

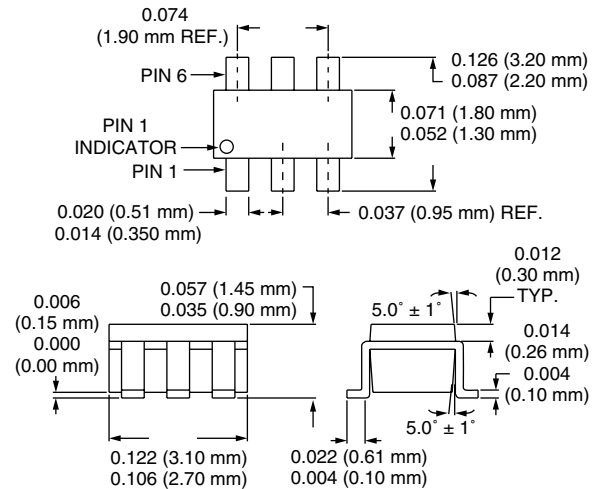
### Features

- $P_{1\text{ dB}}$  +30 dBm Typical @ +3 V
- IP3 43 dBm Typical @ +3 V
- Low Insertion Loss (0.3 dB @ 0.9 GHz)
- Low DC Power Consumption
- Ultra Miniature Low Cost SOT-6 Plastic Package
- PHEMT Process

### Description

The AS174-73 is an IC FET SPDT switch in a low cost SOT-6 plastic package. The AS174-73 features low insertion loss and positive voltage operation with very low DC power consumption. This general purpose switch can be used in a variety of telecommunications applications.

### SOT-6



### Electrical Specifications at 25°C (0, +3 V)

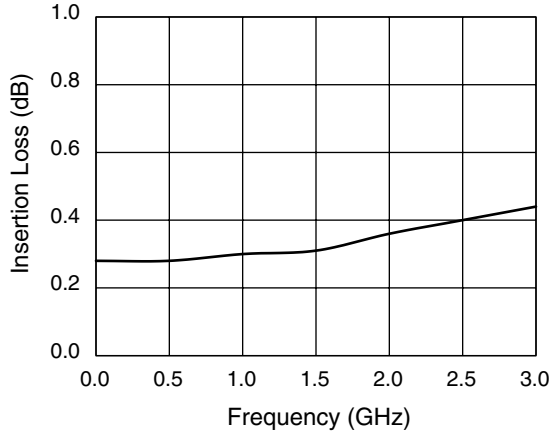
| Parameter <sup>1</sup>      | Frequency <sup>2</sup> | Min. | Typ.  | Max.  | Unit |
|-----------------------------|------------------------|------|-------|-------|------|
| Insertion Loss <sup>3</sup> | DC-1.0 GHz             |      | 0.3   | 0.4   | dB   |
|                             | DC-2.5 GHz             |      | 0.4   | 0.5   | dB   |
| Isolation                   | DC-1.0 GHz             | 23   | 25    |       | dB   |
|                             | DC-2.5 GHz             | 22   | 24    |       | dB   |
| VSWR <sup>4</sup>           | DC-2.5 GHz             |      | 1.4:1 | 1.8:1 |      |

