



# **IM Relay**

- Slim line 10x6mm, low profile 5.65mm and min. board-space 60mm<sup>2</sup>
- Switching current 2/5A, switching power 60W/62.5VA and switching voltage 220VDC/250VAC
- Low coil power consumption, 140mW standard, 100mW for high sensitive version, 50mW for ultra high sensitive version and 100mW for bistable version
- High dielectric and surge capability up to 2500Vrms between open contacts and 2500Vrms between coil and contacts
- High mechanical shock resistance up to 50g functional

#### Typical applications

Telecommunication, access and transmission equipment, optical network terminals, modems, office and business equipment, consumer electronics, measurement and test equipment, industrial control, medical equipment, HVAC

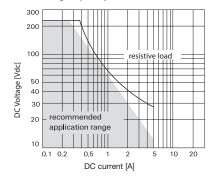
### **Approvals**

UL 508 File No. E 111441

Technical data of approved types on request

Contact Data	standard, C	D, I	Р				
	standard and	high	high contact				
	high dielectric	current	stability				
	version	version	version				
Contact arrangement	2	form C, 2 C	O .				
Max. switching voltage	220VDC,	220VDC,	220VDC,				
	250VAC	250VAC	250VAC				
Rated current	2A	5A	2A				
Limiting continuous current	2A	5A	2A				
Switching power	60W, 62.5VA						
Contact material	PdRu	AgNi	PdRu				
	+Au	+Au	+Au				
	covered	covered	covered				
Contact style	twin cont.	twin cont.	twin cont.				
	l: s	ingle conta	cts				
Minimum switching voltage		100µV					
Initial contact resistance	<50m	$\Omega$ at 10mA/	'30mV				
		$I: < 100 \text{m}\Omega$					
Thermoelectric potential		<10µV					
Operate time	typ. 1ms, max. 3ms						
Release time							
without diode in parallel	typ. 1ms, max. 3ms						
with diode in parallel	typ.	3ms, max.	5ms				
Bounce time max.	typ.	1ms, max.	5ms				

## Max. DC load breaking capacity







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#### Contact Data (continued)

Contact Data (Continued)	
Electrical endurance	
at contact application 0	
(≤30mV/≤10mA)	min. 2.5x10 <sup>6</sup> operations
cable load open end	min. 2.0x10 <sup>6</sup> operations
resistive, 125VDC / 0.24A - 30W	min. 5x10 <sup>5</sup> operations
resistive, 220 VDC / 0.27A - 60W	min. 1x10 <sup>5</sup> operations
resistive, 250VAC / 0.25A - 62.5VA	min. 1x10 <sup>5</sup> operations
resistive, 30VDC / 1A - 30W	min. 5x10 <sup>5</sup> operations
resistive, 30VDC / 2A - 60W	min. 1x10 <sup>5</sup> operations
UL contact rating	30VDC, 2A, 60W, NO only
	110VDC, 0.3A, 33W
	220VDC, 0.27A, 60W
	125VAC, 0.5A, 62.5W
	250VAC, 0.25A, 62.5W
Mechanical endurance	10 <sup>8</sup> operations

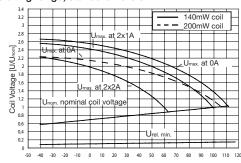
Coil Data	
Magnetic system	monostable, bistable
Coil voltage range	1.5 to 24VDC

## Coil versions, standard version, monostable, 1 coil

Coil	Rated	Operate	Release	Coil	Rated coil
code	voltage	voltage	voltage voltage resistance		power
	VDC	VDC	VDC	$\Omega \pm 10\%$	mW
00	1.5	1.13	0.15	16	140
80	2.4	1.80	0.24	41	140
01	3	2.25	0.30	64	140
02	4.5	3.38	0.45	145	140
03	5	3.75	0.50	178	140
04	6	4.50	0.60	257	140
05	9	6.75	0.90	579	140
06	12	9.00	1.20	1029	140
07	24	18.00	2.40	2880	200

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

## Coil operating range, standard version



Ambient Temperature [°C]



