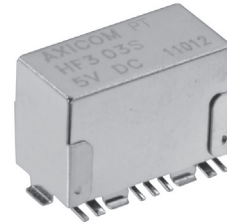


**HF3 S Relay**

- 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 (≤140mW)

Typical applications

Cable modems and linecards/ CATV, Tabs, measurement and test equipment ATE, satellite / audio / video tuners, wireless base stations and antennas, power stages



Contact Data	
Contact arrangement	1 form C, 1 CO
Max. switching voltage	220VDC, 250VAC
Rated current	2A
Limiting continuous current, 23°C	2A
Switching power	60W, 62.5VA, 50W (2.5GHz)
Max. Continuous RF-Power, at 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	100μV
Initial contact resistance	<100mΩ at 10mA/30mV
Operate time	typ. 3ms, max. 5ms
Release time	
without diode in parallel	typ. 2ms, max. 5ms
with diode in parallel	typ. 4ms, max. 6ms
Bounce time max.	typ. 1ms, max. 3ms
Duration of set/reset pulse min.	20ms
Mechanical endurance	10 <sup>7</sup> operations

1) with appropriate cooling only

Coil Data	
Coil voltage range	3 to 24VDC

Coil versions, monostable							
Coil code	Rated voltage VDC	Operate voltage VDC	Limiting voltage VDC	Release voltage VDC	Coil resistance Ω±10%	Rated coil power mW	
<b>50Ω 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>75Ω version, monostable, 1 coil</b>							
01S	3	2.25	6.50	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	

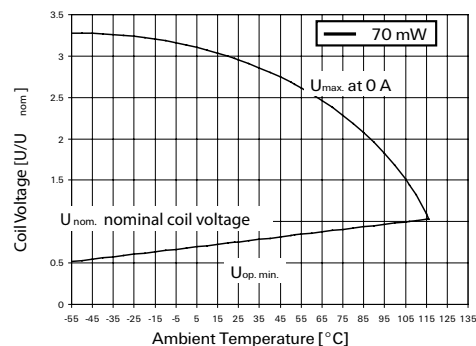
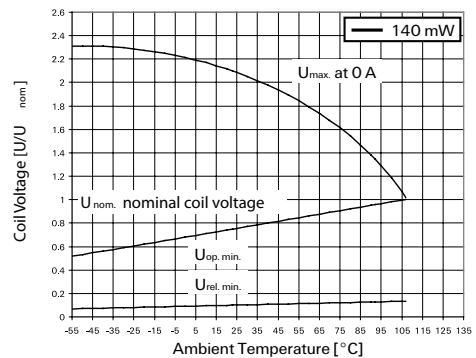
All figures are given for coil without pre-energization, at ambient temperature +23°C.

**Coil Data (continued)**

Coil versions, bistable						
Coil code	Rated voltage VDC	Set voltage VDC	Limiting voltage VDC	Reset voltage VDC	Coil resistance Ω±10%	Rated coil power mW
<b>50Ω 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	6.50	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.

