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

MERCURY
Since 1973

- 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 telecommunicnations.

RoHS Compliant Product by Mercury

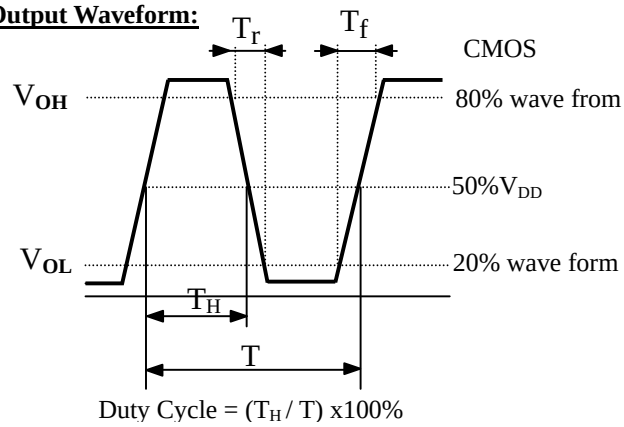
Absolute Maximum Ratings:

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

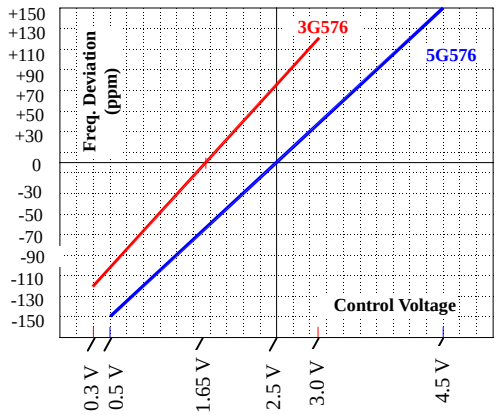
RoHS Status	RoHS Compliant and Pb (lead) free
Reflow	260°C for 10 sec. IPC/JEDEC J-STD-020C
Moisture Sensitivity Level	Level 1
Humidity	85% RH, 85°C, 48 hours
Gross and Fine Leak	Leak rate $2x10^{-8}$ ATM-cm^3/sec max.
Solderability	MIL-STD-883F method 203.8
Temperature Cycling	MIL-STD-883E method 1010
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:



Duty Cycle = (T_H / T) x100%

Frequency Deviation (postive transfer)



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General Specifications

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

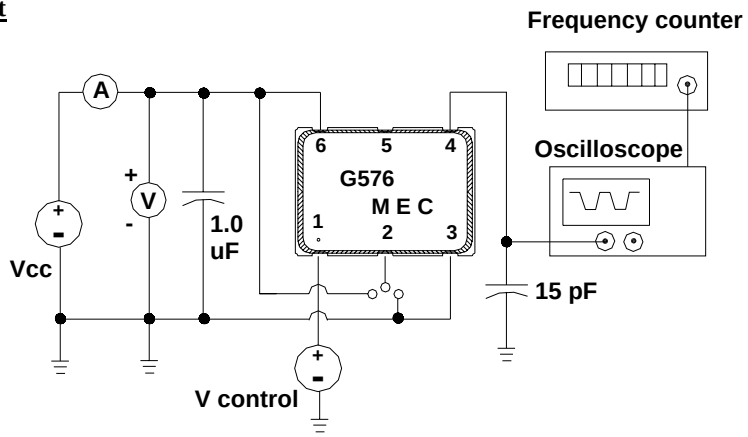
Product Series		**G576**					
Input Voltage (V_{DD})		V_{DD} = +3.3 V D.C. ±10% Voltage code is"**3**"			V_{DD} = +5.0 V D.C. ±10% Voltage code is "**5**"		
Frequency Range		0.625 MHz ~ 45 MHz			1.25MHz ~ 55.2 MHz		
Circuit Design		Fundamental mode crystal used. No PLL.					
Package Type		6 pad ceramic leadless SMD. 5x7x1.8 mm.					
Initial Frequency Accuracy (at+25°C)		To tune to the nominal frequency with control voltage Vc = 1.65V±0.2V			To tune to the nominal frequency with control voltage Vc =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")		"**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					
Industrial Temperature Range (code "I")		"**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 (Vc)	+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:

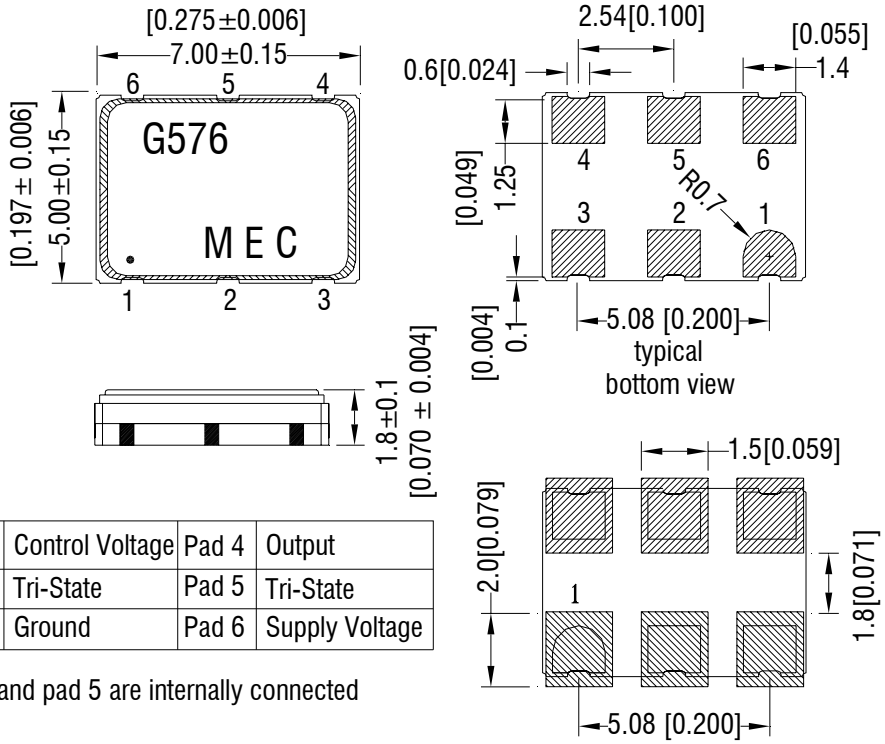
Example: 3G576A-100N-35.328 **Explanation**: +3.3V G576 series VCXO, 35.328 MHz, frequency stability is ±25 ppm over 0°C to +70°C, frequency deviation range is ±100 ppm minimum.								
✍		✍		✍	✍		✍	✍: customer to specify
3	G576	A	—	100	N	—	35.328	
❶	❷	❸		❹	❺		❻	
❶: Voltage code: "**3**" for +3.3 V; ❷: G576 product series ❸: Frequency stability code: "**A**" ~ "**F**" or custom. See table above. ❹: Frequency deviation range in ppm; ❺: Deviation range code: "N" is minimum; "M" for maximum; "T" for typical (±20%); ❻: 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.



Pad 1	Control Voltage	Pad 4	Output
Pad 2	Tri-State	Pad 5	Tri-State
Pad 3	Ground	Pad 6	Supply Voltage

Pad 2 and pad 5 are internally connected

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