

HF6 Relay

Y-Design

- Frequency range DC to 6GHz
- Impedance 50Ω
- Small dimensions (16x7.6x10mm)
- 1 form C contact (1 changeover contact)
- Immersion cleanable
- Low power consumption (≤140mW)

Typical applications

Measurement and test equipment ATE, wireless base stations and antennas, wireless infrastructure, RF power amplifier

Contact Data

Coil Data

Coil

51

52

53

54

55

56

57

Coil

71

72

73 74

75

76

77

code

code

Coil voltage range

Rated

voltage

VDC

З

4.5

5

6

9

12

24

Contact Data (continued)

Rated

voltage

VDC

З

4.5

5

6

9

12

24

50Ω version, Bistable, 1 coil

Coil versions, bistable

Coil versions, 50 version, monostable

Operate

voltage

VDC_{min}

2.25

3.38

3.75

4.50

6.75

9.00

18.00

Set

voltage

VDC

2.25

3.38

3.75

4.50

6.75

9.00

18.00

Contact arrangement	1 form C, 1 CO		
Max. switching voltage	220VDC, 250VAC		
Rated current	2A		
Limiting continuous current	2A		
Switching power	60W, 62.5VA,		
	50W (2.5GHz)		
Max. continuos RF-power at 20°C.	50W (2.5GHz)		
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		

Limiting

voltage

VDC_{max}

6.50

9.80

10.90

13.00

19.60

26.10

52.30

Limiting

voltage

VDC

9.20

13.85

15.30

18.50

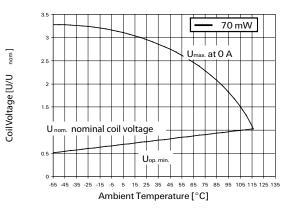
27.70

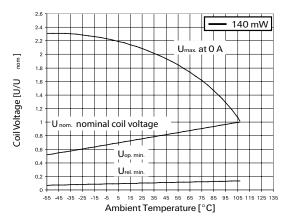
37.00

74.00

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

Contact Data (continued)								
50Ω version, bistable, 2 coils								
91	3	2.25	6.50	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	2880	200		





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Datasheets and product specification according to IEC 61810-1 and to be used only together with the 'Definitions' section.

3 to 24VDC

Coil

resistance

Ω±10%

64

145

178

257

574

1028

4114

Coil

resistance

Ω±10%

128

289

357

514

1157

2057

8228

Rated coil

power

mW

140

140

140

140

140

140

140

Rated coil

power

mW

70

70

70

70

70

70

70

Release

voltage

VDC_{min}

0.30

0.45

0.50

0.60

0.90

1.20

2.40

Reset

voltage

VDC

-2.25

-3.38

-3.75

-4.50

-6.75

-9.00

-18.00

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С 50 9 9 9

97 24 18.00 52.30 18.00 2880 All figures are given for coil without pre-energization, at ambient temperature +23°C.

Coil operating Range

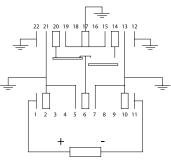


HF6 Relay (Continued)

Insulation Data					
Initial dielectric strength					
between open contacts	600Vrms				
between contact and coil	1000Vrms				
Initial surge withstand voltage					
between open contacts	1000V				
between contact and coil					
Detween contact and coll	1500V				
RF Data					
Isolation at 900MHz/3GHz/6GHz	80dB/60dB/30dB				
Insertion loss at 900MHz/3GHz/6GHz	0.05dB/0.15dB/0.80dB				
Voltage standing wave ratio (VSWR)	0.0002,0.1002,0.0002				
at 900MHz/3GHz/6GHz	1.05/1.10/1.40				
Typical RF performance, 50Ω version					
isolat					
8					
-10	NC				
-20					
-30					
-40	,				
98sp					
50 Tieser					
	4 5 6				
Freq [Gi INSERTIO					
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-0.5					
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	12]				
	12]				
S -1 -1 -1 -1 -1 -1 -1 -1 -1 -1	12]				
E 5 -1 -15 0 1 2 3 Freq (P) VSW	12]				
E 5 -1 -1 -15 0 1 2 3 Freq fer VSW	12]				
B -1 1 1 1 1	12]				
Image: Spectrum -1 1 -1 -1	12]				
B -1 1 -1 -1 -1 <td>12]</td>	12]				
E -1 1 -1 -1 -1 <td>12]</td>	12]				
E .1 </th <td>12]</td>	12]				
B -1 -1 -1 0 1 2 3 Freq (Cr) VSW 140 133 134 135 136 137 138 139 131 132 133 134 135 136 137 138 139 130 131 132 133 134 135 136 137 138 139 130 131 132 133 134 135 136 137 138 139 130 131 132 133 134 135 136 137 138 139 130 131 131 132 133 134 135 136 137	12]				
B -1 </th <td>12]</td>	12]				
Image: State of the state o	4 5 6				

Terminal assignment

TOP view on component side of PCB Monostable



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Bistable, 1 coil

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Contacts are shown in reset condition.