**Coil operating Range**



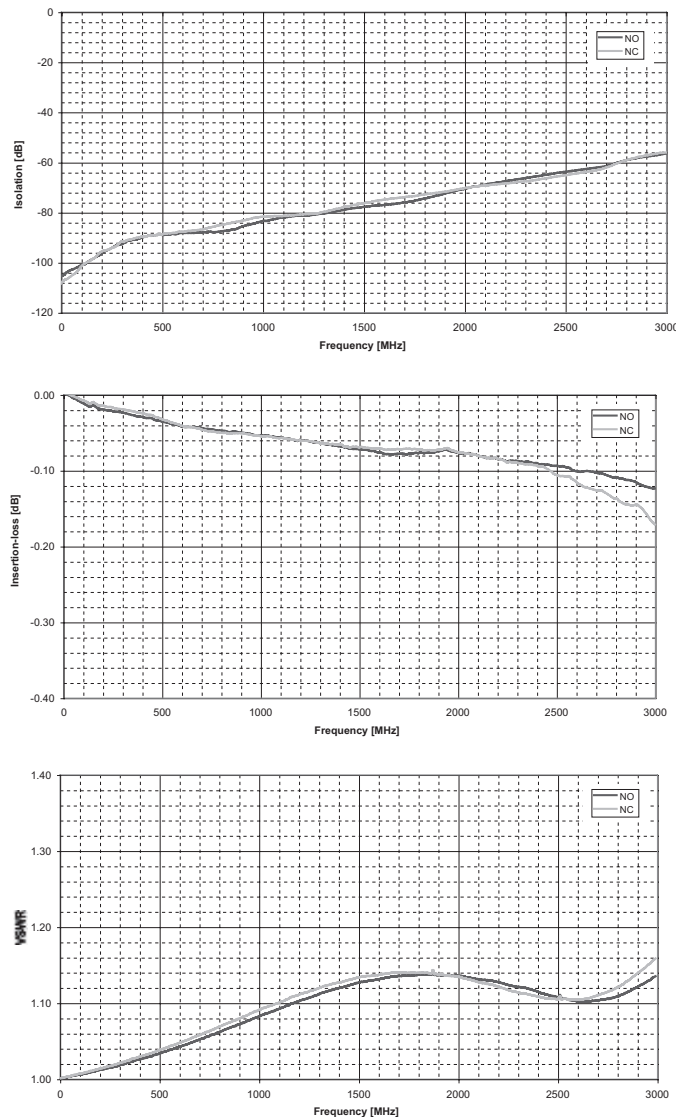
**HF3 S Relay** (Continued)

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

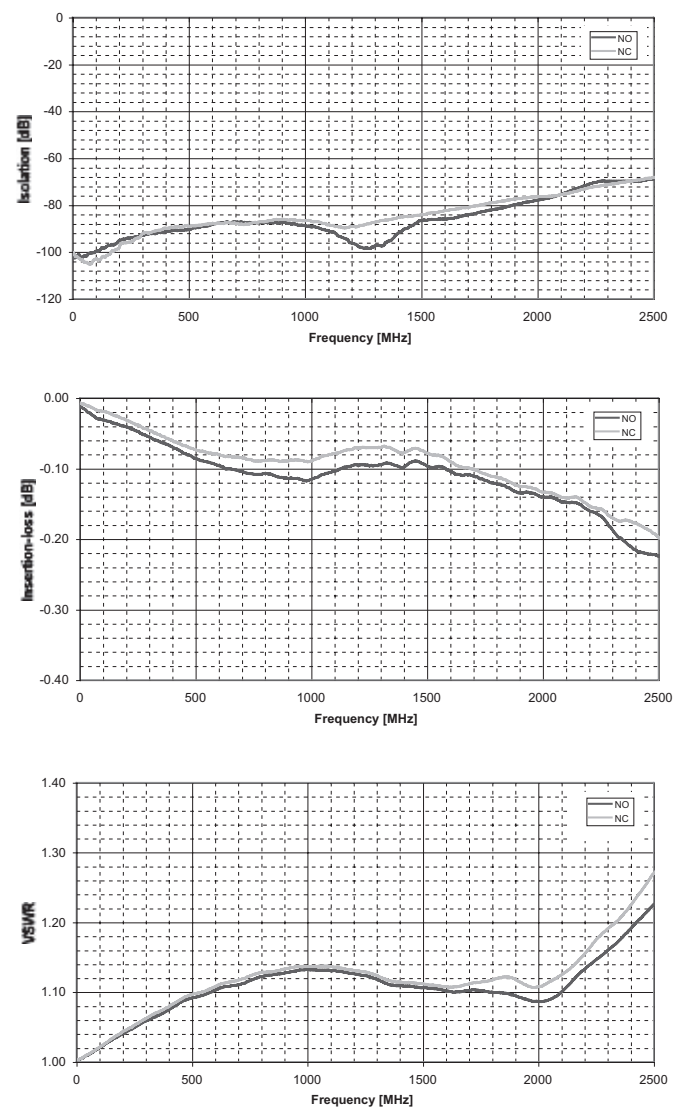
RF Data	50Ω version	75Ω version
Isolation		
at 100MHz/900MHz	95dB/80dB	96dB/80dB
at 3GHz	55dB	50dB
Insertion loss		
at 100MHz/900MHz	0.03dB/0.12dB	0.03dB/0.12dB
at 3GHz	0.30dB	0.30dB
Voltage standing wave ratio (VSWR)		
at 100MHz/900MHz/3GHz	1.05/1.10/1.25	1.05/1.20/1.30

