

The World's Lowest Jitter Fractional N Synthesizer

Micrel's SY87729L is a complete rate independent frequency synthesizer integrated circuit. From a single reference source, this device generates a differential PECL reference frequency from 10MHz to 350MHz for CDRs such as Micrel's new AnyRate™, 28Mbps to 2.7Gbps, SY87721L.

The SY87729L generates precise reference frequencies for 17 (see Table 1) common data transport protocols. This is especially important in transponder applications, where a standards compliant protocol data unit must be generated downstream, even in the absence of any signal from the associated upstream signal.

The SY87729L generates any arbitrary frequency from 10MHz to 350MHz within 400ppm accuracy.

For proprietary applications, the SY87729L generates reference frequencies guaranteed to enable the SY87721L AnyRate™ CDR to lock to any possible baud-rate from 28Mbps to 2.7Gbps. Jitter generation of the SY87729L is < 4ps RMS across the frequency range.

The SY87729L accepts configuration via a MicroWire™ interface.

Protocol	Reference Clock Rate (MHz) SY87729L Frequency Output	Line Rate (MHz) SY87721L Frequency Out
ETR	32	32
OC-1	51.84	51.84
Fast Ethernet	50	100
FDDI	125	125
1/8 Fibre Channel	13.28125	132.8125
OC-3/STM-1	155.52	155.52
ESCON	50	200
Fiber Channel	26.5625	265.625
Fiber Channel	53.125	531.25
OC-12/STM-4	155.52	622.08
Fibre Channel	106.25	1062.5
Gigabit Ethernet	125	1250
D1 Video	69	1380
HDTV	92.8125	1485
Infiniband	125	2500
2x Fibre Channel	212.5	2125
OC-48/STM-16	155.52	2488.32

Table 1. Common Reference Frequencies

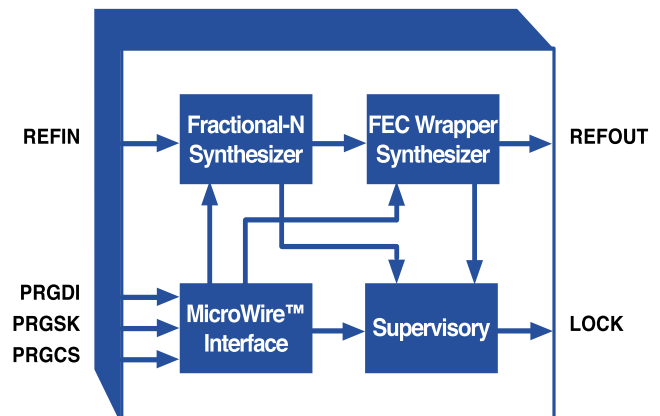
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MicroWire™ is a trademark of National Semiconductor.

Features

- ◆ 3.3V low power operation
- ◆ True fractional synthesizer to 350MHz
- ◆ Operates from a single 27MHz reference oscillator
- ◆ Generates exactly the correct frequency for common transport protocols e.g. OC-n, ATM, Gigabit Ethernet, Fast Ethernet, Fibre Channel, FDDI, HDTV, InfiniBand
- ◆ Also generates exactly the correct frequency for these protocols with Forward Error Correction (FEC)
- ◆ Out-of-Lock alarm signal output
- ◆ Exceeds BellCore and ITU jitter generation specifications
- ◆ Programmable via MicroWire™ (3-wire bit serial) interface
- ◆ Available in 32-pin EPAD-TQFP package

