

IM Relay

- Slim line 10x6mm, low profile 5.65mm and min. board-space 60mm²
- 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

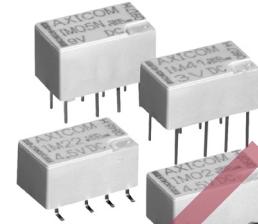
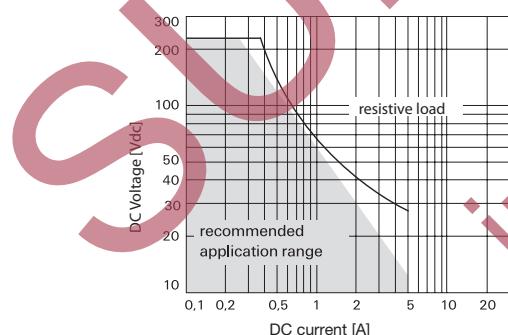
Approvals

UL 508 File No. E 111441

Technical data of approved types on request

Contact Data	standard, C	D, I	P
	standard and high dielectric version	high current version	high contact stability version
Contact arrangement	2 form C, 2 CO		
Max. switching voltage	220VDC, 250VAC	220VDC, 250VAC	220VDC, 250VAC
Rated current	2A	5A	2A
Limiting continuous current	2A	5A	2A
Switching power	60W, 62.5VA		
Contact material	PdRu +Au covered	AgNi +Au covered	PdRu +Au covered
Contact style	twin cont. I: single contacts	twin cont.	twin cont.
Minimum switching voltage	100µV		
Initial contact resistance	<50mΩ at 10mA/30mV		
Thermoelectric potential	I: <100mΩ <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



Contact Data (continued)

Electrical endurance at contact application 0 (≤30mV/≤10mA) cable load open end resistive, 125VDC / 0.24A - 30W resistive, 220 VDC / 0.27A - 60W resistive, 250VAC / 0.25A - 62.5VA resistive, 30VDC / 1A - 30W resistive, 30VDC / 2A - 60W	min. 2.5x10 ⁶ operations min. 2.0x10 ⁶ operations min. 5x10 ⁵ operations min. 1x10 ⁵ operations min. 1x10 ⁵ operations min. 5x10 ⁵ operations min. 1x10 ⁵ 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 ⁸ operations

Coil Data

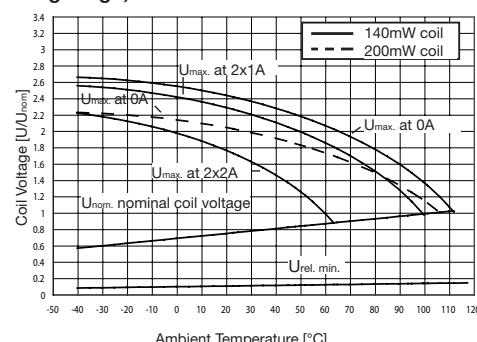
Magnetic system	monostable, bistable
Coil voltage range	1.5 to 24VDC

Coil versions, standard version, monostable, 1 coil

Coil code	Rated voltage VDC	Operate voltage VDC	Release voltage VDC	Coil resistance Ω±10%	Rated coil power mW
00	1.5	1.13	0.15	16	140
08	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



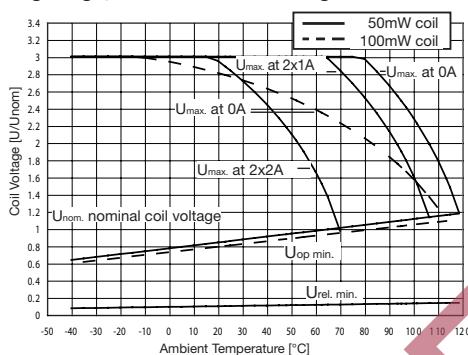
IM Relay (Continued)
Coil Data (continued)
Coil versions, sensitive version, monostable, 1 coil

Coil code	Rated voltage VDC	Operate voltage VDC	Release voltage VDC	Coil resistance $\Omega \pm 10\%$	Rated coil power 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 versions, ultra high sensitive version, monostable, 1 coil

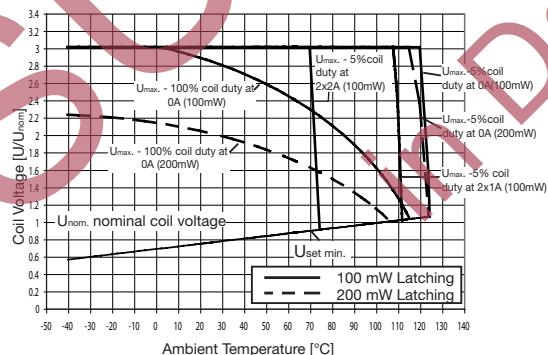
Coil code	Rated voltage VDC	Operate voltage VDC	Release voltage VDC	Coil resistance $\Omega \pm 10\%$	Rated coil power mW
21	3	3.00	0.30	180	50
22	4.5	4.50	0.45	405	50
23	5	5.00	0.50	500	50
26	12	12.00	1.20	2880	50

