



**FEATURES**

- Standard 7.0mm x 5.0mm 4-Pad Surface Mount Package
- HCMOS/TTL Compatible Output
- Fundamental and 3<sup>rd</sup> Overtone Crystal Designs
- Frequency Range 1 – 200 MHz
- Frequency Stability  $\pm 50$  ppm Standard,  $\pm 25$  ppm and  $\pm 20$  ppm Available
- Operating Voltages +5.0Vdc or +3.3Vdc
- Operating Temperature to -40°C to +85°C
- Output Enable Standard
- Tape & Reel Packaging
- **RoHS/Green Compliant (6/6)**



**APPLICATIONS**

Applications for Model CB3 and CB3LV include digital video, networking equipment, wireless communications, broadband access, Ethernet/Gigabit Ethernet, microprocessors/DSP/FPGA, storage area networks, fiber channel, computers and peripherals, test and measurement, SONET/SDH/DWDM, base stations and Pico cells.

**ORDERING INFORMATION**



- 1] 6I Stability/Temperature combination is not available.
- 2] These stabilities are not recommended for new designs.
- 3] Frequency is recorded with only leading significant digits before the 'M' and 4 - 6 significant digits after the 'M' (including zeros).  
[Ex. 3.579545 MHz, code as 3M579545; 14.31818 MHz, code as 14M31818; 125 MHz, code as 125M0000]
- 4] CTS Distributors may add a -T or -1 at the end of the part number to indicate Tape and Reel packaging.

**Not all performance combinations and frequencies may be available.**  
**Contact your local CTS Representative or CTS Customer Service for availability.**

**PACKAGING INFORMATION [reference]**

Device quantity is 1,000 pieces maximum per reel.



**ELECTRICAL CHARACTERISTICS**

| PARAMETER              | SYMBOL                          | CONDITIONS   | MIN                   | TYP | MAX                | UNIT  |    |
|------------------------|---------------------------------|--|-----------------------|-----|--------------------|-------|----|
| Maximum Supply Voltage | V <sub>CC</sub>                 | -  | -0.5                  | -   | +7.0               | V     |    |
| Storage Temperature    | T <sub>STG</sub>                | -  | -40                   | -   | +100               | °C    |    |
| Frequency Range        |                                 |  |                       |     |                    |       |    |
| CB3                    | f <sub>0</sub>                  | -  | 1.5                   | -   | 107                | MHz   |    |
| CB3LV                  |                                 | -  | 1.5                   | -   | 200                |       |    |
| Frequency Stability    | Δf/f <sub>0</sub>               | See Note 1 and Ordering Information                        | -                     | -   | 20,25,50 or 100    | ± ppm |    |
| Aging                  | Δf                              | First year   | -                     | 3   | 5                  | ± ppm |    |
| Operating Temperature  |                                 |  |                       |     |                    |       |    |
| Commercial             | T <sub>A</sub>                  | -  | -20                   | 25  | +70                | °C    |    |
| Industrial             |                                 |  | -40                   |     | +85                |       |    |
| Supply Voltage         |                                 |  |                       |     |                    |       |    |
| CB3                    | V <sub>CC</sub>                 | ±10%   | 4.5                   | 5.0 | 5.5                | V     |    |
| CB3LV                  |                                 |  | 3.0                   | 3.3 | 3.6                |       |    |
| Supply Current         |                                 | Frequency Range  |                       |     |                    |       |    |
| CB3                    | I <sub>CC</sub>                 | Tested load condition noted for typical values.            |                       |     |                    |       |    |
|                        |                                 | 1.5MHz to 20MHz  | C <sub>L</sub> =50pF  | -   | 10                 | 25    | mA |
|                        |                                 | 20.001MHz to 80MHz   | C <sub>L</sub> =50pF  | -   | 30                 | 50    |    |
|                        |                                 | 80.001MHz to 107MHz  | C <sub>L</sub> =15pF  | -   | 40                 | 80    |    |
| CB3LV                  |                                 | 1.5MHz to 20MHz  | C <sub>L</sub> =15pF  | -   | 7                  | 12    |    |
|                        |                                 | 20.001MHz to 80MHz   | C <sub>L</sub> =15pF  | -   | 20                 | 40    |    |
|                        | 80.001MHz to 200MHz             | C <sub>L</sub> =15pF                                       | -                     | 30  | 60                 |       |    |
| Output Load            | C <sub>L</sub>                  | 1.5MHz to 50MHz  | -                     | -   | 50                 | pF    |    |
|                        |                                 | 50.001MHz to 80MHz   | -                     | -   | 30                 |       |    |
|                        |                                 | 80.001MHz to 200MHz  | -                     | -   | 15                 |       |    |
| Output Voltage Levels  |                                 |  |                       |     |                    |       |    |
| Logic '1' Level        | V <sub>OH</sub>                 | CMOS Load  | 90%V <sub>CC</sub>    | -   | -                  | V     |    |
| Logic '0' Level        | V <sub>OL</sub>                 | 10 TTL LOAD  | V <sub>CC</sub> -0.6V | -   | -                  |       |    |
|                        |                                 | CMOS   | -                     | -   | 10%V <sub>CC</sub> | 0.4   |    |
|                        |                                 | TTL Load   | -                     | -   | -                  |       |    |
| Output Current         |                                 |  |                       |     |                    |       |    |
| Logic '1' Level        | I <sub>OH</sub>                 | V <sub>OH</sub> = 3.9V/2.2V    V <sub>CC</sub> = 4.5V/3.0V | -                     | -   | -16/-8             | mA    |    |
| Logic '0' Level        | I <sub>OL</sub>                 | V <sub>OL</sub> = 0.4V        V <sub>CC</sub> = 4.5V/3.0V  | -                     | -   | +16/+8             |       |    |
| Output Duty Cycle      | SYM                             | @ 50% Level  | 45                    | -   | 55                 | %     |    |
| Rise and Fall Time     |                                 | @ 10% - 90% Levels   |                       |     |                    |       |    |
| CB3                    | T <sub>R</sub> , T <sub>F</sub> | Tested load condition noted for typical values.            |                       |     |                    | ns    |    |
|                        |                                 | 1.5MHz to 20MHz  | C <sub>L</sub> =50pF  | -   | 8                  |       | 10 |
|                        |                                 | 20.001MHz to 80MHz   | C <sub>L</sub> =50pF  | -   | 5                  |       | 8  |
|                        |                                 | 80.001MHz to 200MHz  | C <sub>L</sub> =15pF  | -   | 2.5                |       | 5  |
| CB3LV                  |                                 | 1.5MHz to 20MHz  | C <sub>L</sub> =15pF  | -   | 6                  |       | 8  |
|                        |                                 | 20.001MHz to 80MHz   | C <sub>L</sub> =15pF  | -   | 3                  |       | 5  |
|                        | 80.001MHz to 200MHz             | C <sub>L</sub> =15pF                                       | -                     | 1.5 | 3                  |       |    |
| Start Up Time          | T <sub>S</sub>                  | Application of V <sub>CC</sub>                             | -                     | -   | 10                 | ms    |    |
| Enable Function        |                                 |  |                       |     |                    |       |    |
| Enable Input Voltage   | V <sub>IH</sub>                 | Pin 1 Logic '1', Output Enabled                            | 2.0                   | -   | -                  | V     |    |
| Disable Input Voltage  | V <sub>IL</sub>                 | Pin 1 Logic '0', Output Disabled                           | -                     | -   | 0.8                |       |    |
| Enable Time            | T <sub>PLZ</sub>                | Pin 1 Logic '1'  | -                     | -   | 200                | ns    |    |
| Standby Current        | I <sub>ST</sub>                 | Pin 1 Logic '0', Output Disabled                           | -                     | -   | 10                 | μA    |    |
| Period Jitter, Pk-Pk   | -                               | -  | -                     | -   | 50                 | ps    |    |
| Period Jitter, RMS     | -                               | -  | -                     | -   | 5                  |       |    |
| Phase Jitter, RMS      | -                               | Bandwidth 12kHz - 20MHz                                    | -                     | -   | 1                  |       |    |

