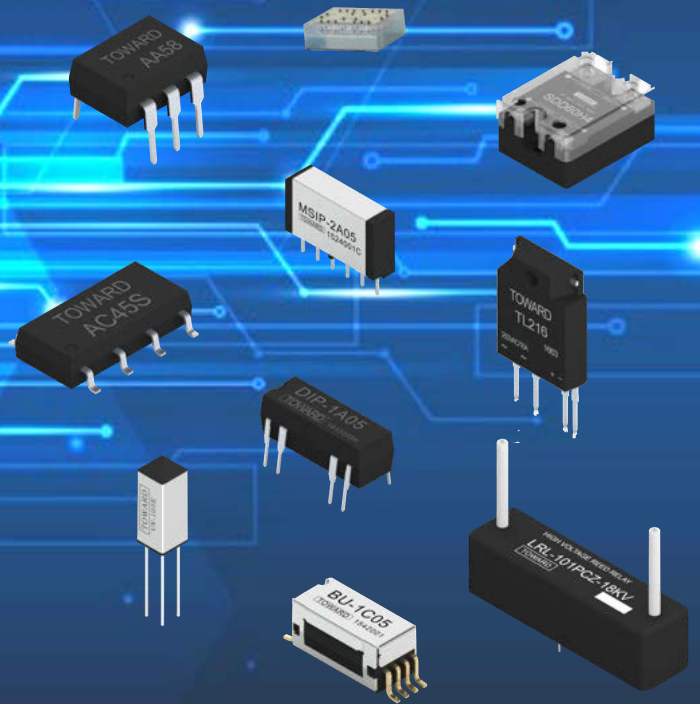


TOWARD
RELAYS

PRODUCT OVERVIEW



SINCE 1988

拓緯實業股份有限公司

BRIGHT TOWARD INDUSTRIAL CO. LTD.

FACTORY ENVIRONMENT



FACTORY (HSINCHU)

拓緯新竹工廠

Bright Toward Industrial Co., Ltd. has over three decades of relay R&D and manufacturing experience. We manufacture S.S.R.s, Reed Relays, Wet Reed Relays, Opto-MOS Relays, Silicon Carbide Opto-MOS Relays, and RF MEMS Relays.



LOBBY

新竹工廠大廳

Currently, we dominate 80% of Taiwan's semiconductor testing market's relay demand. The trust placed in us by major semiconductor manufacturing corporations demonstrates our determination in high-quality and advanced relays.



FULLY AUTOMATED COIL WINDING

全自動繞線機

Due to our decades of experience in R&D and manufacturing, we have the ability and data to locate problems and improve our products continuously.



10K/1K GRADE CLEAN ROOMS

10K/1K等級無塵室

Our factories have 10k/1k grade clean rooms with sets of fully automated testing equipment. To further prove our commitment to high quality, we took the time and effort to pass both AEC-Q101 and IATF-16949 automotive certifications.

CONTENTS

2 OPTOMOS RELAYS SELECTION CHART

3 SILICON CARBIDE OPTOMOS RELAYS

4 OPTOMOS RELAYS

8 SOLID STATE RELAYS (S.S.R.)

9 REED RELAYS OVERVIEW

10 REED RELAYS SELECTION CHART

11 MINIATURE REED RELAYS

12 REED RELAYS

16 RF MEMS RELAYS

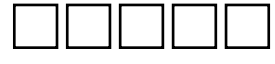
18 ACHIEVEMENTS

OPTOMOS RELAYS



4.5 A	AA28(F)	A*42 5.0A						A*70(F)	A*74(F)	A*76(F)
3.5 A	AA24(F)						(NO)	380 mA	100 mA	-
2.5 A	AB26S A*26(F)	AA36(F)					(NC)	240 mA	70 mA	70 mA
2.0 A			AA47(F) 1.5 A					60 V	400 V	600 V
1.25 A			AB47S AB47(F)							
1.0 A	CC36 1.2A		AC47S AC47(F)							
550mA		AB37(F) AA37(F)							AA50(F) (600mA, 650V)	
500mA		AB37S AC37								AA51(F) (470mA, 1200V)
380mA										
360mA		AC37S								
350mA				AA48(F) AB48(F)						
310mA				AB48S AC48(F)						
280mA				AC48S						
250mA	A*21RS (13pF, 0.9Ω)									
240mA										
200mA		A*45(F) A*45S			AB34(F) AA34(F)					
180mA					AC34(F) AB34S					
170mA					AC34S	A*23RS (37pF, 11Ω)				
130mA							AA31(F) AB31(F)			
120mA							AB31S	AA30(F) AB30(F)		
110mA							AC31(F)			
100mA							AC31S	AB30S AC30(F)		
85mA								AC30S		
80mA			A*46 (3pF, 30Ω)						AA38(F) AB38(F)	
70mA									AB38S AC38(F)	
35mA										AA40(F)

