

327SMO(F) & 327SMO(G) (+1.8V to +5.0V 32.768 kHz MODELS) 5.0x3.2 mm 7.0x5.0 mm

STANDARD SMD CLOCK OSCILLATORS

XTAL

CLK OSC

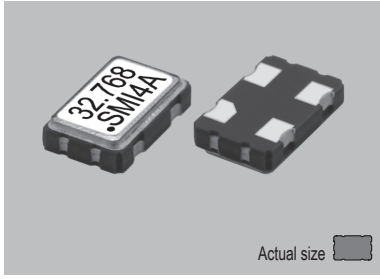
VCXO

TCXO

OCXO

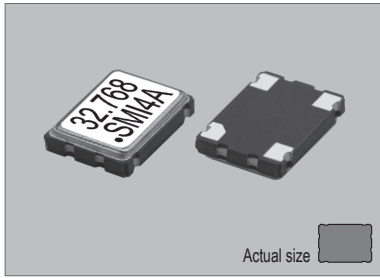
MCF

327SMO(F)

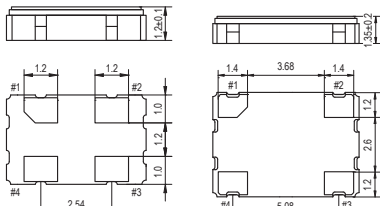
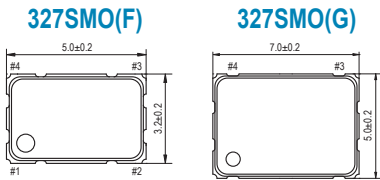


Actual size
0.0586 gm (wt.)

327SMO(G)



Actual size
0.151 gm (wt.)

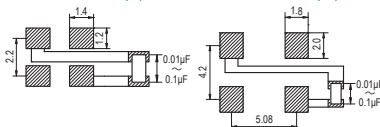


PIN	CONNECTION
1	"L" OPEN or "H"
2	GND
3	Z OUTPUT
4	V _{DD}

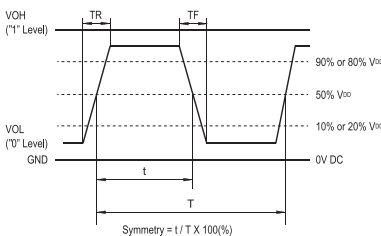
Z: high impedance

SOLDERING PATTERN

327SMO(F) 327SMO(G)



OUTPUT WAVEFORM



STANDARD SPECIFICATIONS

- 32.768 kHz CMOS OUTPUT
- HIGH STABILITY
- AT-CUT CRYSTAL BUILT-IN
- PACKAGE SIZE 5.0x3.2 & 7.0x5.0 mm

Item		Specifications	
General part number*1		327SMO(F)*1	327SMO(G)*1
Output frequency		32.768 kHz	
Frequency stability (over all conditions)		327SMO(F)C or 327SMO(G)C : ± 30 ppm over -40°C to +85°C 327SMO(F)D or 327SMO(G)D : ± 25 ppm over -40°C to +85°C	
Operating Conditions	Operating temperature	-40°C to +85°C (Standard)	
	Supply voltage (V _{DD})	+1.8V, +2.5V, +3.0V, +3.3V or +5.0V DC ±5%	
	Stand-by control voltage (Pin#1)	V _{IH} : 90% V _{DD} min. V _{IL} : 10% V _{DD} max.*2	
Absolute Max. Ratings	Supply voltage	-0.3V to +7.0V DC	
	Storage temperature	-55°C to +100°C	
Input current (Pin#1 = Open or V _{IH})		60 μA, Typical (80 μA max.) / -40°C to +85°C	
Stand-by current*2		10 μA max. (Pin #1 = V _{IL})	
Output (-40°C to +85°C)	Symmetry	45% to 55% at 1/2 V _{DD} level	
	Rise and fall times	12 ns max. (10% V _{DD} to 90% V _{DD} level)	
	"0" Level	V _{OL} : 10% V _{DD} max.	
	"1" Level	V _{OH} : 90% V _{DD} min.	
	Load	30 pF max. (CMOS)	
Disable delay time		2 μs max.	
Enable delay time		0.5 ms max.	
Start-up time		1 ms max.	
Aging		±5 ppm max. at +25°C ±3°C for first year	
Reflow condition		+250°C ±10°C for 10 seconds +170°C ±10°C for 1 to 2 minutes (preheating)	

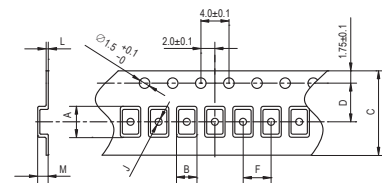
(*1) Final part number to be assigned with package type, input voltage and frequency stability.
e.g. 327SMO(3.0V)F

(*2) Internal crystal oscillation to be halted (Pin#1 = V_{IL})

PACKAGE DATA

Item	Package	327SMO(F) & 327SMO(G)
Lid		Metal
Base		Ceramic
Sealing		Seam
Terminal		Tungsten (metalized)
Terminal plating		Gold / Nickel (surface) / (under)
RoHS		Compliant (Pb-free)

TAPE SPECIFICATIONS



327SMO(F)									
A	B	C	D	F	J	L	M	Reel Dia.	Qty/Reel
5.4	3.5	12.0	5.5	8.0	1.5	0.3	1.4	180	1000pcs

327SMO(G)									
A	B	C	D	F	J	L	M	Reel Dia.	Qty/Reel
7.65	5.75	16.0	7.5	8.0	2.0	0.3	1.9	180	1000pcs

TEST CIRCUIT