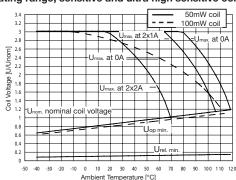


# IM Relay (Continued)

Coil Da	ita (continued	d)			
Coil vers	sions, sensit	ive version, r	nonostable,	1 coil	
Coil	Rated	Operate	Release	Coil	Rated coil
code	voltage	voltage	voltage	resistance	power
	VDC	VDC	VDC	Ω±10%	mW
11	3	2.40	0.30	91	100
12	4.5	3.60	0.45	194	100
13	5	4.00	0.50	234	100
16	12	9.60	1.20	1315	110
17	24	19.20	2.40	4120	140
Coil vers	sions, ultra h	igh sensitive	version, mo	onostable, 1	coil
Coil	Rated	Operate	Release	Coil	Rated coil
code	voltage	voltage	voltage	resistance	power
	VDC	VDC	VDC	Ω±10%	mW
21	3	3.00	0.30	180	50
22	4.5	4.50	0.45	405	50
23	5	5.00	0.50	500	50
26	12	12.00	1.20	2880	50

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

# Coil operating range, sensitive and ultra high sensitive coil

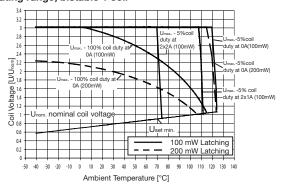


#### Coil versions, standard, bistable 1 coil

	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,			
Coil	Rated	Set	Reset	Coil	Rated coil
code	voltage	voltage	voltage	resistance	power
	VDC	VDC	VDC	Ω±10%	mW
40	1.5	1.13	-1.13	23	100
48	2.4	1.80	-1.80	58	100
41	3	2.25	-2.25	90	100
42	4.5	3.38	-3.38	203	100
43	5	3.75	-3.75	250	100
44	6	4.50	-4.50	360	100
45	9	6.75	-6.75	810	100
46	12	9.00	-9.00	1440	100
47	24	18.00	-18.00	2880	200

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

# Coil operating range, bistable 1 coil



Insulation Data	standard*	C*	D,P, I
	standard,	high	high current,
	sensitive,	dielectric	high contact
	ultra high	version	stability
	sensitive		version
	version		
Initial dielectric strength			
between open contacts	$1000V_{rms}$	$1500V_{rms}$	750V <sub>rms</sub>
between contact and coil	1800V <sub>rms</sub>	$1800V_{rms}$	1500V <sub>rms</sub>
between adjacent contacts	1000V <sub>rms</sub>	1800V <sub>rms</sub>	750V <sub>rms</sub>
Initial surge withstand voltage			
between open contacts	1500V	2500V	1000V
between contact and coil	2500V	2500V	2000V
between adjacent contacts	1500V	2500V	1000V
Initial insulation resistance			
between insulated elements	>10 <sup>9</sup> Ω	$>10^{9}\Omega$	>10 <sup>9</sup> Ω
Capacitance			
between open contacts		max. 1pF	
between contact and coil		max. 2pF	
between adjacent contacts		max. 2p	

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\*this relay contains SF6 (Sulfur hexafluoride, CAS number: 2551-62-4) for dielectric strength enhancement, SF6 is hermetically sealed in relay without leaks to air during normal application as recommended per the applicable product specification. It is clarified that the usage of SF6 in mini signal relay is not prohibited by related regulations. Please contact TE local sales or field engineer for further information and detailed material declaration.

RF Data		
Isolation at 100MHz/900MHz	37.0dB/18.8dB	
Insertion loss at 100MHz/900MHz	0.03dB/0.33dB	
Voltage standing wave ratio (VSWR)		
at 100MHz/900MHz	1.06/1.49	

#### **Other Data**

packed in orginal dry-packs

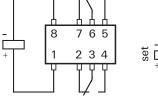
Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at www.te.com/customersupport/rohssupportcenter

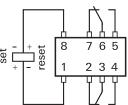
WW	<u>w.te.com/customersupport/ronssupportcenter</u>
Ambient temperature	-40°C to +85°C
Thermal resistance	<150K/W
Category of environmental pr	otection
IEC 61810	RT V - hermetically sealed
Vibration resistance (functions	al) 20g, 10 to 500Hz
Shock resistance (functional),	half sinus 11ms 50g
Shock resistance (destructive	e), half sinus 0.5ms 500g
Mounting position	any
Weight	max. 0.75g
Resistance to soldering heat	SMT
IEC 60068-2-58	
Moisture sensitive level, JEDE	EC J-Std-020D MSL3
related only to SMT relays	

Ultrasonic cleaning not recommended

Packaging/unit
THT version tube/50pcs., box/1000 pcs.
SMT version reel/1000 pcs., box/1000 or 5000 pcs.