40V 60V 80V 100V 200V 250V 350V 400V 600V 1500V

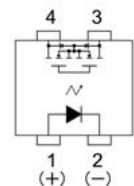


PACKAGE
PRODUCT NAME
Nil=DIP,F=SMD,S=SOP

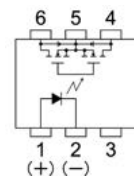
SiC	AA52(F)	AA58(F)	AA53(F)
Load Current	350 mA	50 mA	300 mA
Load Voltage	1700 V	1800 V	3300 V

	4PIN	6PIN	8PIN
1a	AB	AA	
2a			AC
1b	AG	AE	
2b			AH
1a+1b			AK
DIP			
SMD			
SOP			

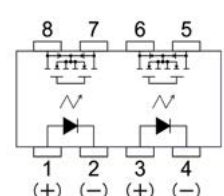
4pin Single-channel for AC/DC
4pin AC/DC 負荷兼用1回路



6pin Single-channel for AC/DC
6pin AC/DC 負荷兼用1回路



8pin Single-channel for AC/DC
8pin AC/DC 負荷兼用2回路

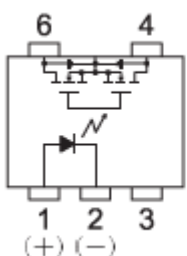
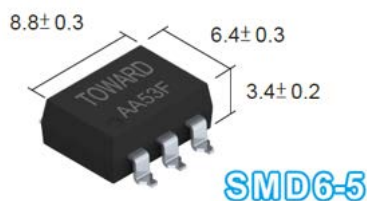
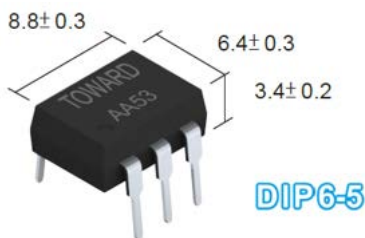


Overview

General Purpose	Hi-A Grade ≥ 1A	Hi-V Grade ≥ 600V	Low CR	AEC-Q101 (105° C)
A*30-400V/120mA	A*24-40/3.5A	A*40-1500V	A*21RS 40V/13pF/0.9Ω	AB45S-Q 60V/200mA
AK74-400V (a+b)	A*26-40V/2.0A	A*38-600V	A*23RS 250V/37pF/11Ω/10nA	AC45S-Q 60V/200mA
A*74-400V/90mA(NC)	AA28-40V/7A		A*46-80V/3pF/1nA	AB47S-Q 80V/1.25A
A*31-350V/130mA	AA36-60V/2.5A			AC47S-Q 80V/1.25A
A*34-200V/200mA	A*47-80V/1.5A	SiC		AB30S-Q 400V/100mA
A*48-100V/350mA				AB38S-Q 600V/70mA
A*37-60V/550mA		AA50-650V/600mA		AC38S-Q 600V/70mA
A*70-60V/380mA		AA51-1200V/470mA		AA40-Q 1500V/45mA
A*45-60V/200mA		AA52-1700V/350mA		
MC117-Telecom Switch		AA58-1800V/50mA		
TB3063S-Photo Triac		AA53-3300V/300mA		

SiC OPTOMOS RELAYS

- * High Voltage with Low Resistance
- * Applied in High Speed Devices
- * Reduce Switching Loss Significantly
- * A Smaller Chip Area
- * Dramatically Lower Recovery Loss



- 1: Anode (LED)
- 2: Cathode (LED)
- 3: NC
- 4,6: Drain (MOSFET)