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	<165K/W
Category of environmental protection	IEC 61810
	RT III - wash tight
Degree of protection, IEC 60529	IP 67, immersion cleanable
Vibration resistance (functional)	35g, 10 to 1000Hz
Shock resistance (functional), half sinus 11ms	50g
Shock resistance (destructive), half sinus 0.5ms	150g
Terminal type	SMT
Weight	max. 3g
Resistance to soldering heat SMT	Peak Value
IEC 60068-2-58	250°C/10s
Moisture sensitive level, JEDEC J-Std-020D	MSL3
Ultrasonic cleaning	not recommended
Packaging/unit, SMT	reel/250 pcs., box/250 pcs.

RF performance, 50Ω version



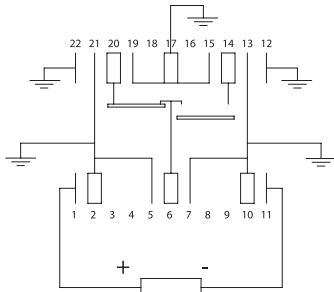
RF performance, 75Ω version



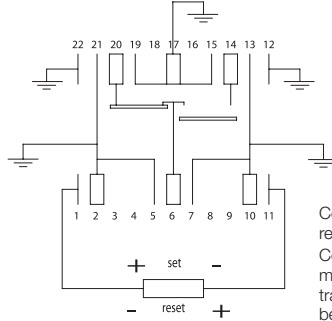
**HF3 S Relay** (Continued)

**Terminal assignment**

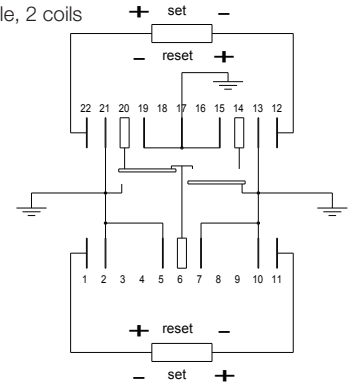
TOP view on component side of PCB  
Monostable



Bistable, 1 coil



Bistable, 2 coils

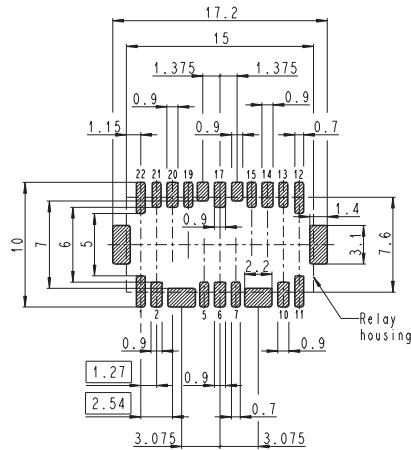


Contacts are shown in reset condition. Contact position might change during transportation and must be reset before use.