Monostable version rest condition reset condition





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

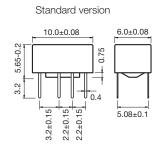


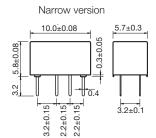


# IM Relay (Continued)

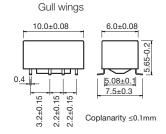
#### **Dimensions**

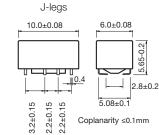
#### **THT version**





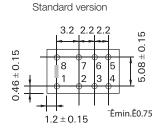
#### **SMT** version

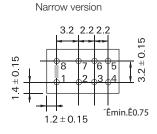


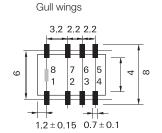


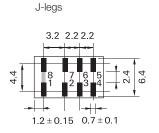
## **PCB** layout

TOP view on component side of PCB





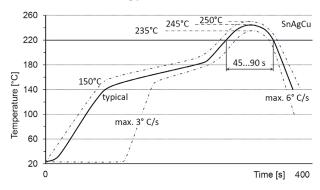




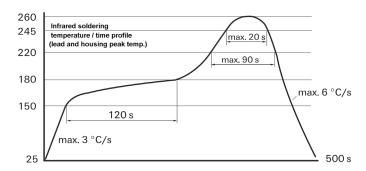
#### **Processing**

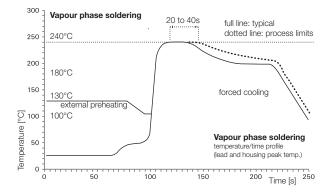
Recommended soldering conditions

## Recommended reflow soldering profile IEC 61760-1



## Resistance to soldering heat - reflow profile IEC 60068-2-58







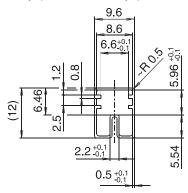
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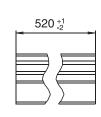


# IM Relay (Continued)

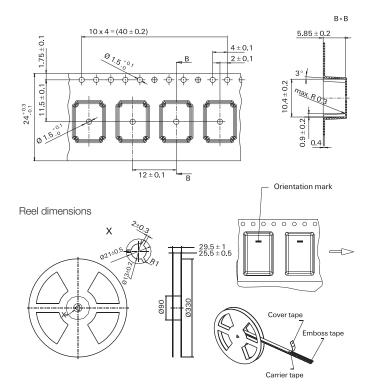
### **Packing**

Tube for THT version 50 relays per tube, 1000 relays per box





Tape and reel for SMT version 1000 relays per reel, 1000 or 5000 relays per box



Product	code structure	Т	ypical product code	IM	03	G	ì	R
Туре IM	Signal Relays IM Series							
Contact a	rrangement							
Bla	ank 2 form C, 2 CO							
Coil								
Coi	il code: please refer to coil versions table							
Performar	nce type							
Bla	ank Standard version	- 1	High current version	single cont	act			
		С	High dielectric version	n				
		D	High current version					
		Р	High contact stability	version				
Terminals								
Т	THT - standard	J	SMT - J-leg					
N	THT - narrow version	G	SMT - gull wing					
Packing								
S	Tube	R	Reel					
		•••						