### Operating Characteristics at 25°C (0, +3 V)

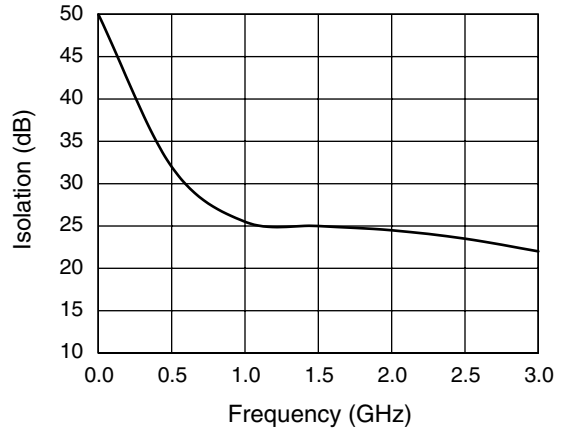
| Parameter                              | Condition  | Frequency   | Min.        | Typ. | Max. | Unit |
|--|--|-------------|-------------|------|------|------|
| Switching Characteristics <sup>5</sup> | Rise, Fall (10/90% or 90/10% RF)   |             |             | 10   |      | ns   |
|  | On, Off (50% CTL to 90/10% RF)   |             |             | 20   |      | ns   |
|  | Video Feedthru   |             |             | 25   |      | mV   |
| Input Power for 1 dB Compression       | 0/+3 V   | 0.5–2.5 GHz |             | +30  |      | dBm  |
|  | 0/+5 V   | 0.5–2.5 GHz |             | +34  |      | dBm  |
| Intermodulation Intercept Point (IP3)  | For Two-tone Input Power +5 dBm  | 0/+3 V      | 0.5–2.5 GHz |      | +43  | dBm  |
|  |  | 0/+5 V      | 0.5–2.5 GHz |      | +50  | dBm  |
|  |  |             |             |      |      |      |
| Control Voltages                       | $V_{\text{Low}} = 0 \text{ to } 0.2 \text{ V @ } 20 \mu\text{A Max.}$<br>$V_{\text{High}} = +3 \text{ V @ } 100 \mu\text{A Max. to } +5 \text{ V @ } 200 \mu\text{A Max.}$ |             |             |      |      |      |

1. All measurements made in a 50  $\Omega$  system, unless otherwise specified.
2. DC = 300 kHz.
3. Insertion loss changes by 0.003 dB/°C.
4. Insertion loss state.
5. Video feedthru measured with 1 ns risetime pulse and 500 MHz bandwidth.

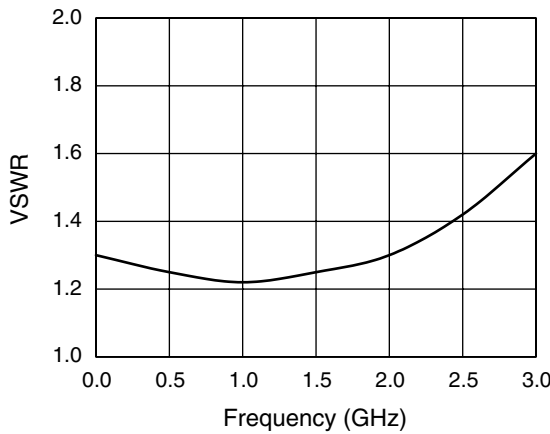
### Typical Performance Data (0, +3 V)



Insertion Loss vs. Frequency



Isolation vs. Frequency



VSWR vs. Frequency

### Truth Table

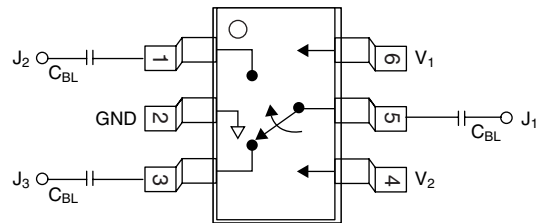
| V <sub>1</sub>    | V <sub>2</sub>    | J <sub>1</sub> -J <sub>2</sub> | J <sub>1</sub> -J <sub>3</sub> |
|-------------------|-------------------|--------------------------------|--------------------------------|
| 0                 | V <sub>High</sub> | Isolation                      | Insertion Loss                 |
| V <sub>High</sub> | 0                 | Insertion Loss                 | Isolation                      |

V<sub>High</sub> = +3 to +5 V.

### Absolute Maximum Ratings

| Characteristic        | Value                           |
|-----------------------|---------------------------------|
| RF Input Power        | 6 W > 500 MHz<br>0/+7 V Control |
| Control Voltage       | -0.2 V, +8 V                    |
| Operating Temperature | -40°C to +85°C                  |
| Storage Temperature   | -65°C to +150°C                 |
| θ <sub>JC</sub>       | 25°C/W                          |

### Pin Out



DC blocking capacitors (C<sub>BL</sub>) must be supplied externally for positive voltage operation.  
C<sub>BL</sub> = 100 pF for operation >500 MHz.