

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 ¹⁾ 150W @ 2GHz ¹⁾
Breaking capacity max.	300W ¹⁾
Contact material	Ag, Au covered
Minimum switching voltage	100μV
Initial contact resistance	<100mΩ at 10mA/20mV
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
Mechanical endurance	10 ⁷ operations

1) with appropriate cooling only

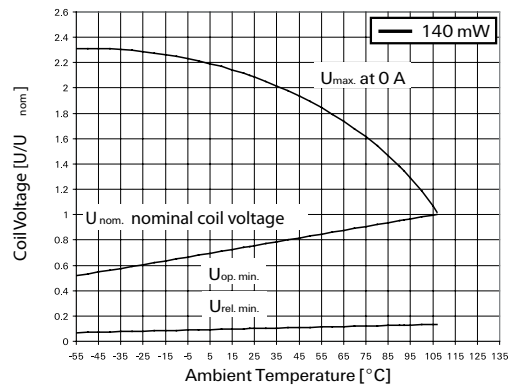
Coil Data	
Coil voltage range	3 to 24VDC

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
50Ω version, monostable, 1 coil						
51	3	2.25	6.50	0.30	64	140
52	4.5	3.38	9.80	0.45	145	140
53	5	3.75	10.90	0.50	178	140
56	12	9.00	26.10	1.20	1028	140
57	24	18.00	52.30	2.40	4114	140
75Ω version, monostable, 1 coil						
01	3	2.25	6.50	0.30	64	140
02	4.5	3.38	9.80	0.45	145	140
03	5	3.75	10.90	0.50	178	140
05	9	6.75	19.60	0.90	574	140
06	12	9.00	26.10	1.20	1028	140

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

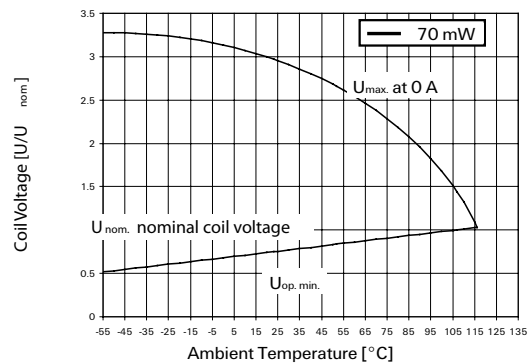
Coil Data (continued)



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
50Ω version, bistable, 1 coil						
73S	5	3.75	15.30	-3.75	357	70
50Ω version, bistable, 2 coils						
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
96S	12	9.00	26.10	9.00	1028	140
75Ω version, bistable, 2 coils						
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.



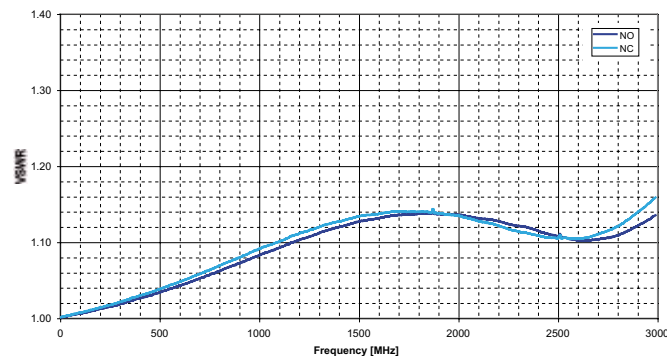
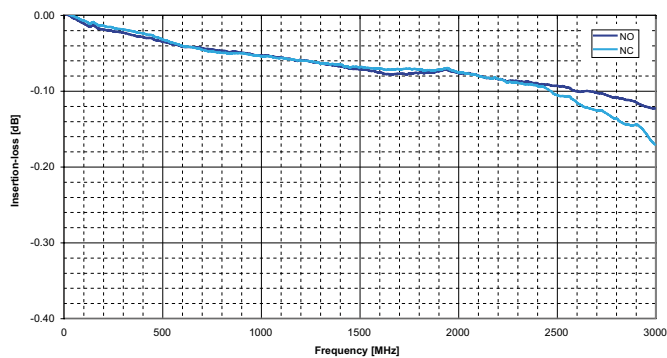
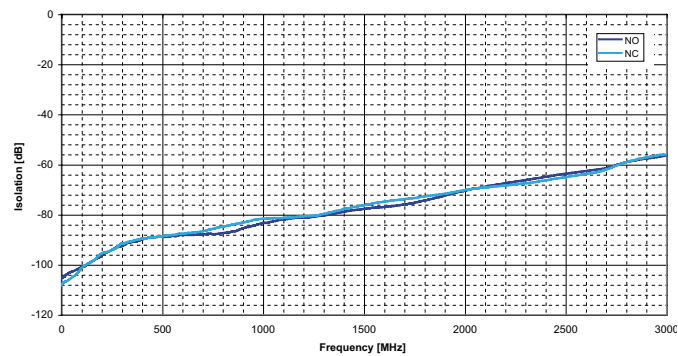
HF3 S Relay (Continued)