Applications

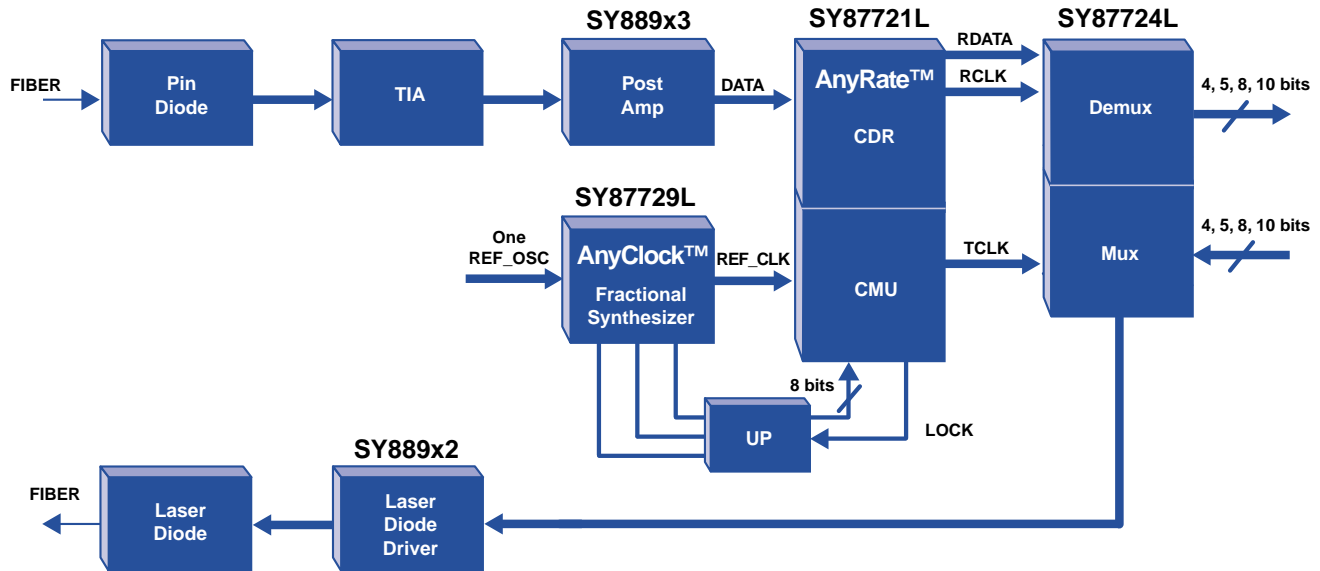
- ◆ OC-1, OC-3, OC-12, OC-48, with or without FEC
- ◆ Gigabit Ethernet, Fast Ethernet
- ◆ Fibre Channel, 2X Fibre Channel
- ◆ P1394, InfiniBand
- ◆ Proprietary optical transport
- ◆ Digital TV, digital video
- ◆ Digital wrapper



SY87729L System Block Diagram

AnyRate™ Chipset

Part Number	Frequency Range	Description	Package
SY87721L	28Mbps to 2.7Gbps	3.3V AnyRate™ Clock and Data Recovery with Integrated CMU	64-Pin EPAD-TQFP
SY87724L	Up to 2.7Gbps	3.3V 2.7Gbps Mux/Demux	80-Pin LQFP-PQ2
SY87729L	10MHz to 350MHz	3.3V AnyClock™ Fractional N Synthesizer	32-Pin EPAD-TQFP



System Block Diagram

Contact Micrel Semiconductor

Location	Address	Telephone	Fax
Corporate HQ	1849 Fortune Drive San Jose, CA 95131 USA	+1 (408) 944-0800	+1-408-944-0970
Eastern USA	93 Branch Street Medford, NJ 08055 USA	+1 (609) 654-0078	+1 (609) 546-0989
Southeast USA	8601 Six Forks Road Suite 400 Raleigh, NC 27615 USA	+1 (919) 676-5315	+1 (919) 676-5316
Central USA	8402 Sterling Suite 101 Irving, TX 75063 USA	+1 (972) 929-0051	+1 (972) 915-0120
Western USA	3250 Scott Blvd. Santa Clara, CA 95054 USA	+1 (408) 914-7670	+1 (408) 914-7878
Northwest USA	401 NE Ravenna Blvd. Box 152 Seattle, WA 98115 USA	+1 (206) 526-7299	+1 (206) 526-8829
Southwest USA	7545 Irvine Center Dr. Suite 200 Irvine, CA 92618 USA	+1 (949) 623-8433	+1 (949) 623-8305
Canada	488 Old St. Patrick Street Ottawa, ON K1N 9E0 Canada	+1 (613) 241-2733	+1 (613) 241-4895
Korea	4F, Jinsol Building, 826-14, Yeoksam-dong, Kangnam-ku Seoul 135-080 Korea	+82 (2) 3466-3000	+82 (2) 3466-2999
Taiwan	12F-10, No. 237, Sec. 2, Fu-Hsing South Road Taipei, Taiwan, R.O.C.	+886 92) 2705-4976	+886 (2) 2705-4977
Japan	1-16-15 Dogenzaka, Shibuyaku Tokyo 150-0043 Japan	+81 (3) 5428-0871	+81 (3) 5428-0872
Europe	1st Floor, 3 Lockside Place, Mill Lane Newbury, Berks RG14 5QS UK	+44 1635-524455	+44 1635 524466