Contact position might change during transportation and must be reset before use.

9 10 11

reset +

+ set

> set + _ Datasheets, product data, 'Definitions' sec-tion, application notes and all specifications are subject to change.

reset +

+ rese

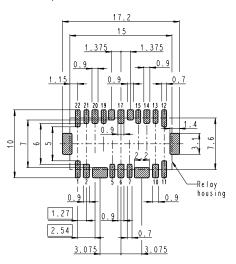
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Other Data

Other Data				
Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content				
refer to the Product Compliance Support Center at				
www.te.com/customersupport/rohssupportcenter				
Ambient temperature	-55°C to +85°C			
Thermal resistance	<165K/W			
Category of environmental protect	ion			
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), hal	f sinus 0.5ms 150g			
Terminal type	SMT			
Weight	max. 3g			
Resistance to soldering heat	Peak value			
SMT 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.			

PCB layout

TOP view on component side of PCB



Bistable, 2 coils

_[





14.9.0.1

16+0.5

5.08.0.1

Coplanarity<=0.10mm

5.08-0.1

HF6 Relay (Continued)

Dimensions

ΨU

3.81.0

2.54+0

HF6 xx

zzV DC

1.27-0

5.08-0.1

6.35-0.15

Ų

0.8

5.08+0.1

6.35+0.15

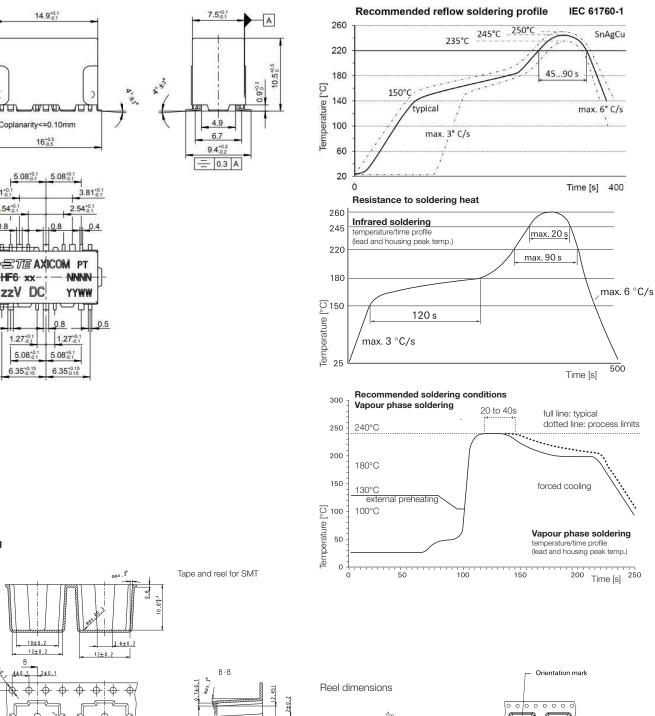
0.8

0.8

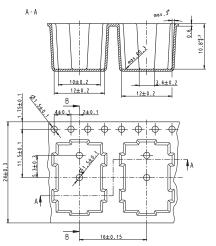
1.1

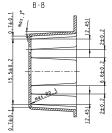
8.640.5

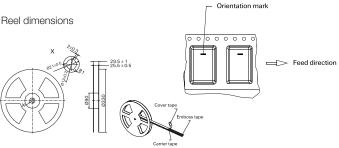




Packing







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RF Signal Relays

HF6 Relay (Continued)

Product code structure Typical product code HF6 Туре HF6 High Frequency Relays HF6 Series 1 form C, 1 CO Coil Coil code: please refer to coil versions table Performance type 5x 50 Ohm version, monostable 1coil 7x 50 Ohm version, bistable 1coil

50 Ohm version, bistable 2coils 9x

Product code	Arrangement	Version	Coil	Coil type	Part number
HF6 51	1 form C (1 CO)	50ohm	3VDC	Monostable	1462052-1
HF6 53			5VDC		1462052-3
HF6 56			12VDC		1462052-6
HF6 73	1 form C (1 CO)	50ohm	5VDC	Bistable 1 coil	1-1462052-0
HF6 93	1 form C (1 CO)	50ohm	5VDC	Bistable 2 coils	1-1462052-7
HF6-96			12VDC		2-1462052-0

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

53

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