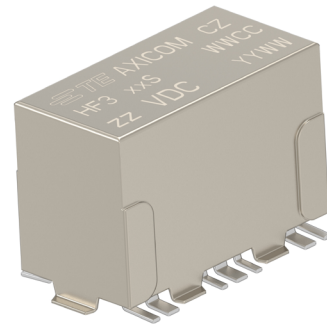


# AXICOM HF3 S RELAY

## RF SIGNAL RELAYS

### INTRODUCTION

TE Connectivity's (TE) Axicom HF signal relays, small size electromechanical relays designed for high frequency signal transmission applications, are manufactured in a wide range of variants. The HF relays are designed as 1 changeover contact, giving them an operating signal range up to 3 GHz with excellent high frequency characteristics.



### FEATURES

- Y-Design
- Frequency range DC to 3GHz
- Impedance 50Ω / 75Ω
- Small dimensions (15x7.6x10.6mm)
- 1 form C contact (1 changeover contact)
- Immersion cleanable
- Low power consumption ( $\leq 140\text{mW}$ )

### APPLICATIONS

- Cable modems and linecards/ CATV
- Tabs
- Measurement and test equipment ATE
- Satellite / audio / video tuners
- Wireless base stations and antennas
- Power stages

# HF3 S RELAY

## RF SIGNAL RELAYS

### CONTACT DATA

Contact arrangement	1 form C, 1 CO
Max. switching voltage	220 VDC, 250 VAC
Rated current	2 A
Limiting continuous current, 23°C	2 A
Switching power	60 W, 62.5 VA,
	50 W (2.5 GHz)
Max. continuous RF-power, @ 20°C., VSWR <1.2	100W @ 3GHz <sup>1)</sup>
	150W @ 2GHz <sup>1)</sup>
Breaking capacity max.	300W <sup>1)</sup>
Contact material	Ag, Au covered
Minimum switching voltage	100 µV
Initial contact resistance	<100 mΩ at 10 mA/30 mV
Operate time	typ. 3 ms, max. 5 ms
Release time	without diode in parallel
	with diode in parallel
Bounce time	typ. 1 ms, max. 3 ms
Duration of set/reset pulse min.	20 ms
Mechanical endurance	10 <sup>7</sup> operations

1) with appropriate cooling only.

### COIL DATA

Coil voltage	3 to 24 VDC
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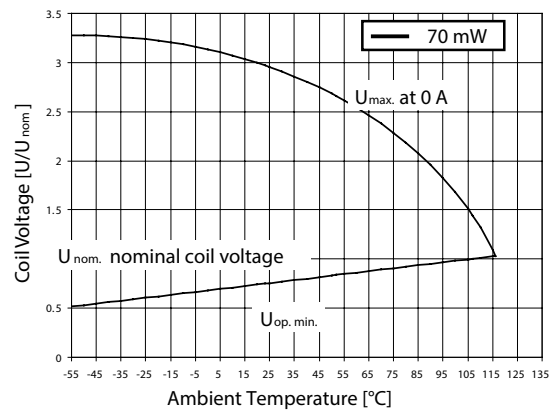
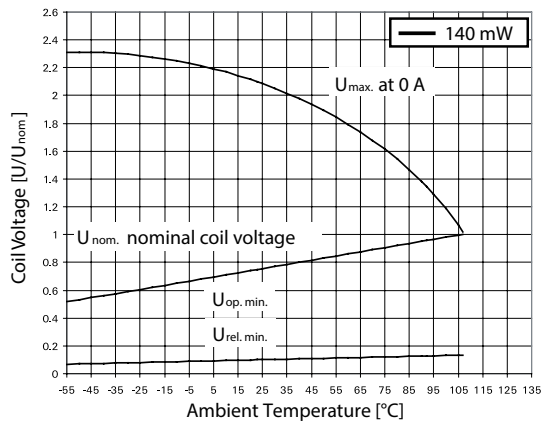
Coil code	Rated voltage VDC	Operate voltage VDC	Limiting voltage VDC	Release voltage VDC	Coil resistance Ω±10%	Rated coil power mW
<b>50 Ω version, monostable, 1 coil</b>						
51S	3	2.25	6.50	0.30	64	140
52S	4.5	3.38	9.80	0.45	145	140
53S	5	3.75	10.90	0.50	178	140
55S	9	6.75	19.60	0.90	574	140
56S	12	9.00	26.10	1.20	1028	140
57S	24	18.00	52.30	2.40	4114	140
<b>75 Ω version, monostable, 1 coil</b>						
01S	3	2.25	6.5	0.30	64	140
02S	4.5	3.38	9.80	0.45	145	140
03S	5	3.75	10.90	0.50	178	140
05S	9	6.75	19.60	0.90	574	140
06S	12	9.00	26.10	1.20	1028	140
<b>50 Ω version, bistable, 1 coil</b>						
73S	5	3.75	15.30	-3.75	357	70
<b>50Ω version, bistable, 2 coils</b>						
91S	3	2.25	6.50	2.25	64	140
92S	4.5	3.38	9.80	3.38	145	140
93S	5	3.75	10.90	3.75	178	140
95S	9	6.75	19.60	6.75	574	140
96S	12	9.00	26.10	9.00	1028	140
<b>75Ω version, bistable, 2 coils</b>						
41S	3	2.25	6.5	2.25	64	140
42S	4.5	3.38	9.80	3.38	145	140
43S	5	3.75	10.90	3.75	178	140
46S	12	9.00	26.10	9.00	1028	140