3300V · 300mA

___AA53

1800V · 50mA

___AA58

1700V · 350mA

___AA52

1200V · 470mA

___AA51

650V · 600mA

___AA50

OPTOMOS RELAYS

Part	Contact Form	Package	Load Voltage	Load Current (Max.)	Peak Load Current (Max.)	Output Power Dissipa-	On Resistance		Output Cap.
							Typical	Maximum	
26 Series	1A 2A	DIP/SMD-4,6,8pin SOP-4,8pin	40 V	2.0 A	5.0 A	600 mW	0.065 Ω	0.085 Ω	240 pF
24 Series	1A 2A	DIP/SMD-4,6,8pin SOP-4,8pin	40 V	3.5 A	8.0 A	500 mW	0.033 Ω 0.027 Ω (DIP6)	0.043 Ω 0.035 Ω (DIP6)	240 pF 810 pF (DIP6)
28 Series	1A	DIP-6pin	40V	4.5 A	9.5 A	500 mW	0.02 Ω	0.03 Ω	690 pF
21RS Series	1A 2A	SOP-4,8pin	40 V	0.25 A	0.75 A	300 mW(1ch) 400 mW(2ch)	0.9 Ω	1.25 Ω	13 pF
36 Series	1A	DIP-6pin	60 V	2.5 A	6.0 A	500 mW	0.07 Ω	0.1 Ω	470 pF
37 Series	1A 2A	DIP/SMD-4,6,8pin SOP-4,8pin	60 V	0.55 A	2.0 A	600 mW	0.75 Ω	1.6 Ω	45 pF
70 Series	1B 2B	DIP/SMD-4,6,8pin SOP-4,8pin	60 V	0.44 A	0.6 A	600 mW	0.75 Ω	1.0 Ω	165 pF
AK70 Series	1A + 1B	DIP/SMD-8pin SOP-8pin	60 V	0.38 A	1.0 A	600 mW	0.75 Ω	1.0 Ω	45 pF(NO) 165
45 Series	1A 2A	DIP/SMD-4,6,8pin SOP-4,8pin	60 V	0.2 A	0.6 A	600 mW	3.0 Ω	14 Ω	20 pF
47 Series	1A 2A	DIP-6pin	80 V	2.0 A	5.0 A	550 mW	0.13 Ω	0.16 Ω	220 pF 500 pF(DIP6)
46 Series	1A 2A	DIP/SMD-4,6,8pin SOP-4,8pin	80 V	0.08 A	0.1 A	450 mW	35 Ω	50 Ω	3 pF
48 Series	1A 2A	DIP/SMD-4,6,8pin SOP-4,8pin	100 V	0.35 A	1.4 A	600 mW	2.0 Ω	3.5 Ω	37 pF
34 Series	1A 2A	DIP/SMD-4,6,8pin SOP-4,8pin	200 V	0.2 A	0.8 A	600 mW	4.2 Ω	8.0 Ω	130 pF
23RS Series	1A 2A	SOP-4,8pin	250 V	0.17 A	0.42 A	450 mW	11 Ω	15 Ω	37 pF