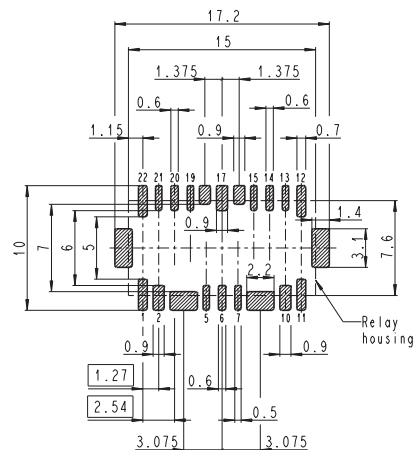
**PCB layout**

TOP view on component side of PCB

50Ω version

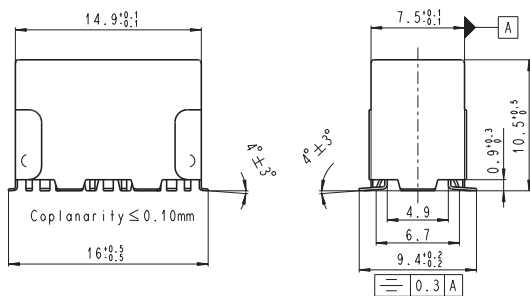


75Ω version

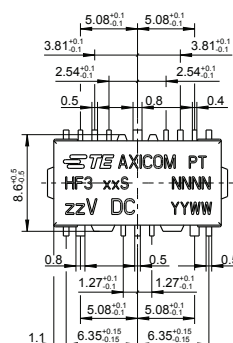
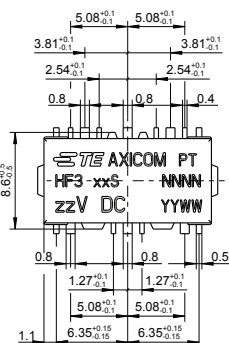
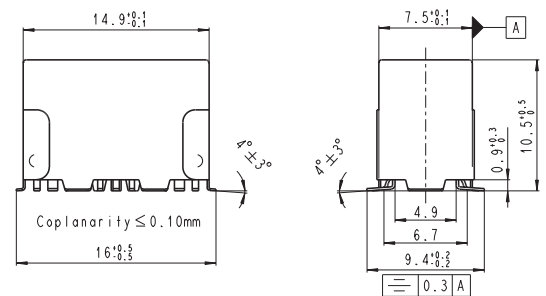


**Dimensions**

50Ω version

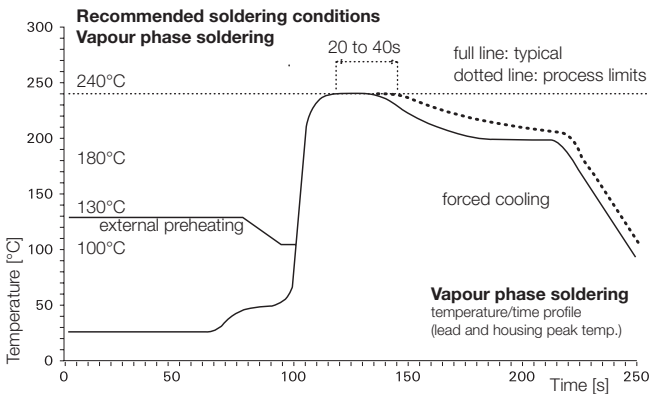
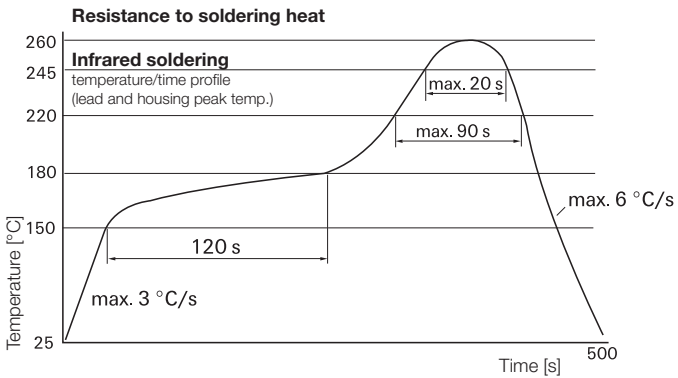
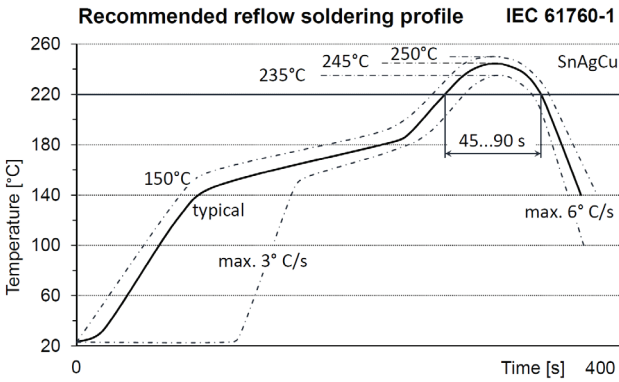


