

Product	VCXO (Voltage Controlled Crystal Oscillator)	 MERCURY Since 1973
Series	G576	
Output	CMOS Square Wave	
Load	15 pF	

- RoHS compliant and Pb-free product
- Ideal choice of fundamental frequency range VCXOs (<55 MHz).
- Low cost and high performance.
- Phase noise < 132 dBc/Hz at 1 KHz offset.
- Ideal for set-top boxes, MPEG and telecommunications.



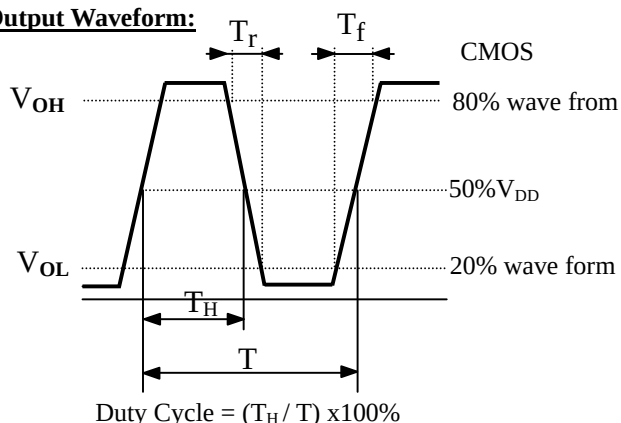
Absolute Maximum Ratings:

Parameter	Min.	Max.	Note
Supply Voltage	-0.3 V D.C.	+5.5 V D.C.	V _{DD} -V _{SS}
Input Pin Voltage	V _{SS} -0.3 V D.C.	V _{DD} +0.3 V D.C.	
Power Dissipation		100 mW	

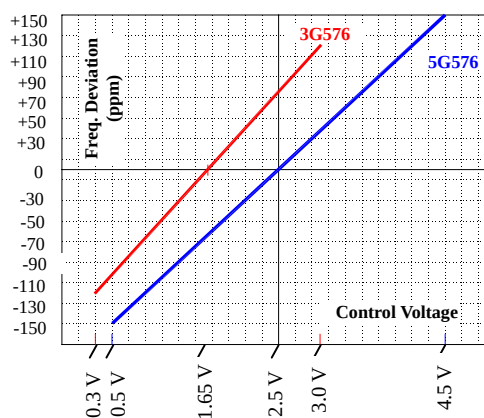
Environmental Performance Specifications

RoHS Status	RoHS Compliant and Pb (lead) free
Reflow	260°C for 10 sec. IPC/JEDEC J-STD-020C
Moisture Sensitivity Level	Level 1
Humidity	85% RH, 85°C, 48 hours
Gross and Fine Leak	Leak rate 2x10 ⁻⁸ ATM-cm ³ /sec max.
Solderability	MIL-STD-883F method 203.8
Temperature Cycling	MIL-STD-883E method 1010
Resistance to Soldering Heat	MIL-STD-202G method 210F
Resistance to Solvents	MIL-STD-202F, method 215J
Vibration	MIL-STD-883F method 2007.3A,
Shock	MIL-STD-883F method 2002.3 B,
ESD Rating	2 KV max. Human body model.
Storage Temperature	-55°C to +125°C

Output Waveform:



Frequency Deviation (positive transfer)



MERCURY

www.mercury-crystal.com

Taiwan: TEL (886)-2-2406-2779, FAX (886)-2-2496-0769, e-mail: sales-tw@mercury-crystal.com

U.S.A.: TEL (1)-909-466-0427, FAX (1)-909-466-0762, e-mail: sales-us@mercury-crystal.com

MERCURY	Page 1 of 3	Date: Oct. 1, 2006	Rev. 0
---------	-------------	--------------------	--------