Insulation Data	50Ω version	75Ω version
Initial dielectric strength		
between open contacts		600V _{rms}
between contact and coil		1000V _{rms}
Initial surge withstand voltage		
between open contacts		1000V
between contact and coil		1500V

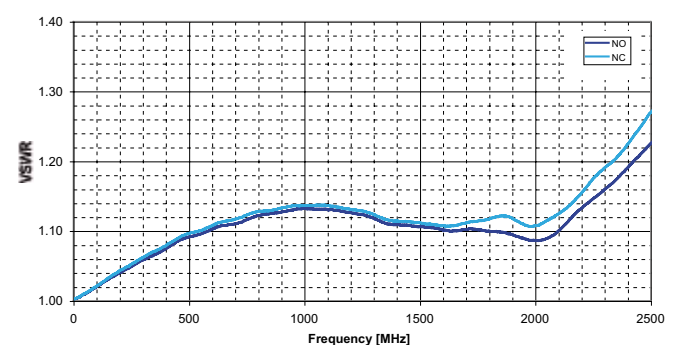
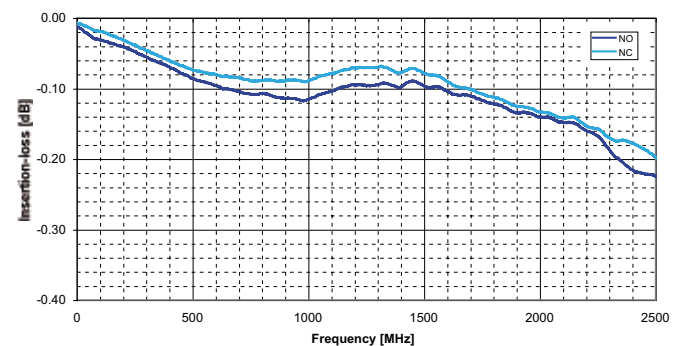
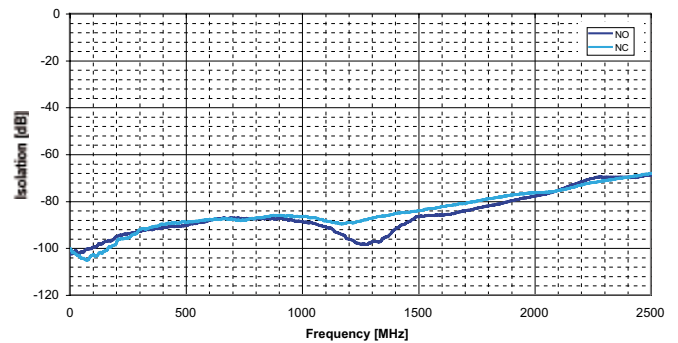
RF Data	50Ω version	75Ω version
Isolation		
at 100MHz/900MHz	-95dB/-80dB	-96dB/-80dB
at 3GHz	-55dB	-50dB
Insertion loss		
at 100MHz/900MHz	-0.03dB/-0.12dB	-0.03dB/-0.12dB
at 3GHz	-0.30dB	-0.30dB
Voltage standing wave ratio (VSWR)		
at 100MHz/900MHz/3GHz	1.05/1.10/1.25	1.05/1.20/1.30

Other Data	
Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content	refer to the Product Compliance Support Center at www.tycoelectronics.com/customer-support/rohssupportcenter
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	IEC 60068-2-58
	265°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



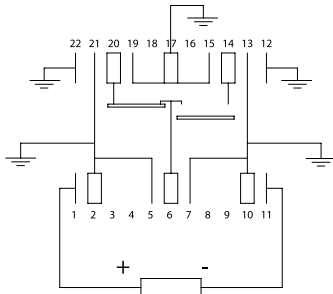
RF performance, 75Ω version



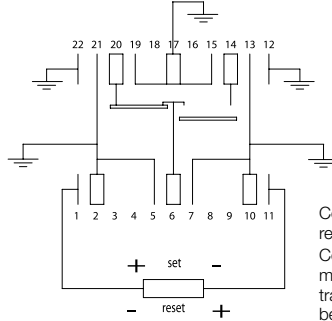
HF3 S Relay (Continued)

Terminal assignment

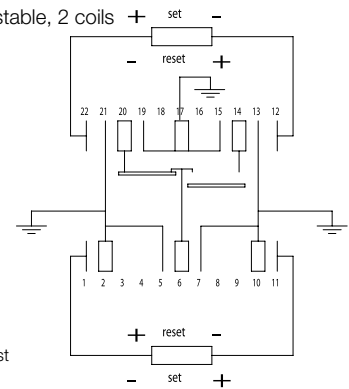
TOP view on component side of PCB
Monostable



Bistable, 1 coil



Bistable, 2 coils

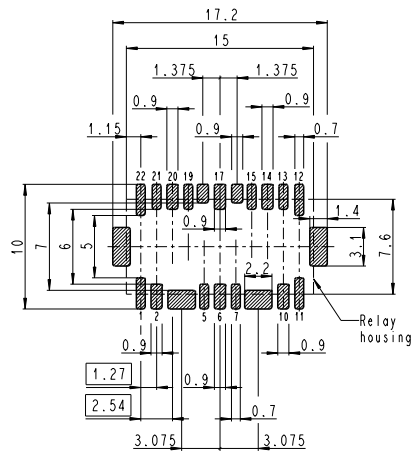


Contacts are shown in reset condition. Contact position might change during transportation and must be reset before use.