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 code	Rated voltage VDC	Set voltage VDC	Reset voltage VDC	Coil resistance $\Omega \pm 10\%$	Rated coil power 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, sensitive, ultra high sensitive version	high dielectric version	high current, high contact stability version	
Initial dielectric strength between open contacts	1000V _{rms}	1500V _{rms}	750V _{rms}
between contact and coil	1800V _{rms}	1800V _{rms}	1500V _{rms}
between adjacent contacts	1000V _{rms}	1800V _{rms}	750V _{rms}
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 ⁹ Ω	>10 ⁹ Ω	>10 ⁹ Ω
Capacitance between open contacts	max. 1pF	max. 2pF	max. 2p
between contact and coil			
between adjacent contacts			

*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/0.30dB
Voltage standing wave ratio (VSWR) at 100MHz/900MHz	1.06/1.49

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 -40°C to +85°C

Thermal resistance <150K/W

Category of environmental protection IEC 61810 RT V - hermetically sealed

Vibration resistance (functional) 20g, 10 to 500Hz

Shock resistance (functional), half sinus 11ms 50g

Shock resistance (destructive), half sinus 0.5ms 500g

Mounting position any

Weight max. 0.75g

Resistance to soldering heat SMT IEC 60068-2-58

Moisture sensitive level, JEDEC J-Std-020D related only to SMT relays

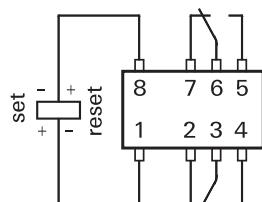
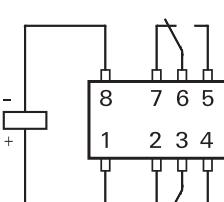
MSL3

packed in orginal dry-packs

Ultrasonic cleaning not recommended

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

Bistable version, 1 coil rest condition



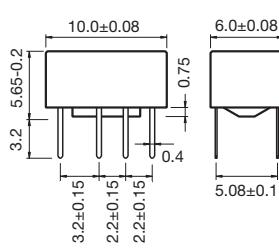
Contacts are shown in reset condition. Contact position might change during transportation and must be reset before use.

IM Relay (Continued)