Off State Leakage	LED Operate Current		Turn On Time		Turn Off Time		I/O Isolation Voltage
	Typical	Maximum	Typical	Maximum	Typical	Maximum	
1 μ A	0.5 mA	3.0 mA	0.5 mS	2.5 mS	0.05 mS	0.5 mS	DIP/ SMD-3750V SOP-1500V
1 μ A	0.5 mA(SOP) 1.2 mA(DIP)	3.0 mA	1.2 mS(DIP/SMD) 0.8 mS(SOP)	3.0 mS	0.05 mS	0.5 mS	DIP/ SMD-3750V SOP-1500V
1 μ A	1.2 mA	3.0 mA	1.2 mS	4.0 mS	0.05 mS	0.5 mS	3750V
10 nA	0.3 mA	3.0 mA	0.07 mS	0.5 mS	0.06 mS	0.2 mS	1500V
1 μ A	0.6 mA	3.0 mA	0.6 mS	3.0 mS	0.04 mS	0.5 mS	3750V
1 μ A	0.9 mA	3.0 mA	0.25 mS	1.0 mS(DIP/ SMD) 0.2	0.05 mS	1.0 mS(DIP/ SMD) 0.5	DIP/ SMD-3750V SOP-1500V
10 μ A	0.9 mA	3.0 mA	0.05 mS	0.5 mS	0.25 mS(DIP/ SMD) 0.35	1.0 mS	1500V
1 μ A(NO) 10 μ A(NC)	0.9 mA	3.0 mA	0.2 mS(NO) 0.05 mS(NC)	0.5 mS	0.05 mS(NO) 0.35	1.0 mS	1500V
1 μ A	1.0 mA	3.0 mA	0.07 mS(DIP/SMD) 0.1 mS(SOP)	1.0 mS	0.03 mS	0.5 mS	DIP/ SMD-3750V SOP-1500V
1 μ A	1.0 mA	3.0 mA	0.3 mS(DIP/SMD) 0.4 mS(SOP)	3.0 mS	0.05 mS	0.5 mS	DIP/ SMD-3750V SOP-1500V
1 nA	0.8 mA	3.0 mA	0.015 mS(DIP/ SMD) 0.02 mS(SOP)	0.2 mS	0.08 mS	0.3 mS	DIP/ SMD-3750V SOP-1500V
1 μ A	0.09 mA	3.0 mA	0.2 mS(DIP/SMD) 0.25 mS(SOP)	1.0 mS	0.05 mS	0.5 mS(DIP/ SMD) 0.2	DIP/ SMD-3750V SOP-1500V
1 μ A	0.9 mA	3.0 mA	0.2 mS(DIP/SMD) 0.25 mS(SOP)	1.0 mS	0.05 mS	0.5 mS(DIP/ SMD) 0.2	DIP/ SMD-3750V SOP-1500V
10 nA	0.6 mA	3.0 mA	0.15 mS	0.5 mS	0.06 mS	0.2 mS	1500V

OPTOMOS RELAYS

Part	Contact Form	Package	Load Voltage	Load Current (Max.)	Peak Load Current	Output Power Dissipation	On Resistance		Output Cap.
							Typical	Maximum	
31 Series	1A 2A	DIP/ SMD-4,6,8pin SOP-4,8pin	350 V	0.13 A	0.6 A	600 mW	17 Ω	24 Ω	55 pF
30 Series	1A 2A	DIP/ SMD-4,6,8pin SOP-4,8pin	400 V	0.12 A	0.6 A	600 mW	24 Ω	30 Ω	100 pF
74 Series	1B 2B	DIP/ SMD-4,6,8pin SOP-4,8pin	400 V	0.09 A	0.6 A	600 mW	28 Ω	35 Ω	165 pF
AK74 Series	1A + 1B	DIP/ SMD-4,6,8pin SOP-4,8pin	400 V	0.1 A (NO) 0.07 A (NC)	0.6 A	600 mW	24 Ω (NO) 28 Ω (NC)	30 Ω (NO) 35 Ω (NC)	100 pF (NO) 165 pF (NC)
38 Series	1A 2A	DIP/ SMD-4,6,8pin SOP-4,8pin	600 V	0.08 A	0.2 A	600 mW	40 Ω	60 Ω	47 pF
40 Series	1A	DIP-6pin	1500 V	0.045 A	0.2 A	450 mW	110 Ω	200 Ω	83 pF
51 Series	1A	DIP 6-5pin SMD 6-5pin	1200 V	0.47 A	1.4 A	500 mW	0.6 Ω	2.0 Ω	3 nF
52 Series	1A	DIP 6-5pin SMD 6-5pin	1700 V	0.35 A	1.0 A	500 mW	2.2 Ω	3.5 Ω	115 pF
58 Series	1A	DIP 6-5pin SMD 6-5pin	1800 V	0.05 A	0.18 A	500 mW	80 Ω	150 Ω	80 pF
53 Series	1A	DIP 6-5pin SMD 6-5pin	3300 V	0.3 A	0.9 A	500 mW	3.2 Ω	5.0 Ω	110 pF
AP70 Series	1B	DIP 8-6pin SMD 8-6pin	60 V	2.0 A	6.0 A	1450 mW	0.25 Ω	0.35 Ω	1350 pF
42 Series	1A 2A	DIP/ SMD-4,6,8pin SOP-4,8pin	60 V	5.0 A	10 A	800 mW	0.053 Ω	0.064 Ω	400 pF
76 Series	1B 2B	DIP/ SMD-4,6,8pin SOP-4,8pin	600 V	0.07 A	0.2 A	600 mW	68 Ω	80 Ω	110 pF

