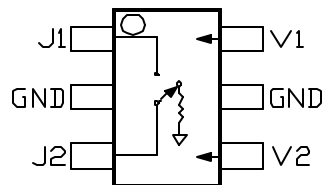


SPST High Isolation, Absorptive Switch Negative or Positive Control ITT130AK

FEATURES

- High isolation (39 dB at 2.5 GHz)
- Miniature, SOT6 package
- Reflective open port (J1)
- Non-Reflective port (J2)
- Self-Aligned MSAG® Process



DESCRIPTION

The ITT130AK is a high isolation SPST absorptive switch in a plastic SOT package for commercial applications. The switch is matched on the J₂ port and reflective on the J₁ port when in the isolation state. The switch operates with negative control signals, but can be “floated” to operate using positive control signals.

TRUTH TABLE (Negative Control)

V1	V2	J1-J2
0	-5	Isolation
-5	0	Insertion Loss

ELECTRICAL SPECIFICATIONS AT 25°C (0, -5 V)

Parameter	Test Conditions ¹	Min	Typ	Max	Unit
Insertion Loss	DC ² -0.5 GHz		0.9	1.1	dB
	DC-1.0 GHz		1.0	1.2	dB
	DC-2.0 GHz		1.2	1.3	dB
	DC-2.5 GHz		1.3	1.4	dB
Isolation	DC-0.5 GHz	52	60		dB
	DC-1.0 GHz	45	52		dB
	DC-2.0 GHz	36	43		dB
	DC-2.5 GHz	33	39		dB
VSWR	DC-1.0 GHz		1.2:1	1.3:1	dB
	DC-2.5 GHz		1.3:1	1.5:1	dB

1. All measurements made in a 50 Ω system, unless otherwise specified.
2. DC = 50 MHz.
3. Video feedthru measured with 1 ns rise

OPERATING CHARACTERISTICS AT 25°C (0, -5 V)

Parameter	Condition ¹	Frequency	Min	Typ	Max	Units
Switching Characteristics	Rise, Fall (10/90% or 90/10%)			1		ns
	On, Off (50% CTL to 90/10% RF)			3.8		ns
	Video Feedthru ³			1.0		mV
Input Power for 1 dB Compression		0.5 – 2.0 GHz		26		dBm
Intermodulation Intercept Point (IP3)	For two-tone Input Power +13 dBm	0.5 – 2.0 GHz		46.5		dBm
Control Voltages	$V_{Low} = 0.0 \text{ to } -0.2 \text{ V @ } 200\mu\text{A Max}$ $V_{High} = -5 \text{ V @ } 50\mu\text{A to } -8\text{V @ } 200\mu\text{A Max}$					

Specifications Subject to Change Without Notice

902216 C, August 1999



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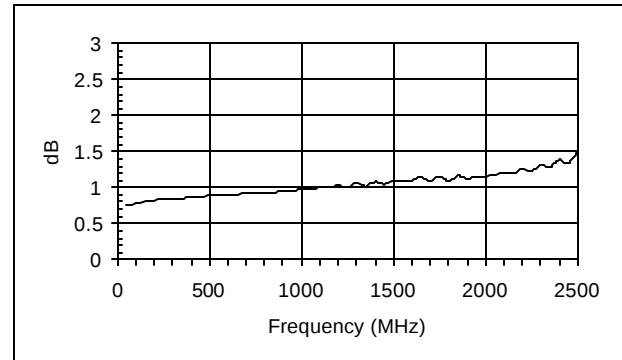


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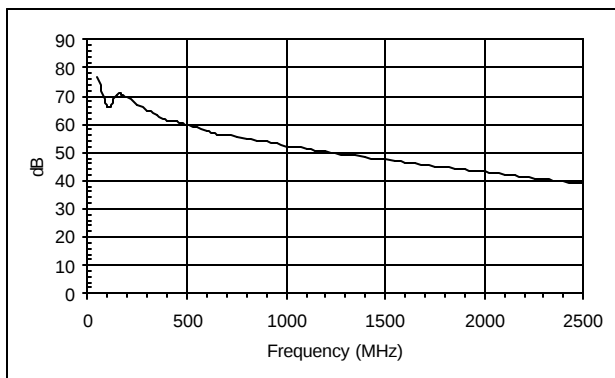
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MAXIMUM RATINGS

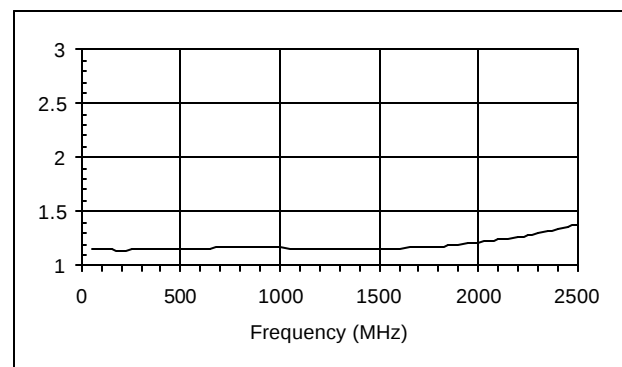
Rating	Symbol	Value
RF input power DC input power	$J_{1,2,3}$	2.5W @ 1 GHz 0.5W @ 1 GHz
Control Voltage	$V_{1,2}$	8 V
Junction Temperature	T_J	+150 °C
Storage Temperature	T_{STG}	-40 °C to +150 °C



Insertion Loss vs Frequency



Isolation vs Frequency



VSWR vs Frequency

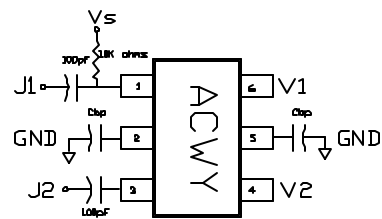


SPST High Isolation, Absorptive Switch Negative or Positive Control ITT130AK

TRUTH TABLE (Positive Control)

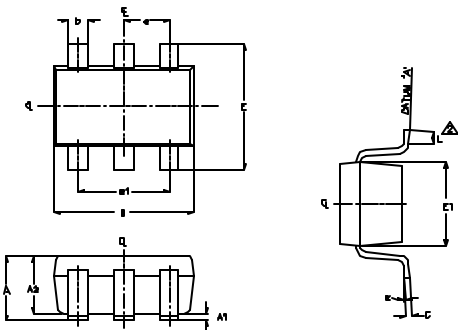
V1	V2	J1-J2
+5	0	Isolation
0	+5	Insertion Loss

Positive Control Circuit



#1 PIN is oriented to the bottom left with respect of package marking.

SOT 6 PACKAGE OUTLINE DIMENSIONS:



Dimension Table

Symbol	mm		Inches	
	Min	Max	Min	Max
A	0.90	1.45	0.035	0.057
A1	0.00	0.15	0.000	0.006
A2	0.90	1.30	0.035	0.051
B	0.35	0.50	0.014	0.020
C	0.09	0.20	0.004	0.008
D	2.80	3.00	0.110	0.118
E	2.60	3.00	0.102	0.118
E1	1.50	1.75	0.059	0.069
L	0.10	0.60	0.004	0.024
e	0.95ref		0.037ref	
e1	0.95ref		0.037ref	
α	0°	10°	0°	10°

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SPST High Isolation, Absorptive Switch

Negative or Positive Control ITT130AK

NOTES:

1. Controlling dimension is millimeter.
2. Foot length measured referenced to flat foot surface parallel to datum 'A'.
3. Package outline exclusive of mold flash and burr.
4. Package outline inclusive of solder plating.
5. Complies with EIAJ SC74.

