TELEDYNE LECROY
Everywhereyoulook™

DA1855A High-performance 100 MHz Differential Amplifier

Key Features

- **Full control from oscilloscope through ProBus interface**
- **DC to 100 MHz bandwidth**
- **Outstanding 100,000: 1 Common Mode Rejection Ratio (CMRR)**
- **Gain of X1 or X10**
- **Industry-leading overdrive recovery**
- **Low noise**
- **Selectable BW limiting**
- **Two gain control modes when connected to a Teledyne LeCroy oscilloscope**
- **Built-in Precision Voltage Generator (PVG)**
- **Comparator and true differential offset modes**

The DA1855A is a stand-alone, high-performance differential amplifier providing the fastest overdrive recovery of any commercially available product. This unique capability allows the amplifier to make measurements that would normally be limited by oscilloscope overdrive recovery.

The DA1855A is a stand-alone, high-performance 100 MHz differential amplifier. It is intended to act as a signal conditioning preamplifier for oscilloscopes, digitizers and spectrum analyzers, providing differential measurement capability to instruments having only a single-ended input. When used with a DA1855A, oscilloscopes can obtain Common Mode Rejection Ratio (CMRR) and overdrive recovery performance levels previously unobtainable.

Amplifier gain can be set to 1 or 10. A built-in input attenuator can be separately set to attenuate signals by a factor of 10, providing gains of 10, 1, or 0.1 and common mode dynamic range of ±15.5 V (÷1) or ±155 V (÷10). Optional probes increase the maximum input signal and common mode ranges in proportion to their attenuation ratio but do not exceed their maximum input voltage rating. Effective gain of the DA1855A, including probe attenuation, amplifier gain and attenuator settings, is automatically displayed.

The DA1855A has a bandwidth of 100 MHz, but any one of the three 3-pole bandwidth limit filters can be selected to reduce bandwidth to 20 MHz, 1 MHz or 100 kHz to limit noise above the frequency of interest.

The DA1855A output is carefully limited to ±500 mV, so that the oscilloscope is not overdriven by large inputs. This allows many oscilloscopes to directly measure the settling of D/A converters with 14-bit (60 ppm) precision, better than any other differential comparator.

The DA1855A features a built-in Precision Voltage Generator (PVG) that can be set to any voltage between ±15.5 V (±10 V in Differential Offset) with up to 100 µV resolution. The PVGs output can be selected as an input to the inverting (-) input of the amplifier

SPECIFICATIONS AND ORDERING INFORMATION

for operation as a differential comparator or applied internally as a true differential offset voltage. The PVG is also available for external use through a rear panel connector.

The DA1855A operates from 90 to 250 VAC line without line switching. High-performance differential probes such as the DXC100 ÷10/÷100 high CMRR probes are recommended.

Overdrive Recovery

With a ÷100 probe, the DA1855A settles to within 100 mV referred to input, from a 400 V input signal within 100 ns. With attenuating probes, this allows the in circuit measurement of dynamic saturation in switch mode power converter switching devices.

Comparator Mode

The DA1855A becomes a differential comparator when the internal PVG output is selected as the amplifier's inverting (-) input. In this mode, the DA1855A can be used to very accurately measure relatively small signals that are riding on large AC or DC components. Due to the precision of the voltage generator, an oscilloscope, when used with the DA1855A, can make voltage measurements that are much more accurate than the oscilloscope is capable of by itself. The output of the PVG is available for external use via a rear panel connector.

True Differential Offset Mode

The DA1855A has built-in Precision Voltage Generator can be used to generate a true differential offset while still allowing both inputs to be used as differential inputs. The offset range can be as high as ±50,000 divisions and the generator has 5 1/2 digit resolution. This mode facilitates making measurements such as changes to a transistor's base to emitter voltage caused by variations in temperature and/or current. Used in this mode, the voltage generator can be set to a value that will zero out the static value of the junction's on voltage. The DA1855A's differential measurement capability will reject any dynamic signal common to both sides of the junction, and the oscilloscope is left to measure only the changes in the junction voltage.

Autobalance

Each time either gain setting button is pressed, the DA1855A automatically adjusts the amplifier's DC balance.

Specifications

Main Specifications

Bandwidth	> 100 MHz

Electrical Characteristics

Rise time (typical)	< 3.5 ns

Ordering Information

Product Description	Product Code
Differential Amplifiers	
1 Ch, 100 MHz Differential Amplifier with Precision Voltage Source	DA1855A
÷100 or ÷10 Selectable, 250 MHz Passive Differential Probe Pair	DXC100A*
÷1, 50 MHz Passive Differential Probe Pair	DXC200*
÷100, 250 MHz 2.5kv, High Voltage Probe Pair (requires DA101 for full performance)	DXC-5100*

Ordering Information (cont'd)

Product Description	Product Code
÷10 1 MΩ Passive Attenuator for DXC Series Probes	DA101*
2 Ch,100 MHz Differential Amplifier with Precision Voltage Source	DA1855A-PR2
DA1855A with Rackmount	DA1855A-RM
DA1855A with Rackmount (must be ordered at time of purchase, no retrofit)	DA1855A-PR2-RM

**Must be used with DA Series Differential Amplifiers*

Customer Service

Teledyne LeCroy oscilloscopes and probes are designed, built, and tested to ensure high reliability. In the unlikely event you experience difficulties, our digital oscilloscopes are fully warranted for three years and our probes are warranted for one year.

This warranty includes:

- No charge for return shipping
- Long-term 7-year support
- Upgrade to latest software at no charge

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1-800-5-LeCroy
teledynelecroy.com

Local sales offices are located throughout the world.
Visit our website to find the most convenient location.

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