Off State Leakage	LED Operate Current		Turn On Time		Turn Off Time		I/O Isolation Voltage
	Typical	Maximum	Typical	Maximum	Typical	Maximum	
1 μ A	0.8 mA	3.0 mA	0.12 mS(DIP/SMD) 0.25 mS(SOP)	1.0 mS(DIP/SMD) 0.5 mS(SOP)	0.05 mS	0.5 mS(DIP/SMD) 0.2 mS(SOP)	DIP/ SMD-3750V SOP-1500V
1 μ A	0.9 mA	3.0 mA	0.2 mS	1.0 mS(DIP/SMD) 0.5	0.05 mS	0.5 mS(DIP/SMD) 0.2 mS(SOP)	DIP/ SMD-3750V SOP-1500V
10 μ A	0.9 mA	3.0 mA	0.05 mS	0.5 mS	0.15 mS(DIP/SMD) 0.1 mS(SOP)	1.0 mS	1500V
1 μ A(NO) 10 μ A(NC)	0.6 mA	3.0 mA	0.2 mS(NO) 0.05 mS(NC)	0.5 mS	0.05 mS(NO) 0.15 mS(NC)	1.0 mS	1500V
1 μ A	1.0 mA	3.0 mA	0.1 mS(DIP/SMD) 0.2 mS(SOP)	1.0 mS(DIP/SMD) 0.5	0.05 mS	0.5 mS(DIP/SMD) 0.2 mS(SOP)	DIP/ SMD-3750V SOP-1500V
10 μ A	0.9 mA	5.0 mA	0.3 mS	1.0 mS	0.05 mS	0.5 mS	3750V
10 μ A	2.8 mA	5.0 mA	1.2 mS	3.0 mS	0.15 mS	1.0 mS	3750V
10 μ A	2.0 mA	5.0 mA	0.7 mS	3.0 mS	0.15 mS	1.0 mS	3750V
10 μ A	2.0 mA	5.0 mA	0.5 mS	3.0 mS	0.15 mS	1.0 mS	3750V
50 μ A	1.4 mA	5.0 mA	0.7 mS	3.0 mS	0.15 mS	1.0 mS	3750V
10 μ A	1.0 mA	5.0 mA	0.25 mS	3.0 mS	0.6 mS	3.0 mS	3750V
1 μ A	1.0 mA	5.0 mA	0.8 mS(DIP/SOP) 1.2 mS(DIP6)	3.0 mS	0.15 mS	0.5 mS	3750V
10 μ A	0.9 mA	3.0 mA	0.05 mS	0.5 mS	0.15 mS(DIP/SMD) 0.2 mS(SOP)	1.0 mS	1500V

SOLID STATE RELAYS (S.S.R.)

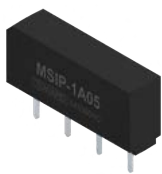
Output to VAC										Load Current	Output to VDC									
600V	480V	400V	380V	280V	240V	220V	200V	100V	60V		24V	48V	50V	60V	80V	100V	120V	200V	220V	400V
		TMV**B								0.45A										TMV**B
		TMC**B								0.5A										TMC**B
										0.6A										TMV**D
										0.7A										TMC**D
					TC209		TMV**B			0.9A							TMV**B			
					TMD**A		TMC**B			1.0A							TMC**B			
					TC212 (1.2A)					1.1A							TMV**D			
										1.5A							TMC**D			
							TMV**B			1.8A					TMV**B					
	TNA		TG**3	TNA	TG TSD**A			TMC**B		2.0A			TMD		TMC**B					
										2.5A		TSD**D			TMV**D					
									TMV**B	2.7A			TMV**B							
										2.8A					TMC**D					
				TNA					TMC**B	3.0A				TMC**B						
										3.6A				TMV**D						
	TNA			TNA	TSD**A					4.0A	TSD**D			TMD**D TMC**D TND						
	TNA		TPA	TNA		TPA				5.0A			TPD							
	TNA			TNA						6.0A										
	TDA TAA	TDA TAA SDZ	TL208 (8.0A) (280VAC)	TDA TDB TAA SDZ						10.0A			SDD			TAD		TAD SDD	SDD	
	TDA TAA	TDA TAA SDZ	TL216 (16.0A) (280VAC)	TDA TDB TAA SDZ						15.0A					TDD	TAD	TDD	TAD		
		SDZ		SDZ						20.0A			SDD					SDD	SDD	
	TDA TAA	TDA TAA SDZ		TDA TDB TAA SDZ						25.0A					TDD	TAD	TDD	TAD		
										35.0A			SDD					SDD	SDD	
	TDA TAA	TDA TAA SDZ		TDA TDB TAA SDZ						40.0A					TDD	TAD	TDD	TAD		
SDZ		SDZ								50.0A										
		SDZ								60.0A			SDD							SDD
		SDZ								80.0A				SDD						
			SDZ							100A										
			SDZ							125A										

