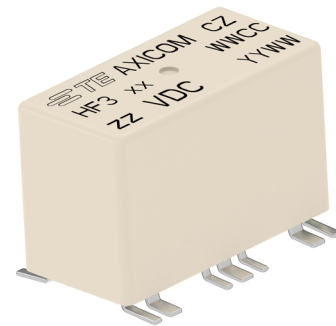


AXICOM HF3 RELAY

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 50 Ω or 75 Ω
- Small dimensions (14.6x7.2x10mm)
- 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
- Switching boards

HF3 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, 23°C	50 W (2.5 GHz)
Contact material	Ag, Au covered
Minimum switching voltage	100 μ V
Initial contact resistance	<100 m Ω at 10 mA, 30 mV
Operate time	typ. 3 ms, max. 5 ms
Release time	
without diode in parallel	typ. 2 ms, max. 5 ms
with diode in parallel	typ. 4 ms, max. 6 ms
Bounce time	typ. 1 ms, max. 3 ms
Duration of set/reset pulse min.	20 ms
Mechanical endurance	10 ⁷ operations

COIL DATA

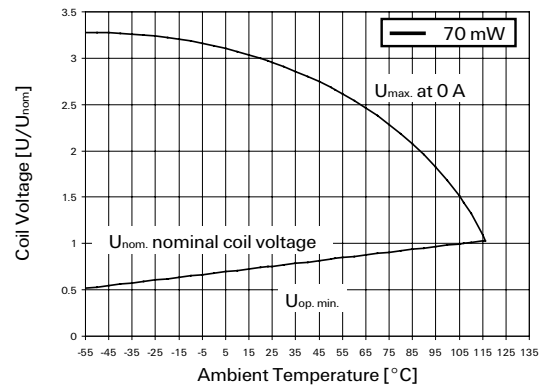
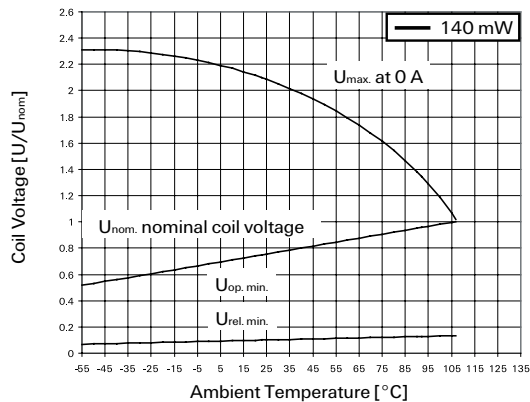
Coil voltage	3 to 24 VDC
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Coil code	Rated voltage VDC	Operate voltage VDC	Limiting voltage VDC	Release voltage VDC	Coil resistance $\Omega \pm 10\%$	Rated coil power mW
50 Ω version, monostable, 1 coil						
51	3	2.25	6.5	0.30	64	140
52	4.5	3.38	9.80	0.45	145	140
53	5	3.75	10.90	0.50	178	140
54	6	4.50	13.00	0.60	257	140
55	9	6.75	19.60	0.90	574	140
56	12	9.00	26.10	1.20	1028	140
57	24	18.00	52.30	2.40	4114	140
75 Ω version, monostable, 1 coil						
01	3	2.25	6.5	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
04	6	4.50	13.00	0.60	257	140
05	9	6.75	19.60	0.90	574	140
06	12	9.00	26.10	1.20	1028	140
07	24	18.00	52.30	2.40	4114	140

Coil code	Rated voltage VDC	Operate voltage VDC	Limiting voltage VDC	Release voltage VDC	Coil resistance $\Omega \pm 10\%$	Rated coil power mW
50 Ω version, bistable, 1 coil						
71	3	2.25	9.20	-2.25	128	70
72	4.5	3.38	13.85	-3.38	289	70
73	5	3.75	15.30	-3.75	357	70
74	6	4.50	18.50	-4.50	514	70
75	9	6.75	27.70	-6.75	1157	70
76	12	9.00	37.00	-9.00	2057	70
77	24	18.00	74.00	-18.00	8228	70
50 Ω version, bistable, 2 coils						
91	3	2.25	6.5	2.25	64	140
92	4.5	3.38	9.80	3.38	145	140
93	5	3.75	10.90	3.75	178	140
94	6	4.50	13.00	4.50	257	140
95	9	6.75	19.60	6.75	574	140
96	12	9.00	26.10	9.00	1028	140
97	24	18.00	52.30	18.00	4114	140
75 Ω version, bistable, 1 coil						
21	3	2.25	9.20	-2.25	128	70
22	4.5	3.38	13.85	-3.38	289	70
23	5	3.75	15.30	-3.75	357	70
24	6	4.50	18.50	-4.50	514	70
25	9	6.75	27.70	-6.75	1157	70
26	12	9.00	37.00	-9.00	2057	70
27	24	18.00	74.00	-18.00	8228	70
75 Ω version, bistable, 2 coils						
41	3	2.25	6.5	2.25	64	140
42	4.5	3.38	9.80	3.38	145	140
43	5	3.75	10.90	3.75	178	140
44	6	4.50	13.00	4.50	257	140
45	9	6.75	19.60	6.75	574	140
46	12	9.00	26.10	9.00	1028	140
47	24	18.00	52.30	18.00	4114	140