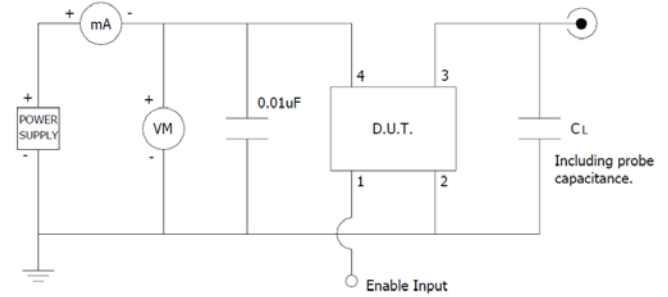
- Notes:
- Inclusive of initial tolerance at time of shipment, changes in supply voltage, load, temperature and 1st year aging.

**ELECTRICAL CHARACTERISTICS**

**LVC MOS OUTPUT WAVEFORM**



**TEST CIRCUIT, CMOS LOAD**



**ENABLE TRUTH TABLE**

| PIN 1     | PIN 3     |
|-----------|-----------|
| Logic '1' | Output    |
| Open      | Output    |
| Logic '0' | High Imp. |

**D.U.T. PIN ASSIGNMENTS**

| PIN | SYMBOL          | DESCRIPTION              |
|-----|-----------------|--------------------------|
| 1   | EOH             | Enable                   |
| 2   | GND             | Circuit & Package Ground |
| 3   | Output          | RF Output                |
| 4   | V <sub>CC</sub> | Supply Voltage           |

**MECHANICAL SPECIFICATIONS**

**PACKAGE DRAWING**



**MARKING INFORMATION**

- \*\* – Manufacturing Site Code.  
[Note a dash may follow the site code and is acceptable.]
- XXXMXXXXXX – Frequency is marked with only leading significant digits before the 'M' and 4 – 6 digits after the 'M' (including zeros).  
Ex. XMXXXXXX [3M579545]  
XXMXXXXXX [14M31818]  
XXXMXXXXXX [125M0000]
- YYWW – Date code, YY – year, WW – week.
- ST – Frequency stability/temperature code.  
[Refer to Ordering Information.]
- V – Voltage code. 3 = 3.3V, 5 = 5.0V.

**NOTES**

- Termination pads [e4]. Barrier-plating is nickel [Ni] with gold [Au] flash plate.
- Reflow conditions per JEDEC J-STD-020, 260°C maximum.
- Moisture Sensitivity Level 1 per JEDEC J-STD-020.

**SUGGESTED SOLDER PAD GEOMETRY**

C<sub>BYPASS</sub> should be ≥ 0.01 uF.





Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
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- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

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- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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