All figures are given for coil without pre-energization, at ambient temperature +23°C.

# HF3 S RELAY

## RF SIGNAL RELAYS

### COIL OPERATING RANGE



### INSULATION DATA

	50 Ω version	75 Ω version
Initial dielectric strength		
Between open contacts	600 V <sub>rms</sub>	
Between contact and coil	1000 V <sub>rms</sub>	
Initial surge withstand voltage		
Between open contacts	1000 V	
Between contact and coil	1500 V	

### RF DATA

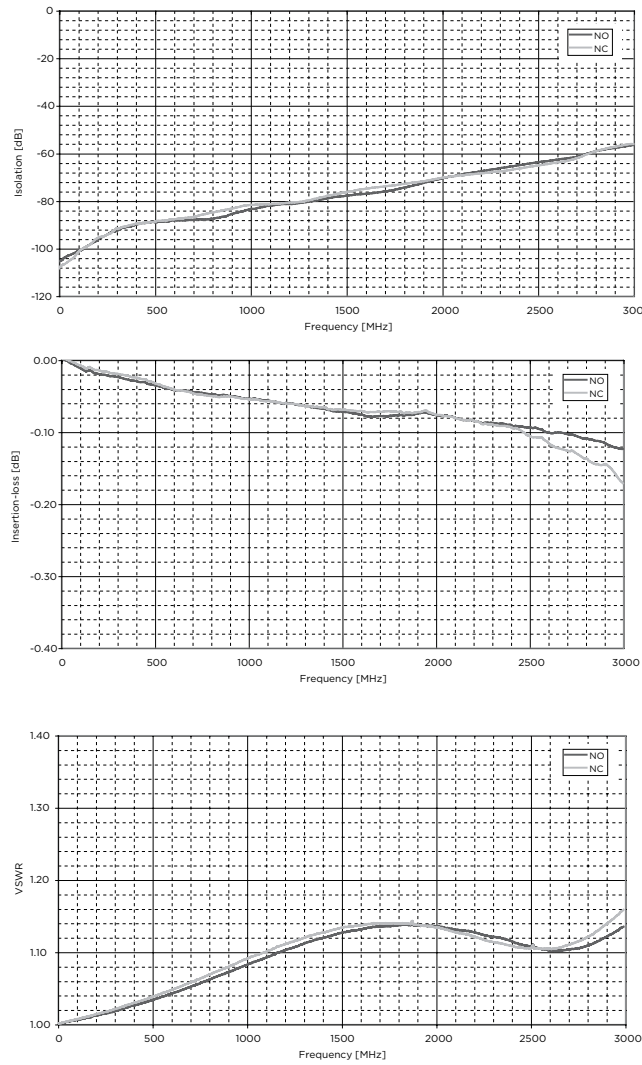
	50 Ω version	75 Ω version
Isolation		
@ 100 MHz / 900 MHz	95 dB/80 dB	96 dB/80 dB
@ 3 GHz	55 dB	50 dB
Insertion loss		
@ 100 MHz / 900 MHz	0.03 dB / 0.12 dB	0.03 dB / 0.12 dB
@ 3 GHz	0.30 dB	0.30 dB
Voltage standing wave ratio (VSWR)		
@ 100 MHz / 900 MHz	1.05 / 1.10	1.05 / 1.20
@ 3 GHz	1.25	1.30