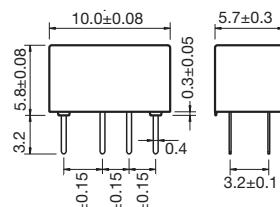
Dimensions

THT version

Standard version

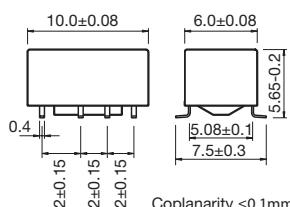


Narrow version

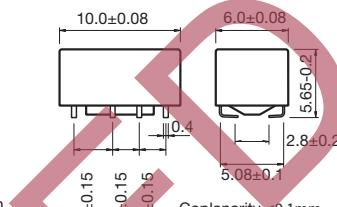


SMT version

Gull wings



J-legs

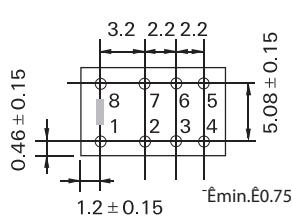


Coplanarity ≤0.1mm

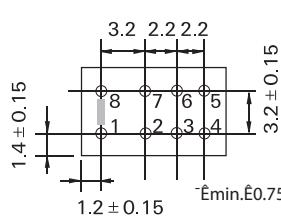
PCB layout

TOP view on component side of PCB

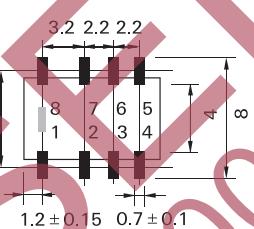
Standard version



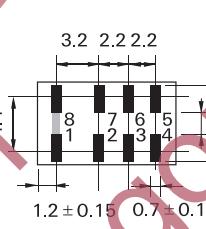
Narrow version



Gull wings



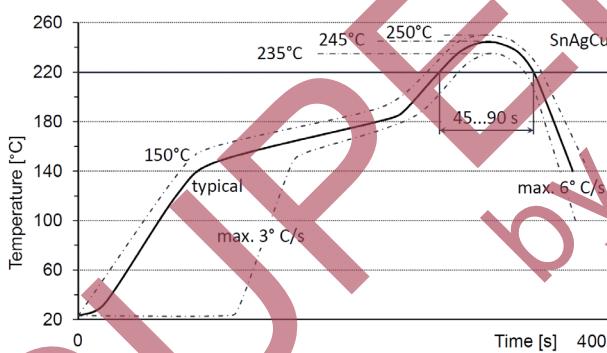
J-legs



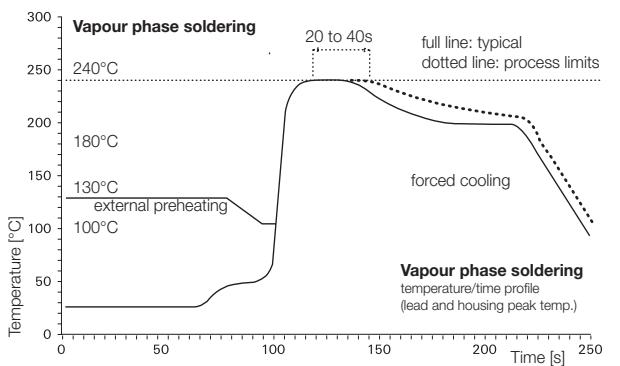
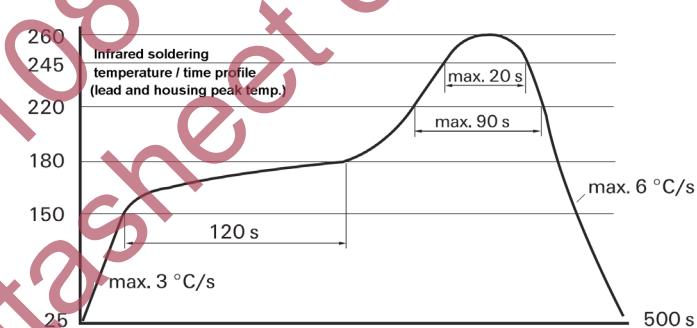
Processing

Recommended soldering conditions

Recommended reflow soldering profile IEC 61760-1



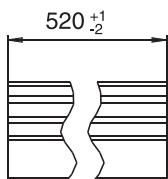
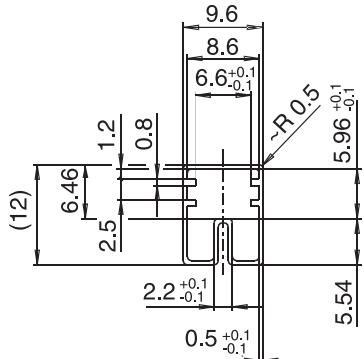
Resistance to soldering heat - reflow profile IEC 60068-2-58



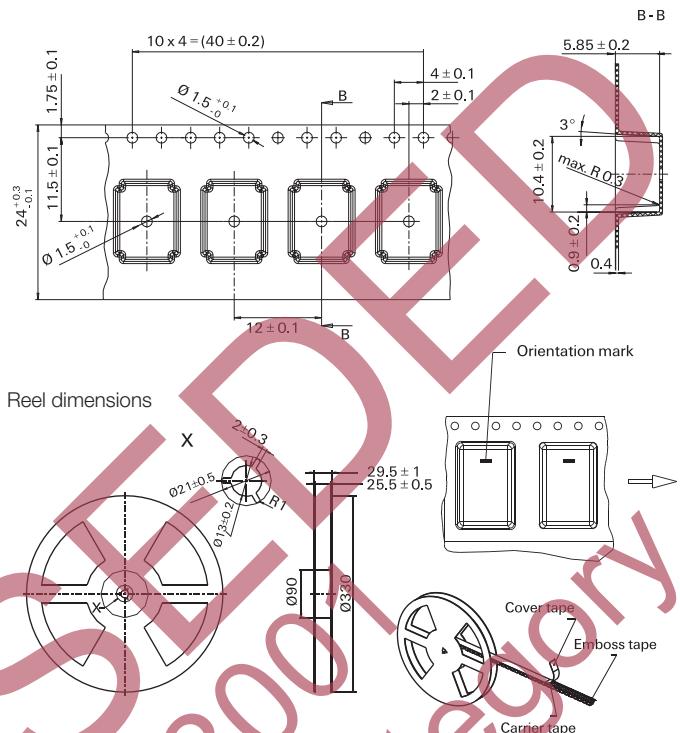
IM Relay (Continued)

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

Type IM Signal Relays IM Series

Contact arrangement

Blank 2 form C, 2 CO

Coil

Coil code: please refer to coil versions table

Performance type

Blank Standard version

Typical product code

IM

03

G

R

- I High current version single contact
- C High dielectric version
- D High current version
- P High contact stability version

