

**Programmable HCMOS Oscillator**

**Spread Spectrum** CSSC

- **LVTTL Compatible**
- **Cost Effective EMI Reduction**
- **Center Spread  $\pm 0.25\%$   $\pm 2\%$**
- **Down Spread  $-0.50\%$  -  $4\%$**
- **Immediate Delivery**



- Copiers
- LAN
- Printers, Scanners
- Industrial Automation
- Consumer Electronics

**Part Numbering Example: CSSC C 7 L Z - A5 B6 - XXX.XXXX TS C**

SERIES	STYLE	VOLTAGE	PACKAGING	OPERATING TEMP.	STABILITY	FREQUENCY	TRI-STATE	SPREAD SPECTRUM
CSSC	5 = 5 X 3.2 7 = 5 X 7	L = 3.3 V S = 2.5 V	Blank = Bulk T = Tube Z = T & R	Blank = 0°C +70°C A5 = -20°C +70°C A7 = -40°C +85°C	B6 = $\pm 100$ ppm BP = $\pm 50$ ppm	1.500~200.000 MHz	TS = Tri-State	C = Center Spread D = Down Spread

**Specifications:**

Description	Min	Typ	Max	Unit
<b>Frequency Range:</b> Programmable to Any Discrete Frequency	1.500		200.000	MHz
<b>Available Stability Options:</b>	-100 -50 -25		100 50 25	ppm ppm ppm
<b>Supply Voltage Options:</b> (1.5–166 MHz) (1.5–200 MHz)	2.25 3.0	2.5 3.3	2.75 3.6	V V
<b>Operating Temperature Range Options:</b>	0 -20 -40		+70 +70 +85	°C °C °C
<b>Storage Temperature:</b>	-55		+125	°C
Aging (PPM/Year) Ta=25C, Vdd=3.3V/2.5V			$\pm 5$	
<b>Output Level:</b>	HCMOS			
<b>Packaging:</b>	Tape and Reel (1K per Reel) Tube			

**Operating Conditions:**

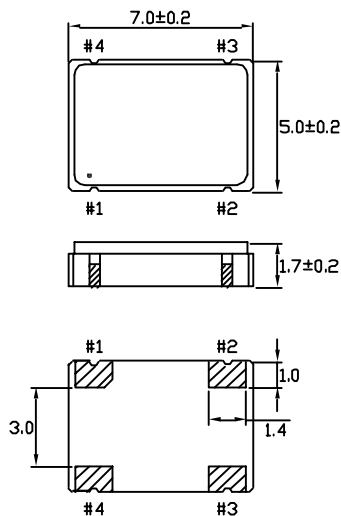
Description	Min	Max	Unit
Vdd Supply Voltage	2.25	3.6	V
Vdd Rise Time	100		$\mu$ S
HCMOS Max Capacitive Load on outputs for CMOS levels Frequency: < 40 MHz Frequency: 40–200 MHz		30 15	pF pF



- *LVTTL Compatible*
- *EMI Reduction*
- *Center Spread  $\pm 0.25\%$   $\pm 2\%$*
- *Down Spread  $-0.50\%$   $-4\%$*
- *Immediate Delivery*

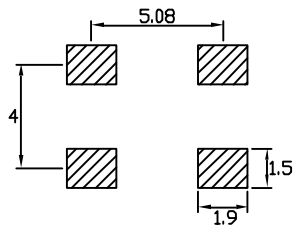
YYYY	Center Spread		YYYY		Down Spread
0250	$\pm 0.25$		500		-0.5
0500	$\pm 0.5$		1000		-1.0
0750	$\pm 0.75$		1500		-1.5
1000	$\pm 1.0$		2000		-2.0
1500	$\pm 1.5$		3000		-3.0
2000	$\pm 2.0$		4000		-4.0