### OTHER DATA

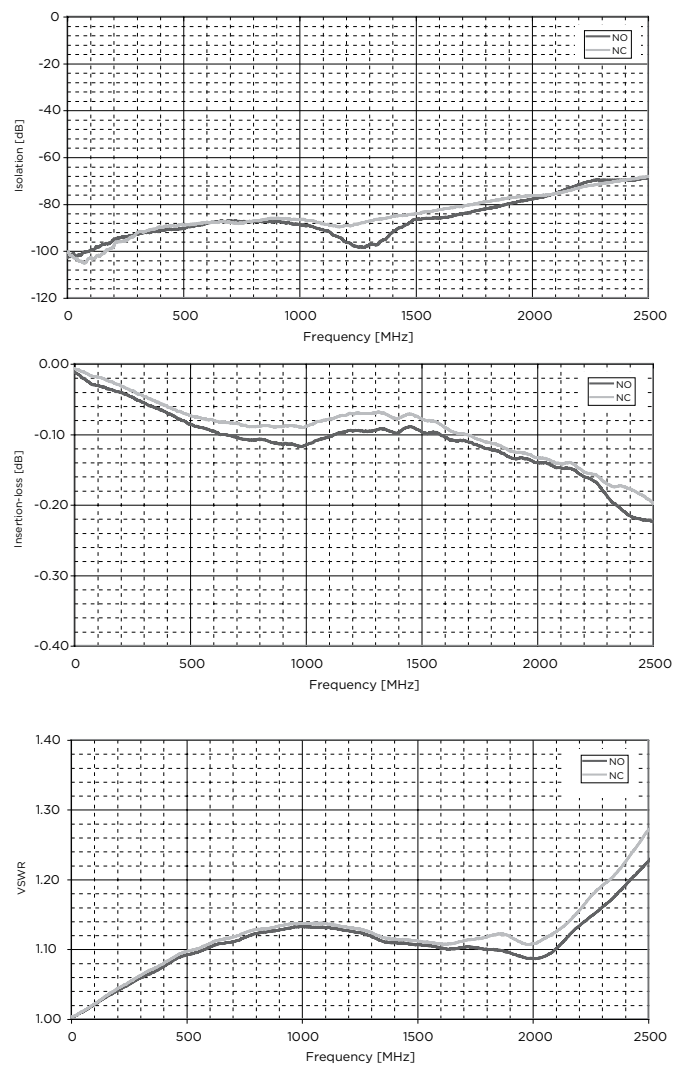
Material compliance	EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at <a href="http://www.te.com/customer-support/rohssupportcenter">www.te.com/customer-support/rohssupportcenter</a>
Ambient temperature	-55 °C to +85 °C
Thermal resistance	< 165 K/W
Category of environmental protection	
IEC 61810	RT III - wash tight
Vibration resistance (functional)	35 g, 10 Hz to 1000 Hz
Shock resistance (functional), half sinus 11ms	50 g
Shock resistance (destructive), half sinus 0.5ms	150 g
Terminal type	SMT
Weight	max. 3 g
Resistance to soldering heat SMT	
IEC 60068-2-58	Peak value 250 °C/10 s
Moisture sensitive level, JEDEC J-Std-020D	MSL3
Ultrasonic cleaning	not recommended
Packaging/unit	reel/400 pcs., box/400 or 2000 pcs.