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

COIL OPERATING RANGE



INSULATION DATA

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

RF DATA

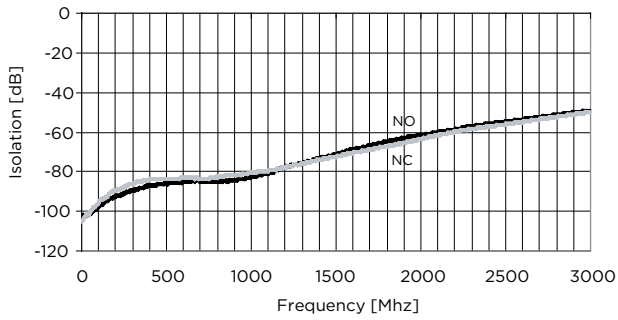
	50 Ω version	75 Ω version
Isolation		
@ 100 MHz / 900 MHz	80 dB/72 dB	80 dB/72 dB
@ 3 GHz	45 dB	40 dB
Insertion loss		
@ 100 MHz / 900 MHz	0.03 dB / 0.12 dB	0.03 dB / 0.12 dB
@ 3 GHz	0.35 dB	0.40 dB
Voltage standing wave ratio (VSWR)		
@ 100 MHz / 900 MHz / 3 GHz	1.05 / 1.20 / 1.20	1.05 / 1.20 / 1.40

OTHER DATA

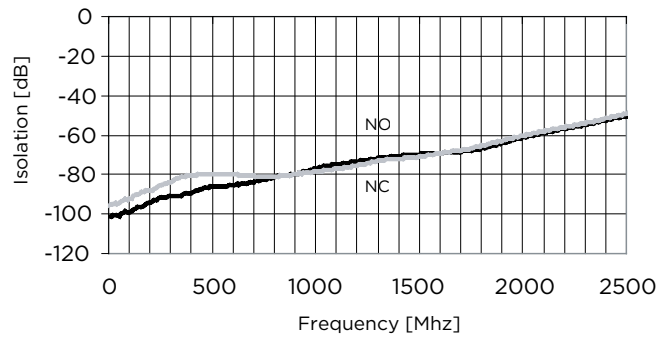
Material compliance	EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at www.te.com/customer-support/rohssupportcenter
Ambient temperature	-55 °C to +85 °C
Thermal resistance	< 165 K/W
Category of environmental protection	
IEC 61810	RT III - wash tight
Degree of protection, IEC 60529	IP 67, immersion cleanable
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. 2.5 g
Resistance to soldering heat SMT	
IEC 60068-2-58	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

