


Product	VCXO (Voltage Controlled Crystal Oscillator)	 MERCURY Since 1973
Series	GV576	
Output	CMOS Square Wave	
Load	15 pF	

- RoHS compliant and Pb-free product
- Up to 200 MHz from low phase noise and low jitter PLL.
- Low cost and high performance.
- Ideal for ADSL and SONET.



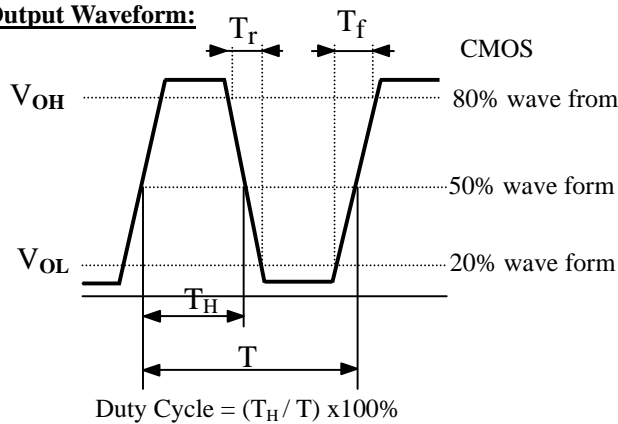
Absolute Maximum Ratings:

Parameter	Min.	Max.	Note
Supply Voltage	-0.3 V D.C.	+4.6 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	

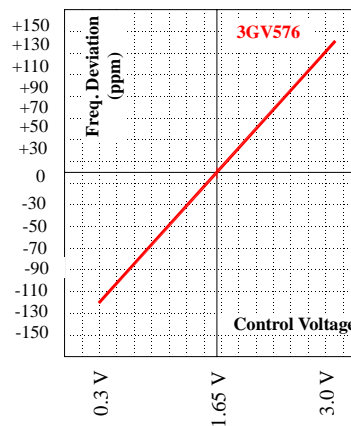
Environmental Performance Specifications

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

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

General Specifications

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

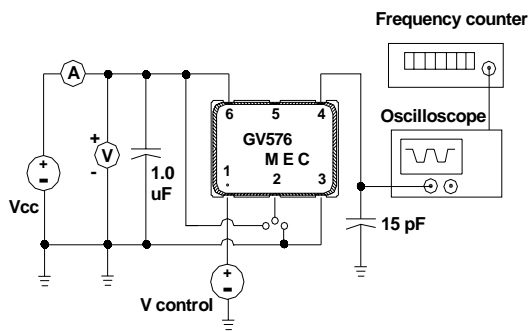
Product Series		GV576						
Input Voltage (V_{DD})		V _{DD} = +3.3 V D.C. ±10%. Voltage code is "3"						
Frequency Range		12 MHz ~ 200 MHz						
Circuit Design		Low phase noise low jitter PLL.						
Package Type		6 pad ceramic leadless SMD. 5x7x1.8 mm.						
Initial Frequency Accuracy (at+25°C)		To tune to the nominal frequency with control voltage V _c = 1.65V±0.2V						
Output Voltage HIGH "1"		90% of V _{DD} min.						
Output Voltage LOW "0"		10% of V _{DD} max.						
Frequency Stability⁽¹⁾		"A": ±25 ppm over 0°C to +70°C						
Commercial Temperature Range (code "C")		"B": ±50 ppm over 0°C to +70°C						
Industrial Temperature Range (code "I")		"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		<24 MHz: 15 mA max.; 24~96 MHz: 30 mA max.; >96 MHz: 40 mA max.						
Output Load		15 pF						
Rise Time (Tr) and Fall Time (Tf)		5 n sec. max; 3 n sec. typical. 15 pF load. Measured between 20% and 80% of the wave form.						
Duty Cycle		45% min. 55 % max. (measured at 50% of the 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						
	Control Voltage Center (Vc)	+1.65 V						
	Frequency Deviation Range	From ±50 ppm to ±120 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	25 kHz min. measured at -3 dB with Vcon=1.65V							
Input Impedance	2 MΩ. typical							
Tri-State Control Characteristics		Output is enabled when no connection or ≥0.9 V _{DD} is applied to pad 2 or pad 5. Pad 2 and pad 5 are internally connected. Enable time is 100 n sec max.						
		Output is disabled and high impedance when ≤0.1V _{DD} is applied to pad 2 or pad 5. Pad 2 and pad 5 are internally connected. Disable time is 100 n sec max.						
Aging		±5 ppm per year max.						
Phase Noise (measured with Vcon =0 V)	Offset	10 Hz	100 Hz	1 KHz	10 KHz	100 KHz	1 MHz	10 MHz
	dBc/Hz (77.760 MHz)	-72	-100	-123	-130	-125	-125	-143
	dBc/Hz (155.520 MHz)	-65	-95	-120	-128	-122	-120	-140
Jitter	Integrated Phase Jitter (12 KHz~20 MHz)	77.760 MHz			155.520 MHz			
		2.7 ps typical			2.3 ps typical.			
	Period Jitter – RMS	3.5 ps typical			4.0 ps typical			
	Period Jitter – peak to peak	25 ps typical			27 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:

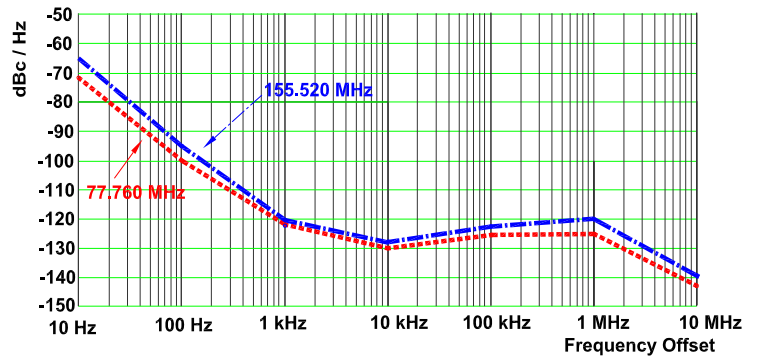
Example: 3GV576A-100T-77.760							
Explanation: +3.3V GV576 series VCXO, 77.760 MHz, frequency stability is ± 25 ppm over 0°C to +70°C, frequency deviation range is ± 100 ppm typical ($\pm 20\%$).							
3	GV576	A	—	100	T	—	77.760
①	②	③		④	⑤		⑥
<p>①: Voltage code: “3” for +3.3 V; ②: GV576 product series 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</p>							

GV576 Test Circuit



Phase Noise:

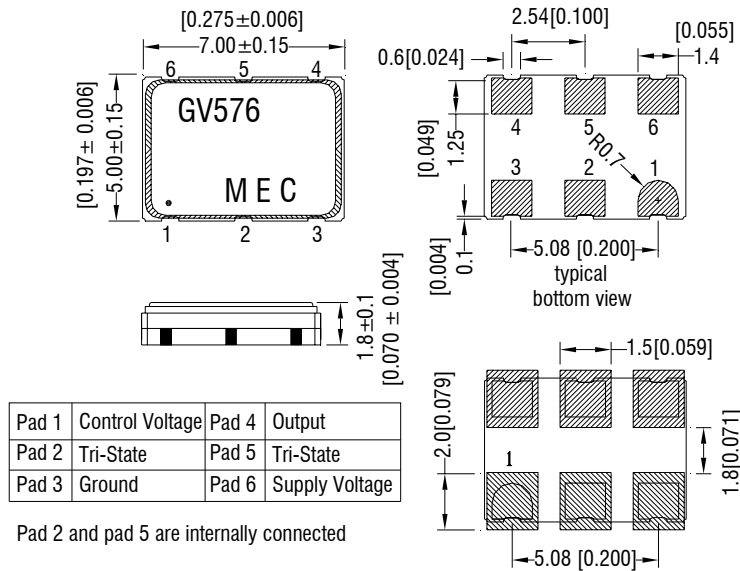
Typical value.



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.