General Specifications

T_A=+25°C, at specified voltage, CL=15 pF

Product Series		G576						
Input Voltage (V _{DD})		V _{DD} = +3.3 V D.C. ±10% Voltage code is “3”			V _{DD} = +5.0 V D.C. ±10% Voltage code is “5”			
Frequency Range		0.625 MHz ~ 45 MHz			1.25MHz ~ 55.2 MHz			
Circuit Design		Fundamental mode crystal used. No PLL.						
Package Type		6 pad ceramic leadless SMD. 5x7x1.8 mm.						
Initial Frequency Accuracy (at+25°C)		To tune to the nominal frequency with control voltage V _c = 1.65V±0.2V			To tune to the nominal frequency with control voltage V _c =2.5V±0.2V			
Output Voltage HIGH “1”		90% of V _{DD} min.						
Output Voltage LOW “0”		10% of V _{DD} max.						
Frequency Stability ⁽¹⁾ Commercial Temperature Range (code “C”) Industrial Temperature Range (code “I”)		“A”: ±25 ppm over 0°C to +70°C “B”:±50 ppm over 0°C to +70°C “C”:±100 ppm over 0°C to +70°C For non-standard please specify desired frequency stability after the “C”. For example “C20” is ±20 ppm over 0 to +70°C “D”:±25 ppm over -40°C to +85°C “E”:±50 ppm over -40°C to +85°C “F”:±100 ppm over -40°C to +85°C For non-standard please specify desired frequency stability after the “I”. For example “I20” is ±20 ppm over -40 to +85°C						
Current Consumption		10 mA max.			15 mA max.			
Output Load		15 pF						
Rise Time (Tr) and Fall Time (Tf)		10 n Sec. max; 4 n Sec. typical. Measured between 20% and 80% of the wave form.						
Duty Cycle		45% min. 55 % max. (measured at 50% of wave form)						
Start-up Time (Ts)		10 m Sec. max. 3 m Sec. typical						
Voltage Control Characteristics (pad No. 1)	Control Voltage Range		+0.3 V to +3.0 V			+0.5 V to +4.5 V		
	Control Voltage Center (V _c)		+1.65 V			+2.5 V		
	Frequency Deviation Range		From ±30 ppm to ±120 ppm.			From ±30 ppm to ±150 ppm.		
			To define the deviation range please use “N” for minimum (no less than the deviation specified); “M” for maximum (no more than the deviation specified) “T” for typical (±20% of the range specified).					
	Linearity		10% max.; 6% typical					
	Slope Polarity (Transfer Function)		Positive: Increasing control voltage increases output frequency.					
	Modulation Bandwidth		10 kHz min. measured at -3 dB with Vcon=1.65V for 3G576 and Vcon=2.5V for 5G576					
	Input Impedance		1 MΩ. typical					
Tri-State Control Characteristics		Output is enabled when no connection or ≥1.6 V is applied to pad 2 or pad 5						
		Output is disabled and high impedance when ≤0.55 V is applied to pad 2 or pad 5. Pad 2 and pad 5 are internally connected.						
Aging		±5 ppm per year max.						
Phase Noise	Offset	10 Hz	100 Hz	1 KHz	10 KHz	100 KHz	1 MHz	
	dBc/Hz	-70	-105	-132	-142	-145	-150	
Integrated Phase Jitter		1 ps max. 12 KHz ~20 MHz						
Period Jitter – RMS		2 ps typical						
Period Jitter – peak to peak		14 ps typical						
Packaging		180 mm reel, 16 mm tape, 1000 pcs per reel.						

⁽¹⁾Inclusive of 25°C calibration tolerance, stability over operating temperature range, ±10% supply voltage variation, ±10% load variation, aging, shock and vibration.