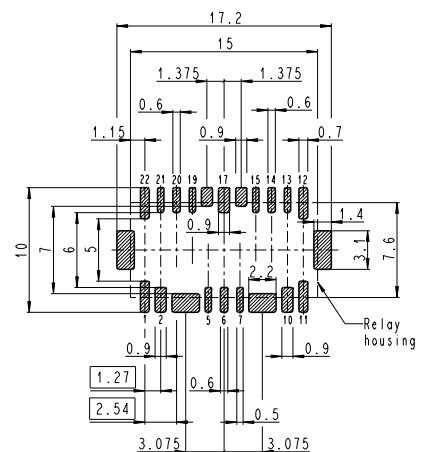
PCB layout

TOP view on component side of PCB

50Ω version

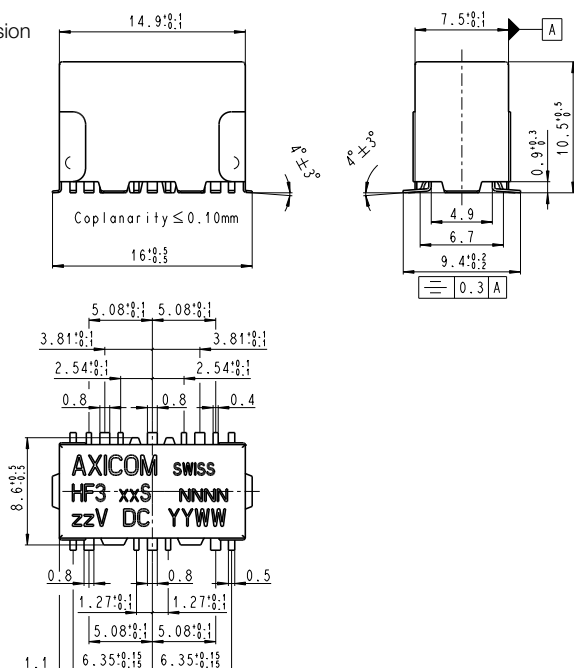


75Ω version

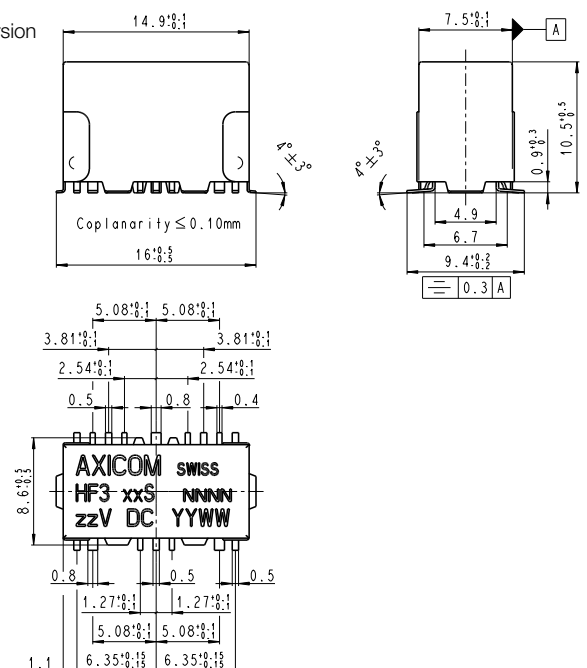


Dimensions

50Ω version



75Ω version



HF3 S Relay (Continued)

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

Product code	Arrangement	Version	Coil	Coil type	Part number
HF3 51S	1 form C (1 CO)	50Ω	3VDC	Monostable	3-1462051-0
HF3 52S			4.5VDC		2-1462051-8
HF3 53S			5VDC		2-1462051-3
HF3 56S			12VDC		3-1462051-1
HF3 57S			24VDC		2-1462051-2
HF3 73S	1 form C (1 CO)	50Ω	5VDC	Bistable 1 coil	2-1462051-7
HF3 91S	1 form C (1 CO)	50Ω	3VDC	Bistable 2 coils	3-1462051-2
HF3 92S			4.5VDC		2-1462051-5
HF3 93S			5VDC		2-1462051-4
HF3 96S			12VDC		2-1462051-6
HF3 01S	1 form C (1 CO)	75Ω	3VDC	Monostable	3-1462050-0
HF3 02S			4.5VDC		3-1462050-1
HF3 03S			5VDC		3-1462050-2
HF3 05S			9VDC		3-1462050-3
HF3 06S			12VDC		3-1462050-7
HF3 41S	1 form C (1 CO)	75Ω	3VDC	Bistable 2 coils	3-1462050-2
HF3 42S			4.5VDC		3-1462050-3
HF3 43S			5VDC		2-1462050-4
HF3 46S			12VDC		3-1462050-4