**GRAPHS**

**RF performance, 50 Ω version**



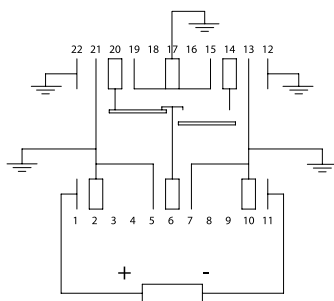
**RF performance, 75 Ω version**



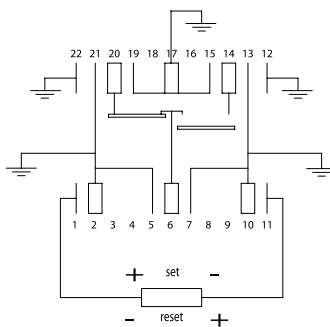
**TERMINAL ASSIGNMENT**

TOP view on component side of PCB

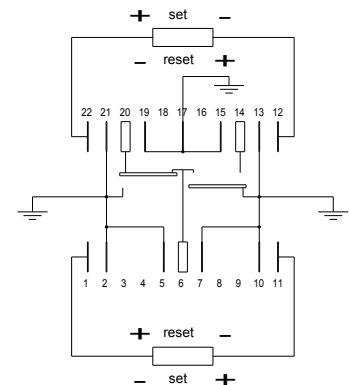
**Monostable**



**Bistable, 1 coil**



**Bistable, 2 coils**



**Note:** Contacts are shown in reset condition. Contact position might change during transportation and must be reset before use.

