	Load	10 kΩ // 10 pF
	Waveform	Clipped sine wave (DC-coupling)
Harmonic distortion	-5 dBc max.	
Start-up time	2 ms max.	
SSB phase noise	-135 dBc / Hz, Typical at 1 kHz offset	
Short-term frequency stability	± 1 ppb max. (Allan variance Tau = 0.1 sec.)	
IR reflow resistance	± 1 ppm max. (referred to frequency before reflow)	
Reflow condition	+250°C ±10°C for 10 seconds +170°C ±10°C for 1 to 2 minutes (preheating)	
Standard frequencies (MHz)	16.368, 16.369, 19.200, 26.000, 27.456, 33.600, 38.400, 52.000	
Optional Operating Temperature* <sup>3</sup>	Low limit / Symbol	-10°C / g   -15°C / h   -20°C / i   -25°C / j   -30°C / k   -35°C / l   -40°C / m
	High limit / Symbol	+55°C / ff   +60°C / gg   +65°C / hh   +70°C / ii   +75°C / jj   +80°C / kk   +85°C / ll

(\*<sup>1</sup>) Final part number to be assigned with package type, input voltage, operating temperature and frequency. e.g. SXO-2016ED-H-16.368MHz

(\*<sup>2</sup>) Referred to nominal frequency before reflow soldering.

(\*<sup>3</sup>) Select "low limit" and "high limit" for new operating temperature combination from the lists.

**PACKAGE DATA**

Item	Package	SXO-2016ED
Lid		Metal
Base		Ceramic
Sealing		Seam
Terminal		Tungsten (metalized)
Terminal plating		Gold / Nickel (surface) / (under)
RoHS		Compliant (Pb-free)

**TAPE SPECIFICATIONS**

