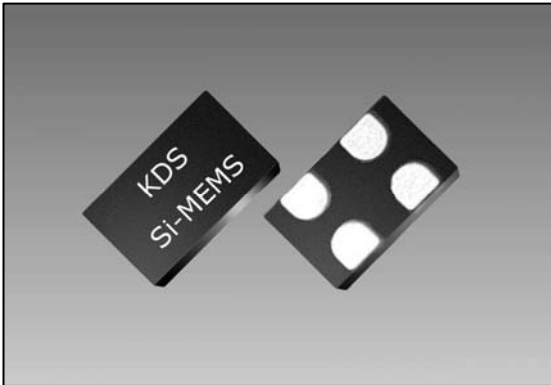


MO1602



■ Features

- 52 standard frequencies between 3.57 MHz and 77.76 MHz
- Industry-standard packages:
2.0 x 1.6, 2.5 x 2.0, 3.2 x 2.5, 5.0 x 3.2, 7.0 x 5.0 mm
- Excellent total frequency stability as low as $\pm 20 \times 10^{-6}$
- Low power consumption of +3.5 mA typical at $f = 20$ MHz, $V_{dd} = +1.8V$



■ Applications

- Ideal for DSC, DVC, DVR, IP CAM, Tablets, e-Books, SSD, GPON, EPON etc.
- Ideal for high-speed serial protocols such as:
USB, SATA, SAS, Firewire, 100M/1G/10G Ethernet, etc.



■ Standard Specification

Item	symbol	Min.	Typ.	Max.	Unit	Condition
Output Frequency Range	f	3.57	-	77.76	MHz	Refer to datasheet for exact list of supported frequencies
Supply Voltage	V _{dd}	+1.62	+1.8	+1.98	V	
		+2.25	+2.5	+2.75		
		+2.52	+2.8	+3.08		
		+2.7	+3.0	+3.3		
		+2.97	+3.3	+3.63		
		+2.25	-	+3.63		
Operating Temperature Range	T _{use}	-20	-	+70	°C	Extended Commercial
		-40	-	+85		Industrial
Frequency Stability	F _{stab}	-20	-	+20	$\times 10^{-6}$	Inclusive of initial tolerance at +25°C, 1st year aging at +25°C, and variations over operating temperature, rated power supply voltage and load.
		-25	-	+25		
		-50	-	+50		
		-	-	+50		
Current Consumption	I _{dd}	-	+3.8	+4.5	mA	No load condition, $f = 20$ MHz, $V_{dd} = +2.8V$ to $+3.3V$
		-	+3.7	+4.2		No load condition, $f = 20$ MHz, $V_{dd} = +2.5V$
		-	+3.5	+4.1		No load condition, $f = 20$ MHz, $V_{dd} = +1.8V$
OE Disable Current	I _{od}	-	-	+4.2	mA	$V_{dd} = +2.5V$ to $+3.3V$, OE = GND, output is Weakly Pulled Down
		-	-	+4.0		$V_{dd} = 1.8V$, OE = GND, output is Weakly Pulled Down
Standby Current	I _{std}	-	+2.6	+4.3	μA	$\overline{ST} = GND$, $V_{dd} = +2.8V$ to $+3.3V$, Output is weakly pulled down
		-	+1.4	+2.5		$\overline{ST} = GND$, $V_{dd} = +2.5V$, Output is weakly pulled down
		-	+0.6	+1.3		$\overline{ST} = GND$, $V_{dd} = +1.8V$, Output is weakly pulled down
Duty Cycle	DC	45	-	55	%	All V _{dds}
Output Low Voltage	V _{OL}	-	-	V _{dd} x 0.1	V	I _{OL} = +4.0 mA ($V_{dd} = +3.0V$ or $+3.3V$) I _{OL} = +3.0 mA ($V_{dd} = +2.8V$ and $V_{dd} = +2.5V$) I _{OL} = +2.0 mA ($V_{dd} = +1.8V$)
Output High Voltage	V _{OH}	V _{dd} x 0.9	-	-	V	I _{OH} = -4.0 mA ($V_{dd} = +3.0V$ or $+3.3V$) I _{OH} = -3.0 mA ($V_{dd} = +2.8V$ and $V_{dd} = +2.5V$) I _{OH} = -2.0 mA ($V_{dd} = +1.8V$)
Rise/Fall Time	Tr, Tf	-	1.0	2.0	ns	$V_{dd} = +2.5V, +2.8V, +3.0V$ or $+3.3V, 20\% - 80\%$
		-	1.3	2.5		$V_{dd} = +1.8V, 20\% - 80\%$
		-	-	2.0		$V_{dd} = +2.25V - +3.63V, 20\% - 80\%$
Input Low Voltage	V _{IL}	-	-	V _{dd} x 0.3	V	Pin 1, OE or \overline{ST}
Input High Voltage	V _{IH}	V _{dd} x 0.7	-	-	V	Pin 1, OE or \overline{ST}
Startup Time	T _{start}	-	-	5.0	ms	Measured from the time V _{dd} reaches its rated minimum value
Enable/Disable Time	T _{oe}	-	-	138	ns	$f = 77.76$ MHz. For other frequencies, T _{oe} = 100 ns + 3 * cycles
Resume Time	T _{resume}	-	-	5.0	ms	Measured from the time \overline{ST} pin crosses 50% threshold
RMS Period Jitter	T _{jitt}	-	1.8	3.0	ps	$f = 75$ MHz, $V_{dd} = +2.5V, +2.8V, +3.0V$ or $+3.3V$
		-	1.8	3.0		$f = 75$ MHz, $V_{dd} = +1.8V$
Peak-to-peak Period Jitter	T _{pk}	-	12	25	ps	$f = 75$ MHz, $V_{dd} = +2.5V, +2.8V, +3.0V$ or $+3.3V$
		-	14	30		$f = 75$ MHz, $V_{dd} = +1.8V$
RMS Phase Jitter (random)	T _{phj}	-	0.5	0.9	ps	$f = 75$ MHz, Integration bandwidth = 900 kHz to 7.5 MHz
		-	1.3	2.0		$f = 75$ MHz, Integration bandwidth = 12 kHz to 20 MHz

