

**NAME**

`clog`, `clogf`, `clogl` – natural logarithm of a complex number

**SYNOPSIS**

```
#include <complex.h>
```

```
double complex clog(double complex z);
```

```
float complex clogf(float complex z);
```

```
long double complex clogl(long double complex z);
```

Link with `-lm`.

**DESCRIPTION**

These functions calculate the complex natural logarithm of  $z$ , with a branch cut along the negative real axis.

The logarithm `clog()` is the inverse function of the exponential `cexp(3)`. Thus, if  $y = \text{clog}(z)$ , then  $z = \text{cexp}(y)$ . The imaginary part of  $y$  is chosen in the interval  $[-\pi, \pi]$ .

One has:

$$\text{clog}(z) = \log(\text{cabs}(z)) + I * \text{carg}(z)$$

Note that  $z$  close to zero will cause an overflow.

**VERSIONS**

These functions first appeared in glibc in version 2.1.

**ATTRIBUTES**

For an explanation of the terms used in this section, see [attributes\(7\)](#).

Interface	Attribute	Value
<code>clog()</code> , <code>clogf()</code> , <code>clogl()</code>	Thread safety	MT-Safe

**CONFORMING TO**

C99, POSIX.1-2001, POSIX.1-2008.

**SEE ALSO**

[cabs\(3\)](#), [cexp\(3\)](#), [clog10\(3\)](#), [clog2\(3\)](#), [complex\(7\)](#)

**COLOPHON**

This page is part of release 4.16 of the Linux *man-pages* project. A description of the project, information about reporting bugs, and the latest version of this page, can be found at <https://www.kernel.org/doc/man-pages/>.