

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/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 ⁷ operations

1) with appropriate cooling only

Coil Data

Coil voltage range	3 to 24VDC
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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						
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

75Ω version, monostable, 1 coil

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.

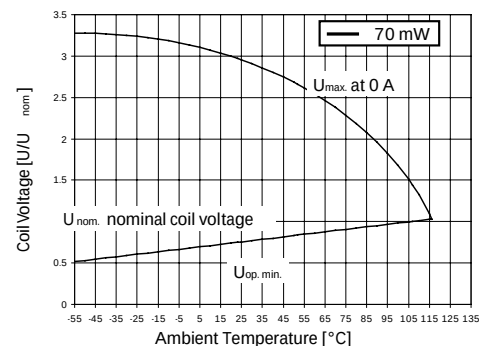
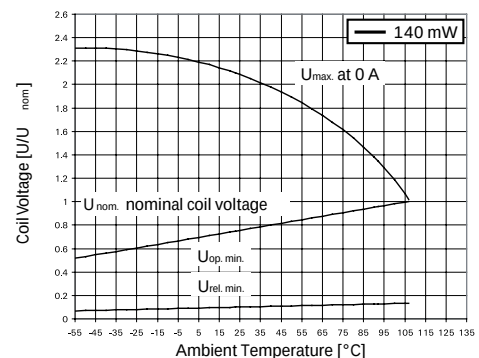
Coil Data (continued)

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
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
95S	9	6.75	19.60	6.75	574	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.

Coil operating Range



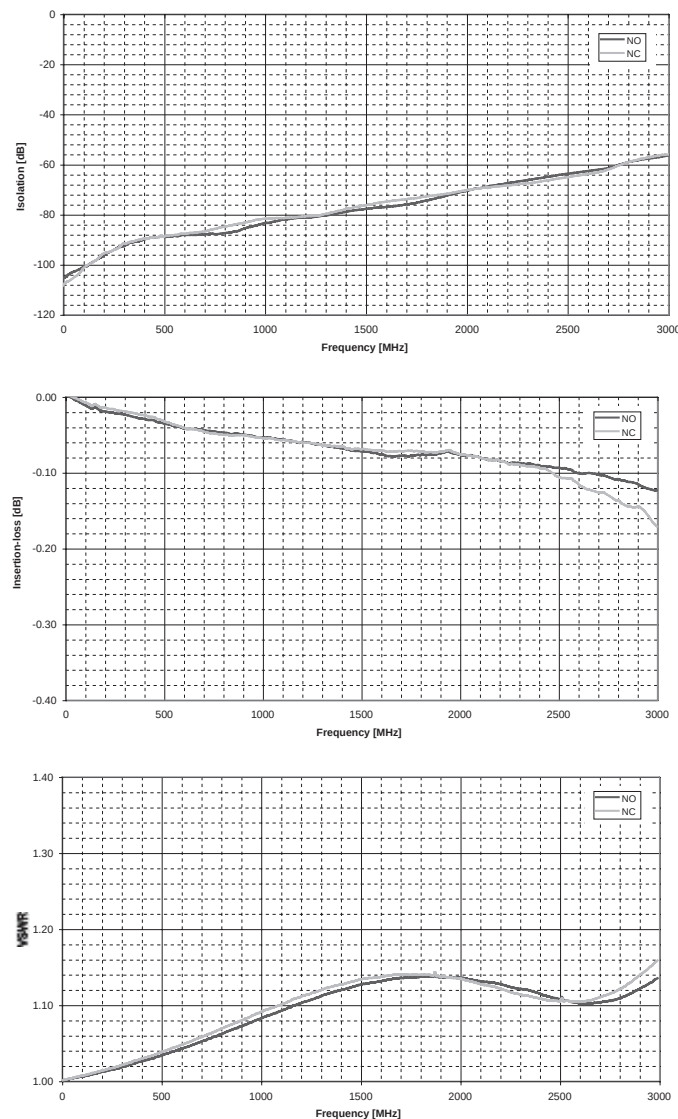
HF3 S Relay (Continued)