Signal Relays **AXICOM** 

# IM Relay (Continued)

Product code	Arrangement	Perf. type	Coil	Coil type	Coil	Terminals	Part number
IM00GR	2 form C,	Standard	1.5VDC	Monostable	Standard	SMT gull wing	3-1462037-7
IM00JR	2 CO					SMT J-leg	3-1462037-9
IM00NS	contacts					THT narrow	1-1462038-0
IM01GR			3VDC			SMT gull wing	1462037-1
IM01JR						SMT J-leg	4-1462037-0
IM01NS						THT narrow	1-1462038-1
IM01TS						THT standard	1462037-4
IM02GR			4.5VDC			SMT gull wing	1462037-9
IM02JR						SMT J-leg	1-1462037-1
IM02NS						THT narrow	1-1462038-2
IM03GR			5VDC			SMT gull wing	1-1462037-4
IM03JR			0.00			SMT J-lea	1-1462037-6
IM03NS						THT narrow	1-1462038-3
IM03TS						THT standard	1-1462037-8
IM04GR			6VDC			SMT gull wing	4-1462037-2
IM04JR			OVDC			SMT J-leg	4-1462037-4
						THT narrow	
IM04NS			0) (D0				1-1462038-4
IM05GR			9VDC			SMT gull wing	3-1462037-4
IM05JR						SMT J-leg	4-1462037-5
IM05NS						THT narrow	1-1462038-5
IM05TS						THT standard	2-1462037-2
IM06GR			12VDC			SMT gull wing	2-1462037-3
IM06JR						SMT J-leg	4-1462037-6
IM06NS						THT narrow	1-1462038-6
IM07GR			24VDC			SMT gull wing	4-1462037-7
IM07JR						SMT J-leg	4-1462037-8
IM07NS						THT narrow	1-1462038-7
IM08GR			2.4VDC			SMT gull wing	6-1462039-3
IM11GR			3VDC		High sens.		9-1462038-5
IM12GR			4.5VDC				1462039-3
IM13GR			5VDC				1462039-4
IM16GR			12VDC				1462039-5
IM17GR			24VDC				1462039-6
IM17TS			2.100			THT standard	4-1462039-6
*IM21GR			3VDC		Ultra	SMT gull wing	2-1462039-6
*IM21TS			OVDO		high	THT standard	1-1462039-5
*IM22GR			4.5VDC		sensitive	SMT gull wing	2-1462039-7
*IM22TS			4.5000		SCHSILIVE	THT standard	2-1462039-8
*IM23GR			5VDC			SMT gull wing	2-1462039-9
*IM23TS			JVDC			THT standard	3-1462039-0
*IM26GR			12VDC			SMT gull wing	3-1462039-1
*IM26TS			12000			THT standard	3-1462039-2
IM40GR			1.5\/DC	Bistable	Ctondovd		5-1462037-1
			1.5VDC	Bistable	Standard	SMT gull wing SMT J-leq	5-1462037-1
IM40JR							
IM40NS						THT narrow	1-1462038-8
IM40TS			0) (D0			THT standard	5-1462037-0
IM41GR			3VDC			SMT gull wing	5-1462037-4
IM41JR						SMT J-leg	5-1462037-5
IM41NS						THT narrow	1-1462038-9
IM41TS						THT standard	5-1462037-3
IM42GR			4.5VDC			SMT gull wing	3-1462037-1
IM42JR						SMT J-leg	5-1462037-7
IM42NS						THT narrow	2-1462038-0
IM42TS						THT standard	5-1462037-6
IM43GR			5VDC			SMT gull wing	5-1462037-9
IM43JR						SMT J-leg	6-1462037-0
IM43NS						THT narrow	2-1462038-1
IM43TS						THT standard	5-1462037-8
IM44GR			6VDC	1		SMT gull wing	6-1462037-2
IM44JR						SMT J-leg	6-1462037-3
IM44NS						THT narrow	2-1462038-2
IM44TS						THT standard	6-1462037-1
IM45GR			9VDC			SMT gull wing	6-1462037-4
IM45JR			3,20			SMT J-leg	6-1462037-5
IM45NS						THT narrow	2-1462038-3
			12VDC			SMT gull wing	
IM46GR			12000				6-1462037-7
IM46JR						SMT J-leg	6-1462037-8
IM46NS						THT narrow	2-1462038-4
IM46TS			0.4) /50			THT standard	6-1462037-6
IM47GR			24VDC			SMT gull wing	7-1462037-0
IM47JR						SMT J-leg	7-1462037-1
IM47NS						THT narrow	2-1462038-5
IM47TS				]		THT standard	6-1462037-9