REED RELAYS OVERVIEW

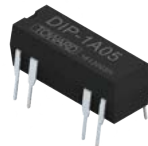


Thru-hole Reed Relays	SMD	Mercury Reed Relays	High-Voltage Reed Relays	Low CR Reed Relays
VN-1a, 4a VSIP OSIP MSIP-1a, 2a SIP-1a DIP-1a, 2a, 1c BFM-1a, 1c, 1m BFS-1a, 1c BFH-2a, 3a BFH-1c, 2c BMF-1a, 2a TRP-8a HRR2 HRR8	VN-1a-J BU-1a, 1c, 2a DIP-1a,2a,1c-J(G) RG-1a, 2a, 1T BSG-3c TRP-800G(8a)v	SIW(N)-1a DIW(N)-1a HMR2-1a HMR8-2a HMR(L)-1a-3.5KV HMR(L)-2a-3.5KV HMR(L)-3a-3.5KV TMR-1a(4.5KV/20A) TML-1a(4KV) TH-1a(8KV)vvv	HRR2-4KV HRR(L)-1a-3KV HRR(L)-2a-3KV HRR(L)-3a-3KV LRL-1**-100PCZ(10KV) LRL-1**-140PCZ(14KV) LRL-1**-200PCZ(20KV) LRL-1**-100PCV(10KV) LRL-1**-140PCV(14KV) LRL-1**-200PCV(20KV) LRL-20*-100PCV(10KV) LRL-20*-140PCV(14KV) LRL-20*-200PCV(20KV)	BU-1a, 2a, 1c RG-1a, 2a, 1c HFS-1a, 2a, 1c HFSS-1a, 2a, 1c BFM-1a, 1c, 1m BFS-1a, 1c BFH-2a, 3a BFH-1c, 2c

THRU-HOLE



SMD



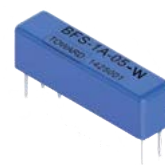
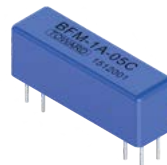
HV