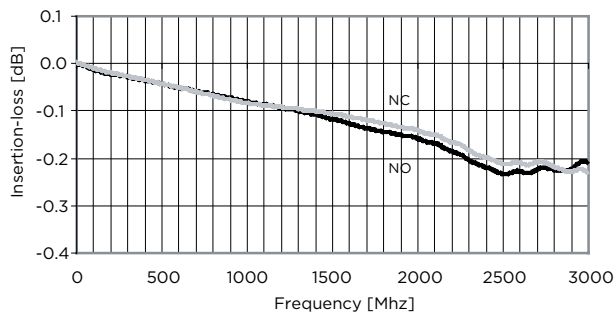
Typical RF performance, 50Ω version



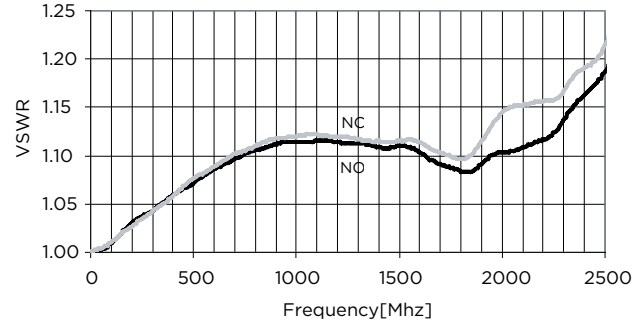
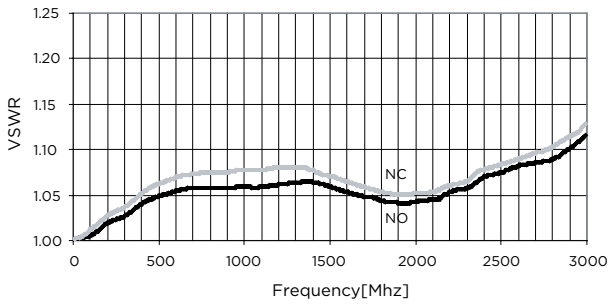
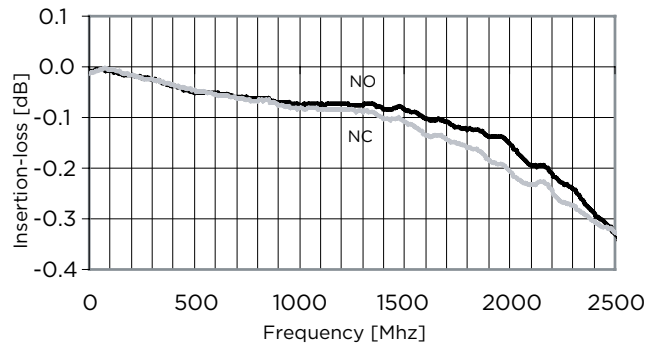
Typical RF performance, 75Ω version



Typical RF performance, 50Ω version (continued)



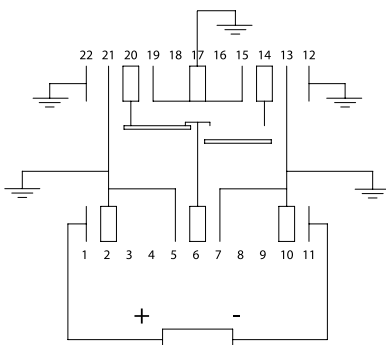
Typical RF performance, 75Ω version (continued)



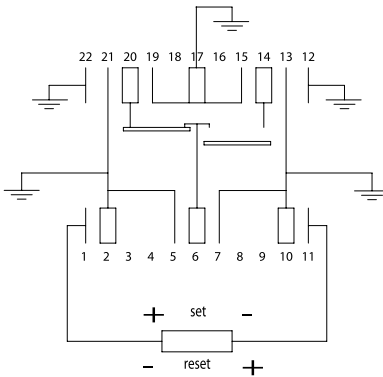
TERMINAL ASSIGNMENT

TOP view on component side of PCB

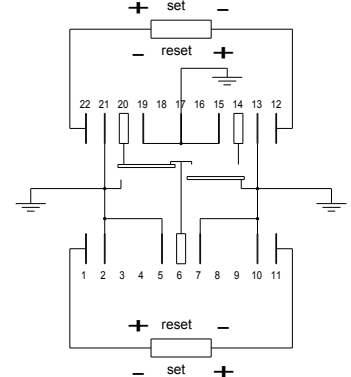
Monostable



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.

PRODUCT INFORMATION

TE Part Number	Arrangement	Version	Coil	Coil type	Part Number
HF3 51	1 form C (1 CO)	50ohm	3VDC	Monostable	1462051-1
HF3 52			4.5VDC		1-1462051-6
HF3 53			5VDC		1462051-2
HF3 54			6VDC		1-1462051-7
HF3 55			9VDC		1462051-3
HF3 56			12VDC		1462051-4
HF3 57			24VDC		1462051-5
HF3 71	1 form C (1 CO)	50ohm	3VDC	Bistable 1 coil	1462051-6
HF3 72			4.5VDC		1-1462051-8
HF3 73			5VDC		1462051-7
HF3 76			12VDC		1462051-9
HF3 91	1 form C (1 CO)	50ohm	3VDC	Bistable 2 coils	1-1462051-1
HF3 92			4.5VDC		2-1462051-0
HF3 93			5VDC		1-1462051-2
HF3 95			9VDC		1-1462051-3
HF3 96			12VDC		1-1462051-4
HF3 97			24VDC		1-1462051-5
HF3 01	1 form C (1 CO)	75ohm	3VDC	Monostable	1462050-1
HF3 02			4.5VDC		1-1462050-6
HF3 03			5VDC		1462050-2
HF3 06			12VDC		1462050-4
HF3 07			24VDC		1462050-5
HF3 21	1 form C (1 CO)	75ohm	3VDC	Bistable 1 coil	1462050-6
HF3 23			5VDC		1462050-7
HF3 26			12VDC		1462050-9
HF3 41	1 form C (1 CO)	75ohm	3VDC	Bistable 2 coils	1-1462050-1
HF3 43			5VDC		1-1462050-2
HF3 46			12VDC		1-1462050-4
HF3 47			24VDC		1-1462050-5

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