<sup>\*</sup> please check with application first for further details



Signal Relays AXICOM

# IM Relay (Continued)

Product code	Arrangement	Perf. type	Coil	Coil type	Coil	Terminals	Part number
IM48GR	7		2.4VDC	oon type		SMT gull wing	1462039-8
IM01CGR	2 form C	High	3VDC	Monostable	Standard	SMT gull wing	1462038-4
IM01CTS	2 CO	dielectric	0.50	1410110010010	Otariaara	THT standard	9-1462038-6
IM02CGR	contacts	diologino	4.5VDC			SMT gull wing	1462038-1
IM03CGR	Contacto		5VDC			Olviri gali vvirig	1462038-2
IM03CJR			3400			SMT J-leg	4-1462039-8
IM03CTS						THT standard	4-1462039-7
IM05CGR			9VDC			SMT gull wing	1462038-3
IM06CGR			12VDC			Siviri guli wirig	9-1462037-9
			12000			CMT Llos	
IM06CJR						SMT J-leg	3-1462039-4
IM06CTS			0.41//D0			THT standard	4-1462037-9
IM07CGR			24VDC			SMT gull wing	1462039-2
IM07CTS						THT standard	1462039-1
IM17CGR			2) (5.0		High sens.	SMT gull wing	1462039-7
IM41CGR			3VDC	Bistable	Standard		4-1462039-2
IM42CGR			4.5VDC				4-1462039-1
IM43CGR			5VDC				9-1462038-7
IM48CGR			2.4VDC				9-1462039-0
IM02DGR		High	4.5VDC	Monostable	Standard		9-1462038-8
IM02IJR		current				SMT J-leg	1462047-8
IM02IGR						SMT gull wing	1462047-9
IM03DGR			5VDC			SMT gull wing	9-1462038-9
IM03DJR						SMT J-leg	3-1462039-3
IM05DGR			9VDC			SMT gull wing	1-1462039-7
IM06DGR			12VDC				1-1462039-8
IM06DJR						SMT J-leg	7-1462039-0
IM06DTS						THT standard	3-1462039-8
IM07DGR			24VDC			SMT gull wing	3-1462039-7
IM07DJR			2.,,50			SMT J-leg	7-1462039-4
IM07DTS						THT standard	7-1462039-2
IM22DTS			4.5VDC		U.h.sens.	Titi Standard	7-1462039-6
IM41DGR			3VDC	Bistable	Standard	SMT gull wing	6-1462039-8
IM42DGR			4.5VDC	Distable	Stariuaru	Siviri guii wiirig	1-1462039-9
IM42DNS			4.5000			THT narrow	1-1462039-6
IM46DNS			12VDC			TITI Hallow	1-1462039-0
			24VDC			SMT J-leg	7-1462039-5
IM47DJR							
IM48DGR			2.4VDC			SMT gull wing	1462039-9
IM49DGR			2VDC				2-1462039-2
IM40IGR			1.5VDC				1462047-7
IM48IGR			2.4VDC				1462047-1
IM49IGR			2VDC				1462047-4
IM02PGR		High	4.5VDC	Monostable	Standard		5-1462039-4
IM02PNS		contact				THT narrow	5-1462039-8
IM03PGR		stability	5VDC			SMT gull wing	5-1462039-5
IM03PJR						SMT J-leg	6-1462039-6
IM03PNS						THT narrow	5-1462039-9
IM06PGR			12VDC			SMT gull wing	5-1462039-6
IM06PNS						THT narrow	6-1462039-0
IM42PGR			4.5VDC	Bistable	Standard	SMT gull wing	5-1462039-7
IM42PNS						THT narrow	7-1462039-8
IM43PGR						SMT gull wing	7-1462039-3
IM46PNS			12VDC			THT narrow	6-1462039-1

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**Authorized Distributor** 

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<u>TE Connectivity</u>: 3-1462039-8

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# TE Connectivity:

IM06TS IM06GR IM06JR IM06NS IM06CGR IM06DJR