75Ω version

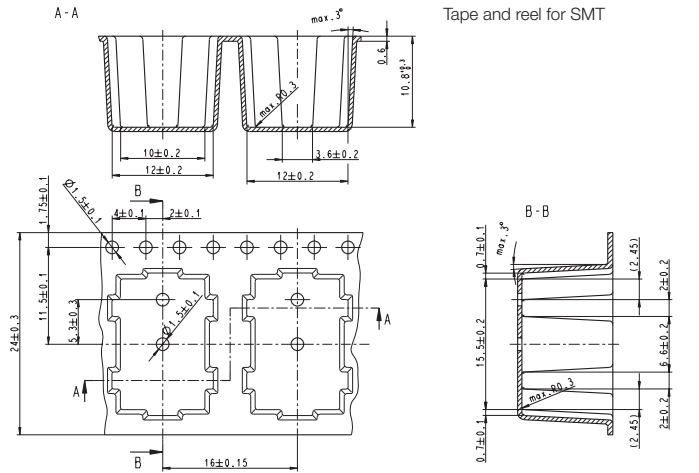


**HF3 S Relay** (Continued)

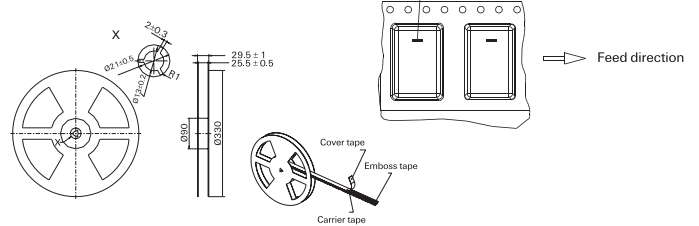
**Processing**



**Packing**



**Reel dimensions**



**HF3 S Relay** (Continued)

<b>Product code structure</b>		Typical product code	<b>HF3</b>	<b>53</b>	<b>S</b>
<b>Type</b>	<b>HF3</b> High Frequency Relays HF3S Series 1 form C, 1 CO				
<b>Coil</b>	Coil code: please refer to coil versions table Performance type <b>5x</b> 50Ω version, monostable 1coil <b>0x</b> 75Ω version, monostable 1coil <b>7x</b> 50Ω version, bistable 1coil <b>2x</b> 75Ω version, bistable 1coil <b>9x</b> 50Ω version, bistable 2coils <b>4x</b> 75Ω version, bistable 2coils				
<b>Type</b>	<b>S</b> High performance / shielded				

Product code	Arrangement	Version	Coil	Coil Type	Part number
HF3 53S	1 form C (1 CO)	50ohm	5VDC	Monostable	2-1462051-3
HF3 55S			9VDC		4-1462051-0
HF3 56S			12VDC		3-1462051-1
HF3 57S			24VDC		2-1462051-2
HF3 92S			4.5VDC	Bistable 2 coils	2-1462051-5
HF3 93S			5VDC		2-1462051-4
HF3 95S			9VDC		4-1462051-1
HF3 95S			9VDC		4-1462051-1
HF3 03S		75ohm	5VDC	Monostable	2-1462050-2
HF3 05S			9VDC		3-1462050-3
HF3 06S			12VDC		3-1462050-7
HF3 41S			3VDC	Bistable 2 coils	3-1462050-2
HF3 42S			4.5VDC		3-1462050-3

This list represents the most common types and does not show all variants covered by this data sheet.

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