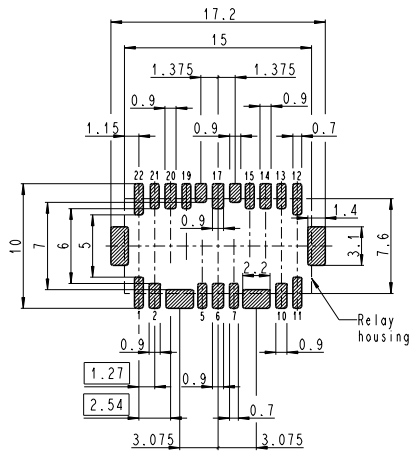
# HF3 S RELAY

## RF SIGNAL RELAYS

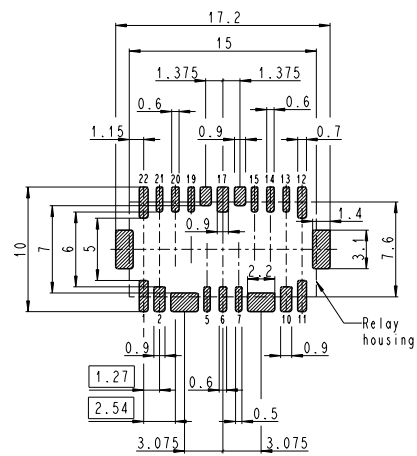
### PCB LAYOUT

TOP view on component side of PCB

#### 50 Ω version

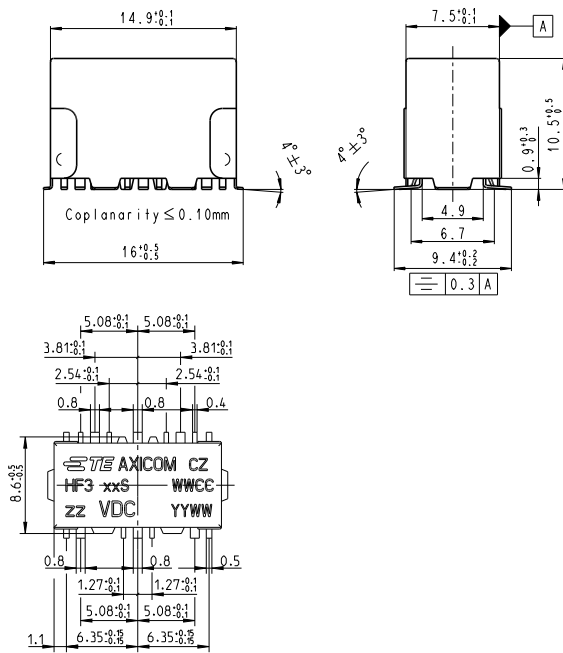


#### 75 Ω version

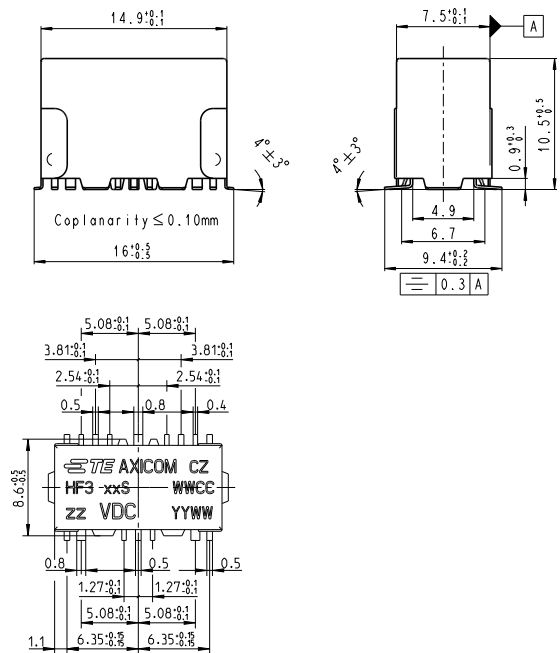


### DIMENSIONS

#### 50 Ω version

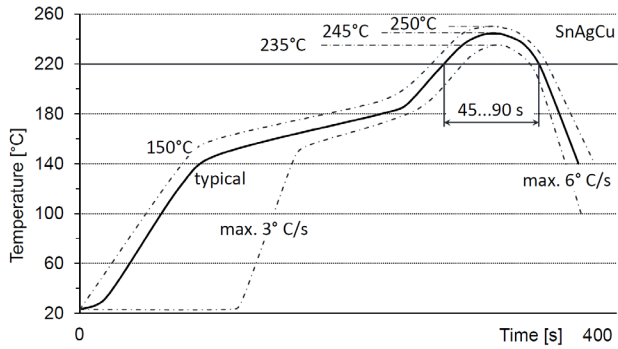


#### 75 Ω version

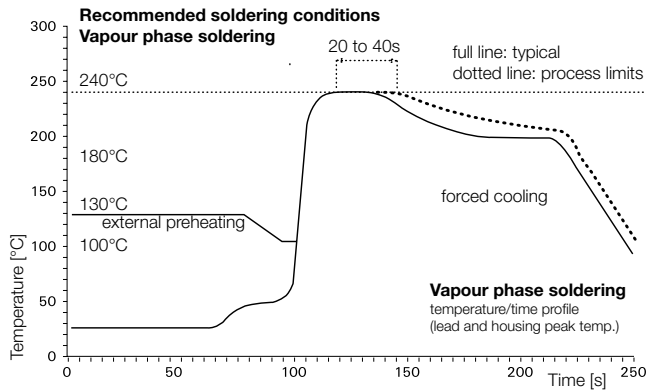
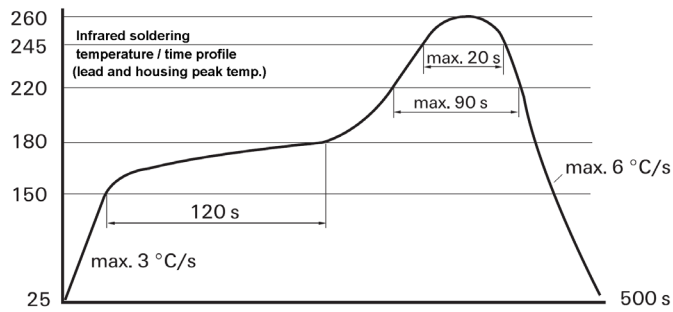