Terminals

T THT - standard

N THT - narrow version

J SMT - J-leg

G SMT - gull wing

Packing

S Tube

R Reel

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						SMT J-leg	1-1462037-6
IM03NS						THT narrow	1-1462038-3
IM03TS						THT standard	1-1462037-8
IM04GR			6VDC			SMT gull wing	4-1462037-2
IM04JR						SMT J-leg	4-1462037-4
IM04NS						THT narrow	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				9-1462038-5
IM12GR			4.5VDC				1462039-3
IM13GR			5VDC				1462039-4
IM16GR			12VDC				1462039-5
IM17GR			24VDC				1462039-6
IM17TS						THT standard	4-1462039-6
*IM21GR			3VDC			SMT gull wing	2-1462039-6
*IM21TS						THT standard	1-1462039-5
*IM22GR			4.5VDC			SMT gull wing	2-1462039-7
*IM22TS						THT standard	2-1462039-8
*IM23GR			5VDC			SMT gull wing	2-1462039-9
*IM23TS						THT standard	3-1462039-0
*IM26GR			12VDC			SMT gull wing	3-1462039-1
*IM26TS						THT standard	3-1462039-2
IM40GR			1.5VDC	Bistable	Standard	SMT gull wing	5-1462037-1
IM40JR						SMT J-leg	5-1462037-2
IM40NS						THT narrow	1-1462038-8
IM40TS						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			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						SMT J-leg	6-1462037-5
IM45NS						THT narrow	2-1462038-3
IM46GR			12VDC			SMT gull wing	6-1462037-7
IM46JR						SMT J-leg	6-1462037-8
IM46NS						THT narrow	2-1462038-4
IM46TS						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

* please check with application first for further details

IM Relay (Continued)

Product code	Arrangement	Perf. type	Coil	Coil type	Coil	Terminals	Part number
IM48GR			2.4VDC			SMT gull wing	1462039-8
IM01CGR	2 form C	High dielectric	3VDC	Monostable	Standard	SMT gull wing	1462038-4
IM01CTS	2 CO contacts		4.5VDC			THT standard	9-1462038-6
IM02CGR			5VDC			SMT gull wing	1462038-1
IM03CGR						SMT J-leg	1462038-2
IM03CJR						THT standard	4-1462039-8
IM03CTS			9VDC			SMT gull wing	4-1462039-7
IM05CGR			12VDC			SMT J-leg	1462038-3
IM06CGR						THT standard	9-1462037-9
IM06CJR						SMT gull wing	3-1462039-4
IM06CTS						THT standard	4-1462037-9
IM07CGR			24VDC			SMT gull wing	1462039-2
IM07CTS						THT standard	1462039-1
IM17CGR					High sens.	SMT gull wing	1462039-7
IM41CGR			3VDC	Bistable	Standard	SMT J-leg	4-1462039-2
IM42CGR			4.5VDC			SMT gull wing	4-1462039-1
IM43CGR			5VDC			SMT gull wing	9-1462038-7
IM48CGR			2.4VDC			SMT gull wing	9-1462039-0
IM02DGR	High current	4.5VDC	Monostable	Standard		SMT J-leg	9-1462038-8
IM02IJR						SMT gull wing	1462047-8
IM02IGR						SMT gull wing	1462047-9
IM03DGR		5VDC				SMT J-leg	9-1462038-9
IM03DJR						SMT J-leg	3-1462039-3
IM05DGR		9VDC				SMT gull wing	1-1462039-7
IM06DGR		12VDC				SMT J-leg	1-1462039-8
IM06DJR						THT standard	7-1462039-0
IM06DTS						SMT J-leg	3-1462039-8
IM07DGR		24VDC				SMT gull wing	3-1462039-7
IM07DJR						SMT J-leg	7-1462039-4
IM07DTS						THT standard	7-1462039-2
IM22DTS		4.5VDC			U.h.sens.	SMT gull wing	7-1462039-6
IM41DGR		3VDC	Bistable	Standard		THT narrow	6-1462039-8
IM42DGR		4.5VDC				SMT J-leg	1-1462039-9
IM42DNS						SMT gull wing	1-1462039-6
IM46DNS		12VDC				SMT J-leg	1-1462039-2
IM47DJR		24VDC				THT narrow	7-1462039-5
IM48DGR		2.4VDC				SMT gull wing	1462039-9
IM49DGR		2VDC				SMT gull wing	2-1462039-2
IM40IGR		1.5VDC				SMT gull wing	1462047-7
IM48IGR		2.4VDC				SMT gull wing	1462047-1
IM49IGR		2VDC				SMT gull wing	1462047-4
IM02PGR	High contact stability	4.5VDC	Monostable	Standard		SMT gull wing	5-1462039-4
IM02PNS						THT narrow	5-1462039-8
IM03PGR		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

SUPPLY BY 108-9000 IN Datasheet Category