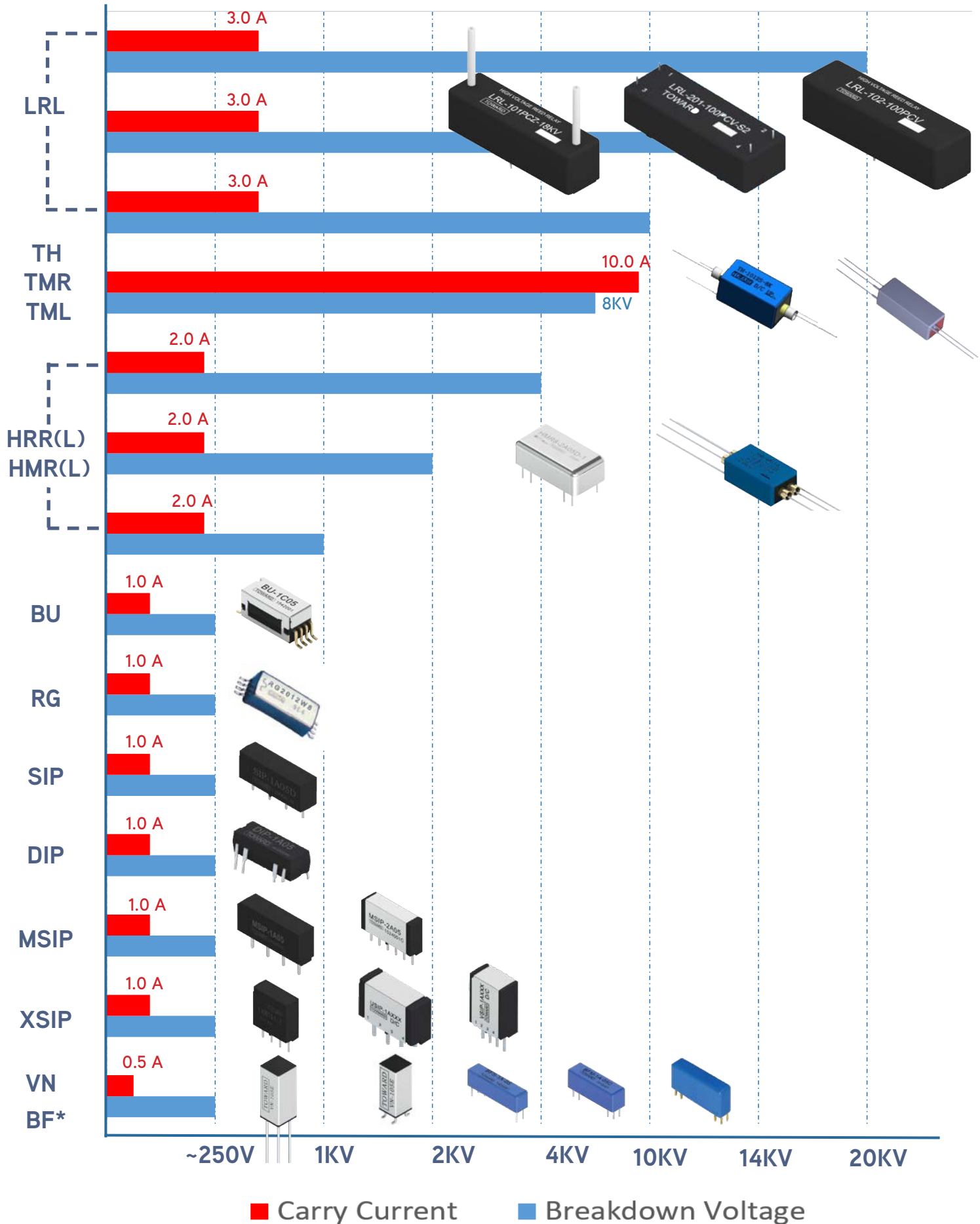
MERCURY



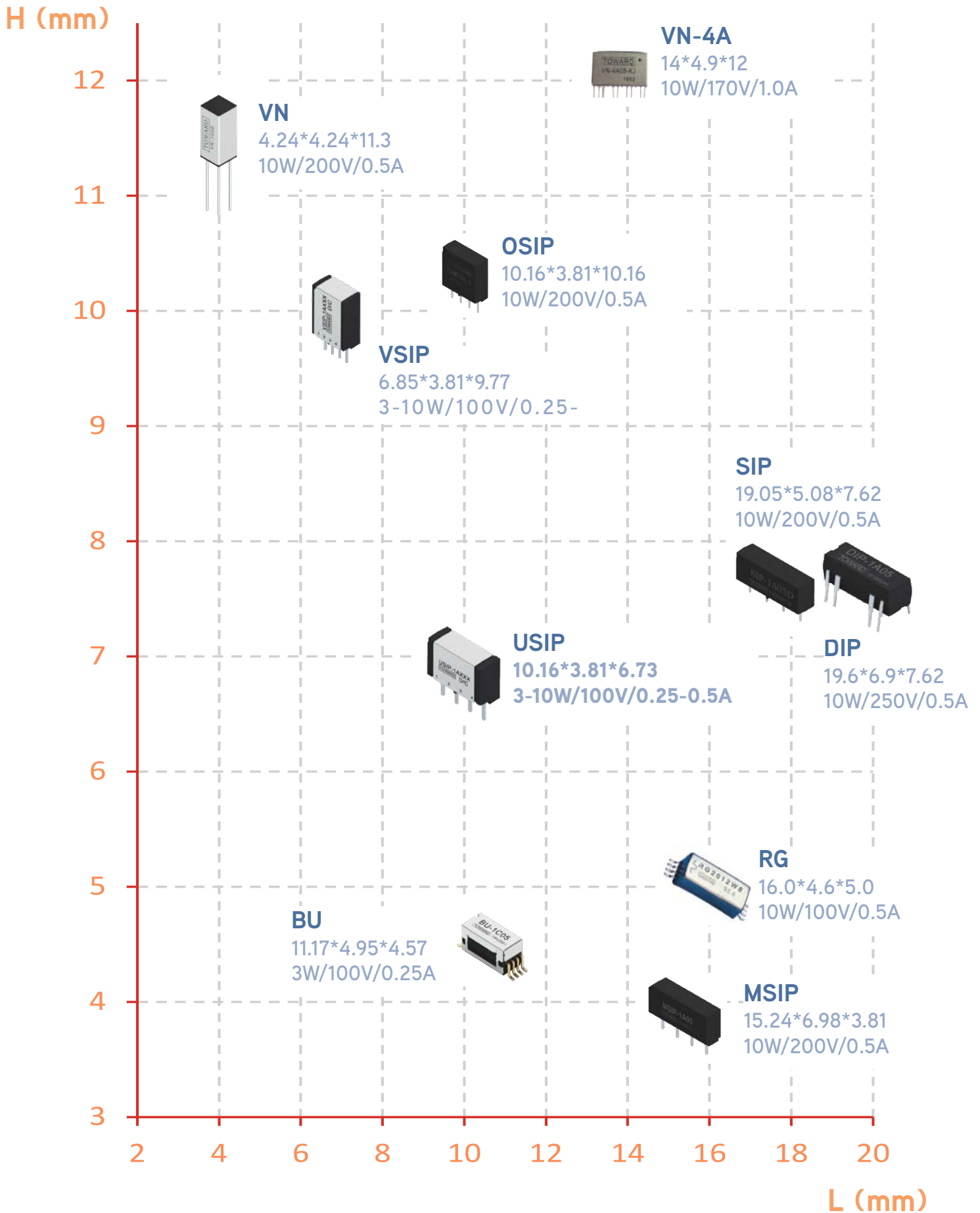
Low CR









REED RELAYS









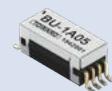
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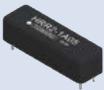
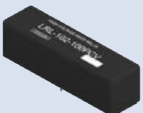
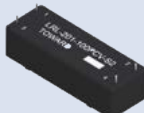


REED RELAYS

Reed Relay Series	VN 	BF/BFS 	BFH 	BFM 	DIP 	SIP 
Description	Stand Design Relays	Instrumentation Reed	Multi-Pole Instrumentation	Instrumentation Reed	General Purpose DIP	General Purpose SIP
Contact Form	1A,2A,4A,5A	1A, 1C	2A, 3A,2C,1C	1A, 1C	1A, 2A,1B,1C	1A, 1B
Package Style	Potted	Potted	Potted	Potted	Molded	Molded
Nominal Coil Voltage (VDC)	5, 12	5, 12	5, 12	5, 12	5, 12, 24	5, 12, 24
Contact Rating (Max Watts)	10	A 10 C 3	A 10 C 3	A 10 C 3	A 10 C 3	10