Consult our sales representative for other specifications.

MO1602

■ Dimensions and Patterns

Package Size – Dimensions (Unit: mm) ^[1]	Recommended Land Pattern (Unit: mm) ^[2]										
<p>2.0 x 1.6 x 0.75 mm</p> <p style="text-align: right; margin-top: 10px;">Pin Connections</p> <table border="1" style="margin-left: auto; margin-right: 0;"> <tr><th>Pin No.</th><th>Connection</th></tr> <tr><td>#1</td><td>OE/ST</td></tr> <tr><td>#2</td><td>GND</td></tr> <tr><td>#3</td><td>Output</td></tr> <tr><td>#4</td><td>Vdd</td></tr> </table>	Pin No.	Connection	#1	OE/ST	#2	GND	#3	Output	#4	Vdd	
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<p>5.0 x 3.2 x 0.75 mm</p> <p style="text-align: right; margin-top: 10px;">Pin Connections</p> <table border="1" style="margin-left: auto; margin-right: 0;"> <tr><th>Pin No.</th><th>Connection</th></tr> <tr><td>#1</td><td>OE/ST</td></tr> <tr><td>#2</td><td>GND</td></tr> <tr><td>#3</td><td>Output</td></tr> <tr><td>#4</td><td>Vdd</td></tr> </table>	Pin No.	Connection	#1	OE/ST	#2	GND	#3	Output	#4	Vdd	
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MO1602

■ Dimensions and Patterns

Package Size – Dimensions (Unit: mm) ^[1]	Recommended Land Pattern (Unit: mm) ^[2]										
<p>7.0 x 5.0 x 0.90 mm</p> <table border="1" data-bbox="643 674 810 772"> <caption>Pin Connections</caption> <thead> <tr> <th>Pin No.</th> <th>Connection</th> </tr> </thead> <tbody> <tr> <td>#1</td> <td>OE/ST</td> </tr> <tr> <td>#2</td> <td>GND</td> </tr> <tr> <td>#3</td> <td>Output</td> </tr> <tr> <td>#4</td> <td>Vdd</td> </tr> </tbody> </table>	Pin No.	Connection	#1	OE/ST	#2	GND	#3	Output	#4	Vdd	
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#4	Vdd										

Notes:

1. Top marking: Y denotes manufacturing origin and XXXX denotes manufacturing lot number. The value of "Y" will depend on the assembly location of the device.
2. A capacitor of value 0.1 μ F between Vdd and GND is required