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	

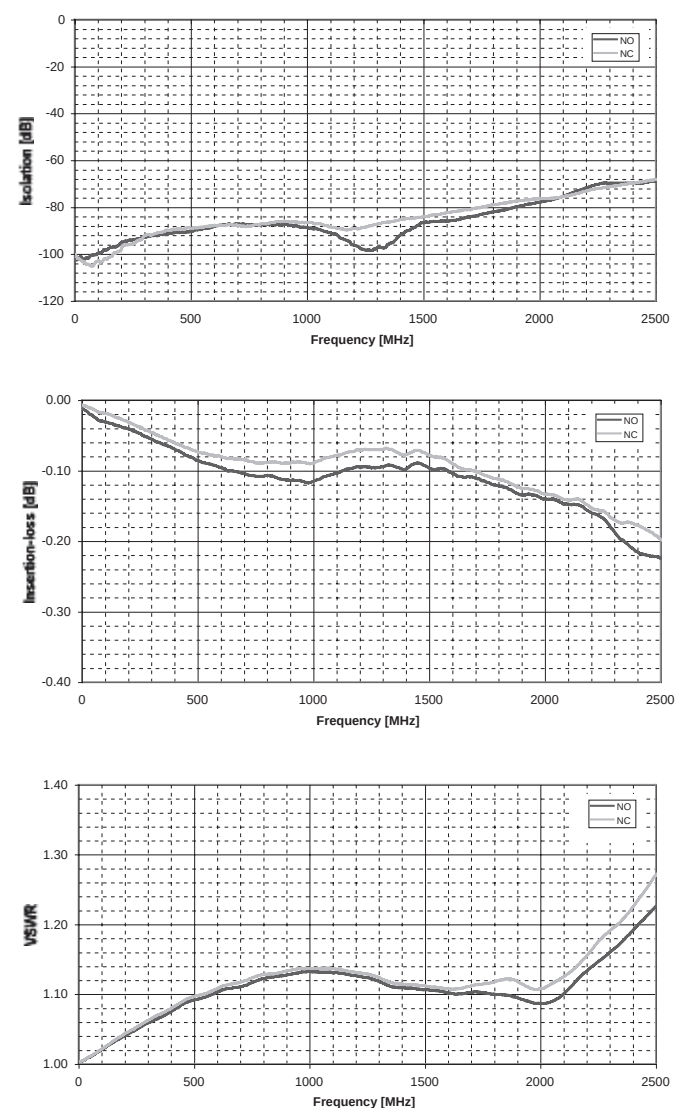
RF Data		
Isolation		
at 100MHz/900MHz	95dB/80dB	96dB/80dB
at 3GHz	55dB	50dB
Insertion loss		
at 100MHz/900MHz	0.03dB/0.12dB	0.03dB/0.12dB
at 3GHz	0.30dB	0.30dB
Voltage standing wave ratio (VSWR)		
at 100MHz/900MHz/3GHz	1.05/1.10/1.25	1.05/1.20/1.30

Other Data	
Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at www.te.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
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/400 pcs., box/400 pcs. or 2000 pcs.

RF performance, 50Ω version



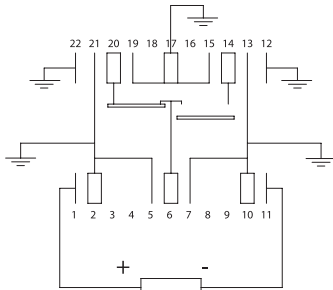
RF performance, 75Ω version



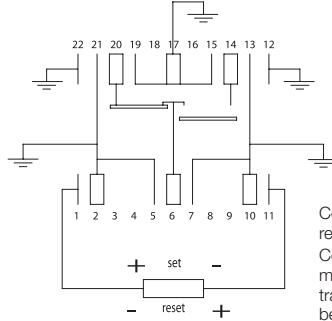
HF3 S Relay (Continued)

Terminal assignment

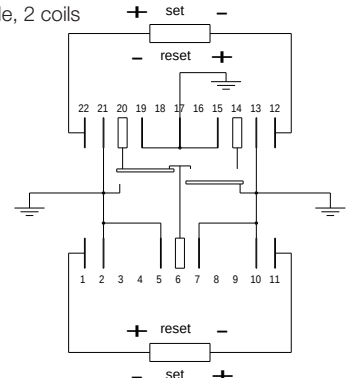
TOP view on component side of PCB
Monostable