Part Number Format and Example:

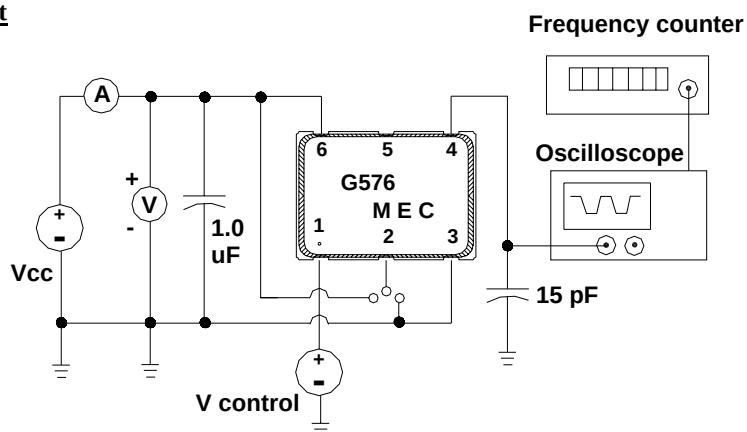
Example: 3G576A-100N-35.328

Explanation: +3.3V G576 series VCXO, 35.328 MHz, frequency stability is ± 25 ppm over 0°C to $+70^{\circ}\text{C}$, frequency deviation range is ± 100 ppm minimum.

3	G576	A	—	100	N	—	35.328	⌀: customer to specify
①	②	③		④	⑤		⑥	

①: Voltage code: “3” for +3.3 V; ②: G576 product series ③: Frequency stability code: “A” ~ “F” or custom. See table above. ④: Frequency deviation range in ppm; ⑤: Deviation range code: “N” is minimum; “M” for maximum; “T” for typical ($\pm 20\%$); ⑥: VCXO Frequency in MHz

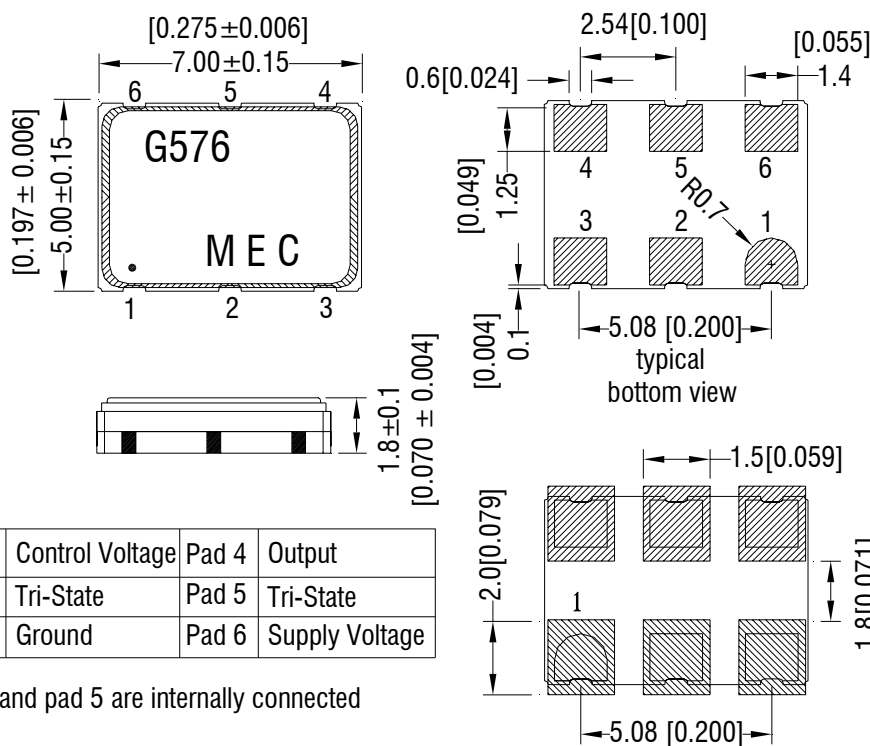
G576 Test Circuit



Package Dimensions and suggested Pad Layout::

unit: mm [inches]

For proper power line filtering, a 0.01 uF ceramic decoupling capacitor is required between the V_{DD} and ground. For better performance, add a 0.1 uF tantalum capacitor in parallel with the 0.01 uF.



Rounded pad is pad No. 1. Count counter-clockwise when looking at top view.
Count clockwise when looking at bottom view.