**Style 7 5x7 Ceramic SMD**

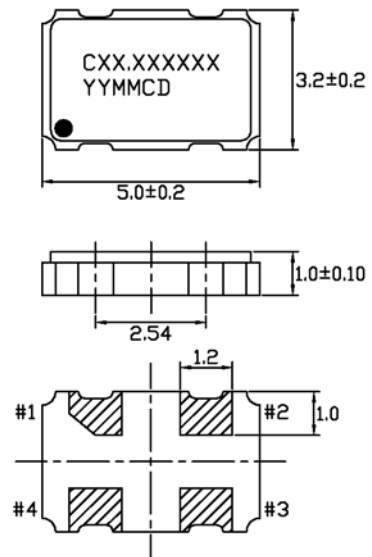


**PIN FUNCTION**  
 1 CONTROL  
 2 GND  
 3 OUTPUT  
 4 Vdd

**Recommended Solder Pad Layout**

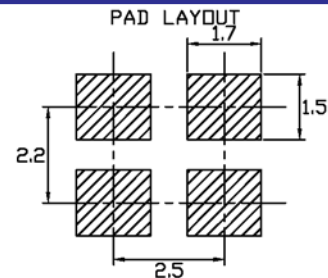


**Style 5 5x3.2 Ceramic SMD**



**PIN FUNCTION**  
 1 CONTROL  
 2 GND  
 3 OUTPUT  
 4 Vdd

**Recommended Solder Pad Layout**



*Note: Bypass Vdd to GND with a 0.01  $\mu$ F capacitor*

- *LVTTL Compatible*
- *EMI Reduction*
- *Center Spread* ±0.25% ± 2%
- *Down Spread* - 0.50% - 4%
- *Immediate Delivery*



**Electrical Characteristics**

Description	TEST CONDITIONS	Min	Typ	Max	Unit
<b>Input Characteristics (Pin 1):</b> V <sub>IL</sub> , Low-Level Input Voltage TO DISABLE OUTPUT	3.0–3.6V V <sub>dd</sub>			0.2V <sub>dd</sub>	V
V <sub>IH</sub> , High-Level Input Voltage TO ENABLE OUTPUT OR NO CONNECT	3.0–3.6V V <sub>dd</sub>	0.7V <sub>dd</sub>			V
I <sub>IL</sub> , Input Low Current I <sub>IH</sub> , Input High Current	V <sub>IN</sub> = 0V V <sub>IN</sub> = V <sub>dd</sub>			80 10	μA μA
<b>Output Characteristics:</b> V <sub>OL</sub> , Low-Level Output Voltage	3.0V–3.6V V <sub>dd</sub> , 8 mA I <sub>oL</sub>			0.4	V
V <sub>OHC</sub> MOS, High-level HCMOS Voltage	2.25V–3.6V V <sub>dd</sub> , -8 mA I <sub>oL</sub>	V <sub>dd</sub> -0.4			V V
<b>Power Supply Current:</b> (unloaded)	2.25–3.6 V <sub>dd</sub> , OUTPUT FREQ ≤ 200 MHz			35	mA
<b>Tristate internal Pull-Up Res:</b>	Output active when high		1 M		ohm
<b>Tri-State Leakage Current:</b>	3.6V V <sub>dd</sub>		20		μA
<b>Output Enable Mode:</b>	Output is Tri-States				

**Output Clock Switching Characteristics**

Description	TEST CONDITIONS	Min	Typ	Max	Unit
<b>Duty Cycle:</b> HCMOS @ V <sub>dd</sub> /2	2.25 V – 3.6V V <sub>dd</sub>	45		55	%
<b>Output Clock Rise/Fall:</b>	0.2–0.8V <sub>dd</sub> , 2.25–3.6 V <sub>dd</sub> , C <sub>L</sub> = 30 0.2–0.8V <sub>dd</sub> , 2.25–3.6 V <sub>dd</sub> , C <sub>L</sub> = 15			4.0 2.4	nS nS
<b>Start Up Time:</b>	From power on		3	10	mS
<b>RMS Cycle to Cycle Jitter</b>	@ > 20 MHz			13	pS
<b>pk-pk cycle to cycle jitter</b>	@ > 20 MHz			140	pS