Bistable, 1 coil



Bistable, 2 coils

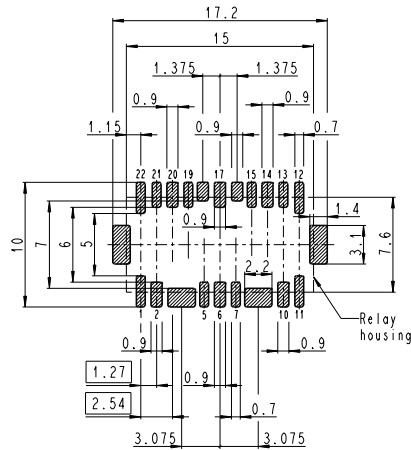


Contacts are shown in reset condition.
Contact position might change during transportation and must be reset before use.

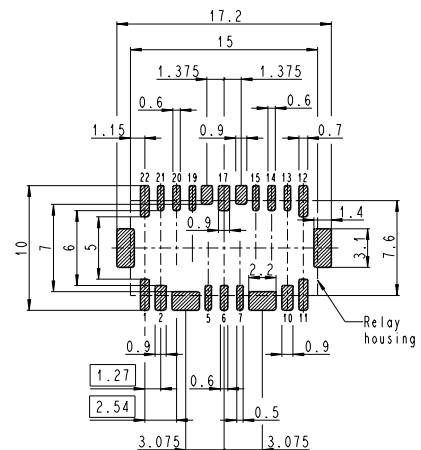
PCB layout

TOP view on component side of PCB

50Ω version

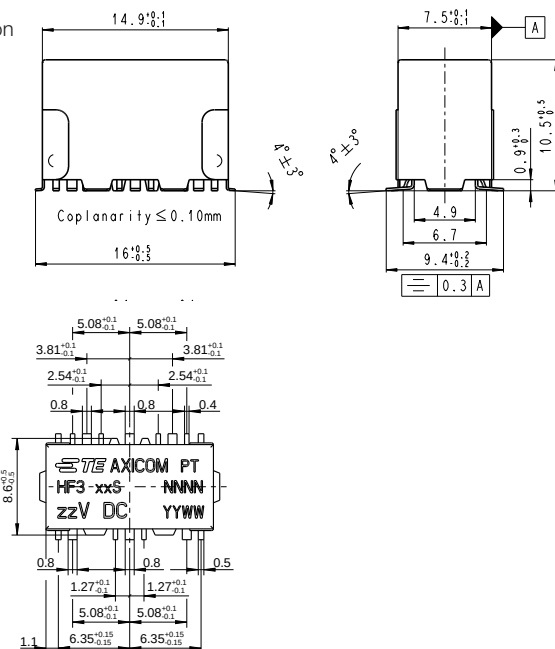


75Ω version

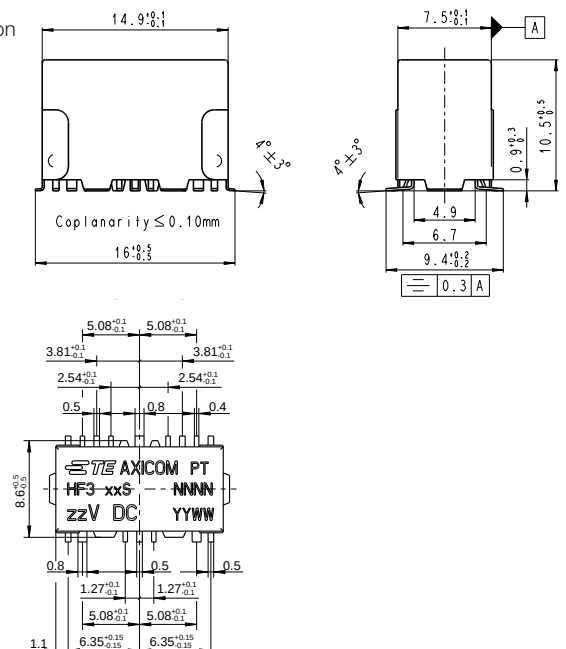


Dimensions

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 5x 50Ω version, monostable 1 coil 7x 50Ω version, bistable 1 coil 9x 50Ω version, bistable 2 coils 0x 75Ω version, monostable 1 coil 2x 75Ω version, bistable 1 coil 4x 75Ω version, bistable 2 coils	
Type		S 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		2-1462050-7

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