Model 428F

Number of Sections: 4 independent sections with 4 inputs per section. A front-panel switch on each section which selects normal or inverting mode.

INPUT

No. of Inputs: 4 per channel; 50 Ω ±5 %; direct-coupled in non-inverting mode. In inverting mode operates as a capacitively-coupled unit with a 400 μsec time constant. Inputs protected against 0.5 μsec transient overloads, up to ±5 A.
Signal Level Requirements: Positive or Negative analog signals.
Reflection Coefficient: Less than 7% for inputs of 2 nsec rise time.

OUTPUT

No. of Outputs: 4 per channel; reverse-terminated; direct-coupled; for optimum output shape, three outputs must be terminated into 50 Ω. For proper operation, at least 2 outputs must be terminated on each channel used.
Output Levels: Linear range in normal mode is limited to: +100 mV to > -2 V, with maximum amplitude of > -2 V into 50 Ω and gain of 1.0 ±2% up to -2 V. Linear range in inverting mode: +100 mV to > -1.5 V, with maximum amplitude of > -1.5 V into 50 Ω and gain of approximately 0.98 up to -1.5 V.
Rise Times: ≤ 2.5 nsec, 10% to 90%, with outputs terminated in 50 Ω.
Fall Times: ≤ 4 nsec 10% to 90%, with outputs terminated in 50 Ω. Integral non-linearity: ±1% up to -1 V.

MISCELLANEOUS

DC Offset: Adjustable with front-panel potentiometer. Care should be taken to readjust DC level whenever the Normal/Inverting switch is used. Stability: < 60 μV/°C in normal and inverting modes.
Output DC Level Voltage Coefficient: < 25 μV/1% variation of any supply voltage in normal and inverting modes.
Interchannel Isolation: 40 dB.
Noise: < 750 μV R.M.S.
Overload Recovery: Approximately 2 nsec with four simultaneous NIM level (-800 mV) inputs.

GENERAL

Rate: DC to 100 MHz typically.
Input/Output: < 6 nsec.
Duty Cycle Limitations: None for direct-coupled outputs.
Packaging: RF-shielded AEC/NIM #1 module. Lemo-type connectors.
Power Requirements: 80 mA at +24 V, 80 mA at -24 V, 160 mA at +12 V, 160 mA at -12 V.

Model 429A

Number of Sections: 4: may be cascaded by means of front-panel switch to form dual 8-fold fan-in/12-fold fan-out or single 16-fold fan-in/24-fold fan-out, with LED indication.

INPUT

Number of Inputs: 4 per section; 50 Ω ±5%; direct-coupled. Quiescent level is 0 V DC.
Signal Level Requirements: Standard NIM logical 1 input levels, -12 mA to -36 mA; Standard TTL logical 1 input levels, +2 V to +5 V; signal width must be 4 nsec minimum, FWHM.
Reflection Coefficient: < 10% for input rise times ≥ 2 nsec.

OUTPUT

Number of Outputs: 4 normal (2 bridged pairs); 2 complementary (1 bridged pair).
Output Levels: Normal NIM (quiescently 0 mA, -32 mA into two 50 Ω loads during output). Complementary NIM (quiescently 32 mA into two 50 Ω loads, 0 mA during output). Duration is equal to the logical sum of the input durations.
Rise Times: 2.3 nsec typical, 2.8 nsec maximum.
Fall Times: 2.3 nsec typical, 2.8 nsec maximum.

MISCELLANEOUS

Time Variation of Output with Input Amplitude: < 1 nsec worst case between inputs of -600 mV and -1.6 V; typically < 0.5 nsec.
Time Variation Between Outputs: 4 channels, 4 x 6 operation: < 0.2 nsec; 2 channels, 8 x 12 operation: < 0.4 nsec; 1 channel, 16 x 24 operation: < 0.9 nsec.

GENERAL

Rate: DC to 100 MHz.
Input/Output: < 6.5 nsec.
Duty Cycle Limitations: None.
Packaging: RF-shielded AEC/NIM #1 module. Lemo-type connectors.
Power Requirements: 35 mA at +12 V, 50 mA at -12 V, 295 mA at +6 V, 460 mA at -6 V.