# 16 x 12 Switch Matrix
# 0.5 - 18 GHz

***Datasheet 318***

## FEATURES:

- **0.5 - 18.0 GHz FREQUENCY RANGE**
- **+/- 8° DEGREES PHASE TRACKING**
- **15 dBm OPERATING INPUT POWER**
- **50 NS SWITCHING SPEED (10/90% RF)**
- **-40 °C to +71 °C OPERATING TEMPERATURE**

**AKON's** Model No. A35-MX141 is an absorptive switch matrix consisting of 36 RF input/output connectors with two SP18T absorptive RF switches as the basic building blocks. Using a single RFconnector, it allows either a transmitter or receiver to connect to 36 different array elements. Phase matching of +/- 8º is from any of the 16 input ports to any of the 12 output ports. The input signals are launched through a precision, high performance 2.0 dB attenuator and a mechanical adjustable phase shifter. The unit is fed using a phase matched cable to an Integrated Microwave Assembly (IMA). Microwave Assembly consists of SP5T (70 dB isolation), a medium power, low noise amplifier, a VVA for temperature compensation of amplifier and switch circuits.

## SPECIFICATIONS:

| Model Number | A35-MX141 |
|---|---|
| Operating Frequency Range (GHz) | 0.5 - 18 (J21, J40 to J55, J56 to 59);<br>0.5 – 2.0 (P9 to P12);<br>6.0 – 18.0 (P13 to P16);<br>2.0 – 6.0 (P17 to P20) |
| Operating Input power (dBm) | -60 to +8; -40 to -20 (max) (P21 CAL Input) |
| Small Signal Gain/Loss (dB) | -5 (nom) (J40 to J55 to P9 to P20);<br>-12 (nom) (P21 to P9 to P20);<br>-11 (max) (P21 to J58 to J59);<br>+20 (min) (P21 to J56 to J57) |
| Noise Figure (dB) | 11 (J4 to J55 to P9 to P20);<br>16 (P21 to P9 to P20);<br>12 (P21 to J58, J59);<br>13.5 (P21 to J56, J57) |
| Gain/Loss Flatness (dB) | +/- 2.0 (Ripple) |
| Gain Window (dB) | +/- 3.5 |
| 1dB Compression point (J40 to J55) (dBm) | +8 (min); +9 (nom) |
| Phase Matching between Ports (°C) | +/- 8 over frequency and temperature |
| Input Signal Type | CW/ Pulsed |
| Pulse Width Range (nS) | 0.1 µSec - 250 µSec |
| Input PRI Range (µS) | 1 - 5000 |
| Maximum Input Level (dBm) | +15.0 CW |
| Isolation (SP5T and SP3T) (dB) | 70 (min) |
| Switching Speed (nS) | < 50 |
| VSWR (at all RF ports) | 2.0:1 (max) |
| Power Supply (VDC) | +28 V +/- 5% @ 1.2 Amps |
| Operating Temperature (°C) | -40 to +71 |

**Note: All dimensions are specified in inches (mm)**

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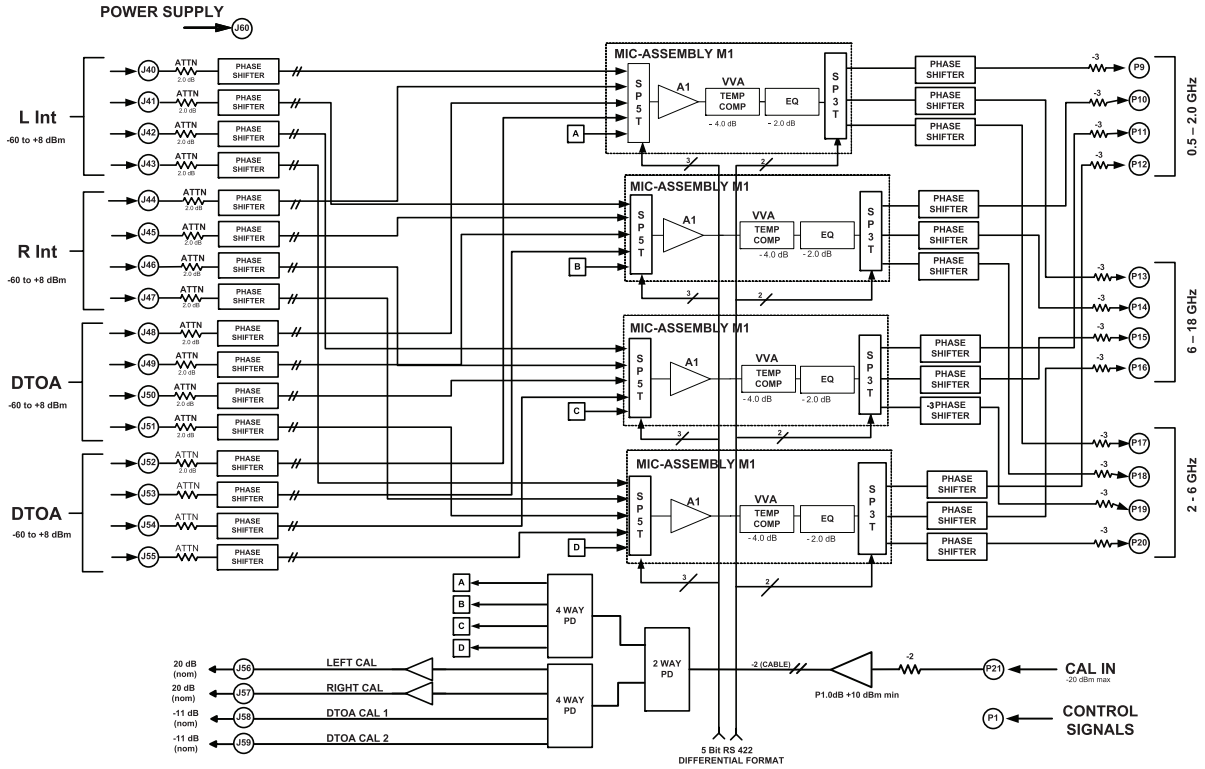
## BLOCK DIAGRAM:



## OUTLINE DRAWING:

| P1 PIN OUT TABLE | |
|---|---|
| PIN | FUNCTION |
| 1 -3 | NOT CONNECTED |
| 4 | A0 IN |
| 5 | A0 IN |
| 6 | A1 IN |
| 7 | A1 IN |
| 8 | A2 IN |
| 9 | A2 IN |
| 10 | A3 IN |
| 11 | A3 IN |
| 12 | A4 IN |
| 13 | A4 IN |
| 14 | NOT CONNECTED |
| 15 | GND |
| 16 -29 | NOT CONNECTED |
| 30 | GND |
| 31 - 42 | NOT CONNECTED |
| 43 - 44 | GND |

| J60 PIN OUT TABLE | |
|---|---|
| PIN | FUNCTION |
| A | +28V |
| B | GND |
| C | NOT CONNECTED |
| D | NOT CONNECTED |
| E | NOT CONNECTED |
| F | NOT CONNECTED |
| G | NOT CONNECTED |