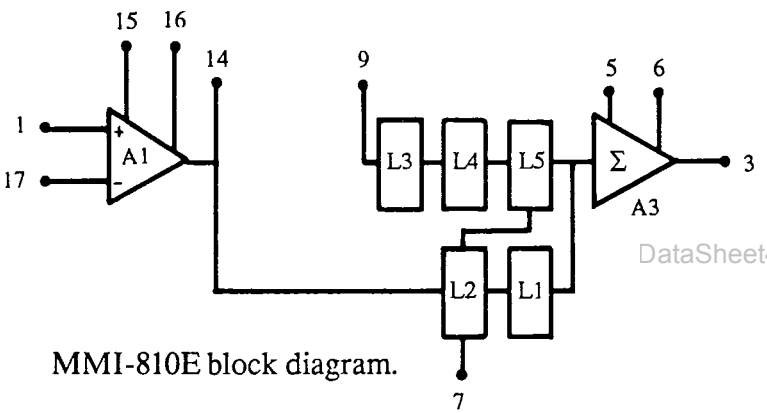
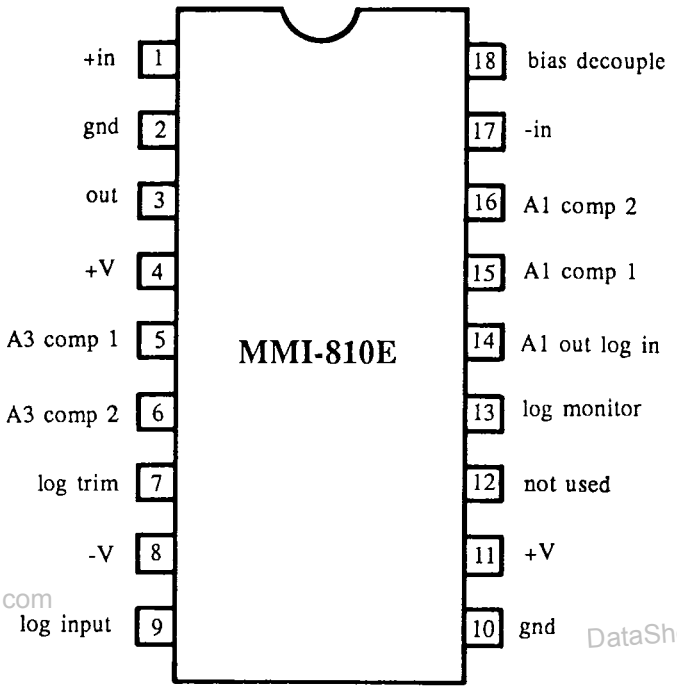
MMI-810E LOG VIDEO AMPLIFIER INTEGRATED CIRCUIT

The MMI-810E is a monolithic, wide band, low noise log amplifier intended to be utilized for frequencies ranging from DC to 10 MHz. It provides both linear and log outputs over a large dynamic range, and has a 10 MHz bandwidth over its entire dynamic range. It is available in either an 18 pin dual in line package or unpackaged for hybrid applications.

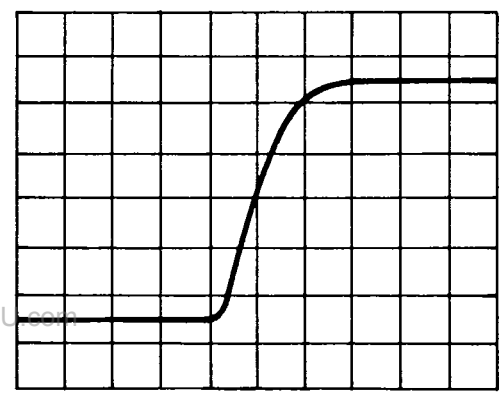


MMI-810E block diagram.



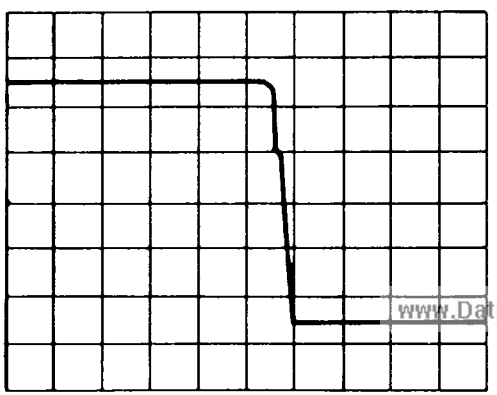
MMI-810E pinouts.

MMI-810E rise time in
a typical system configuration.



20 ns/div

MMI-810E recovery time in
a typical system configuration.



1 µs/div

MMI-810E SPECIFICATIONS

Description	Value	Unit
Video Bandwidth	DC to 10	MHz
Rise Time	<35	ns
Video Dynamic Range	105	dB
Logging Range (1)	0.6 to 6000	mV
	80	dB
Linearity	±1	dB
Logging Slope (2)	25	mV/dB
Delay Time	<40	ns
Recovery Time	<500	ns
Tangential Signal Sensitivity	30	µV
Output Voltage Range	0 to 4	V
Output Load (min) (3)	93	ohms
Duty Cycle (4)	100	%
Operating Temperature (5)	-54 to +125	°C
Output Drift over Temperature (6)	0.04	dB/°C
Input Drift over Temperature (7)	8	µV/°C
Power Supply Required		
+ Voltage at 70mA	+7.5	V
- Voltage at 40mA	-6.5	V

Due to the square law characteristics of the detector, when used with an RF detector each dB at RF is equivalent to 2 dB of video.

The MMI-810E is also available screened to MIL-STD-883 requirements.

Notes:

(1) When used with a detector, the logging range can be increased to approximately 45 dB (at RF) by adding the detector signal directly to the output amplifier.

(2) The logging slope is adjustable.

(3) The MMI-810E can use an outboard NPN transistor to drive lower loads or for higher output swing.

(4) The duty cycle is100% for DC coupled applications: there is a negligible output amplitude shift (less than 0.2 dB) at any duty cycle.

(5) The MMI-810E must have a heat sink for operation at high temperature.

(6) This drift can easily be compensated in two ways:
a) On a DC coupled unit, using a sensistor to change the DC offset versus temperature; or
b) A change in gain preceding the chip.

(7) The input drift can be compensated by applying an opposite drift to the input. This can be accomplished by using a sensistor network or a diode.

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