**PROCESSING**

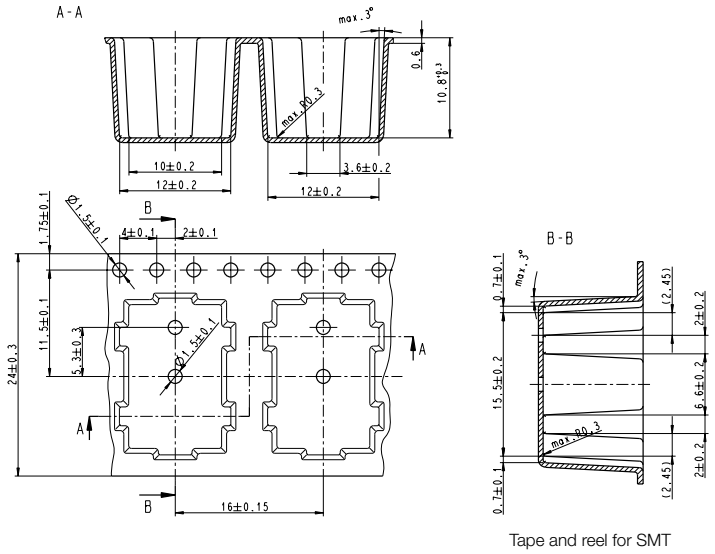
**Recommended reflow soldering profile IEC 61760-1**



**Resistance to soldering heat - Reflow profile IEC 60068-2-58**

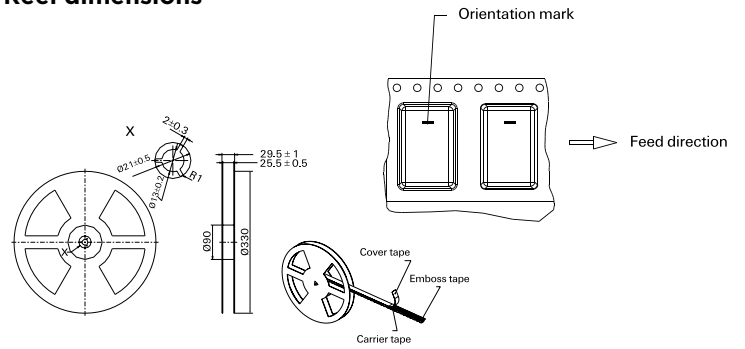


**PACKING**



Tape and reel for SMT

**Reel dimensions**



## ORDERING INFORMATION

**Part Number**  
**HF3 53 S**

### Type

**HF3** High Frequency Relays HF3S Series 1 form C, 1 CO

### Type

**S** High performance / shielded

### Coil

Coil code: please refer to coil versions table  
Performance type

<b>5x</b>	50 Ω version, monostable 1coil
<b>7x</b>	50 Ω version, bistable 1coil
<b>9x</b>	50 Ω version, bistable 2coils
<b>0x</b>	75 Ω version, monostable 1coil
<b>2x</b>	75 Ω version, bistable 1coil
<b>4x</b>	75 Ω version, bistable 2coils

## PRODUCT INFORMATION

TE Part Number	Arrangement	Version	Coil	Coil type	Part Number	
HF3 53S	1 form C (1 CO)	50 ohm	5VDC	Monostable	<a href="#">2-1462051-3</a>	
HF3 55S			9VDC		<a href="#">4-1462051-0</a>	
HF3 56S			12VDC		<a href="#">3-1462051-1</a>	
HF3 57S			24VDC		<a href="#">2-1462051-2</a>	
HF3 92S			4.5VDC		<a href="#">2-1462051-5</a>	
HF3 93S		75 ohm	Bistable 2 coils	5VDC	<a href="#">2-1462051-4</a>	
HF3 95S				9VDC	<a href="#">4-1462051-1</a>	
HF3 03S				Bistable 1 coil	5VDC	<a href="#">2-1462050-2</a>
HF3 05S					9VDC	<a href="#">2-1462050-3</a>
HF3 06S					12VDC	<a href="#">2-1462050-7</a>

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