Switching Voltage (Max VDC)	170	A 200 C 100	A 200 C 100	A 200 C 150	A 100 C 100	150
Switching Current (Max Amps)	0.5	A 0.5 C 0.25	A 0.5 C 0.25	A 0.5 C 0.25	A 0.5 C 0.2	0.5
Carry Current (Max Amps)	1	A 1.0 C 0.5	A 1.5 C 0.5	A 1.5 C 1.0	A 1.0 C 0.5	1.0
Contact Resistance (Max Ohms)	0.15	A 0.10 C 0.15	A 0.150 C 0.200	A 0.100 C 0.150	A 0.150 C 0.150	0.15
Dielectric Strength Between Contacts (Min VDC)	200	A 250 C 200	A 250 C 200	A 350 C 200	200	200
Dielectric Strength Contact to Coil (Min VDC)	150	1500	1000	1500	1500	1500
Insulation Resistance	10^{12}	A 10^{12} C 10^{11}	A 10^{12} C 10^{11}	A 10^{12} C 10^{11}	A 10^{12} C 10^9	10^{10}
Features	External Magnetic Shield	External Magnetic Shield	External Magnetic Shield	External Magnetic Shield		
Options	ES Shield SMD	ES Shield Coaxial Shield	ES Shield Coaxial Shield	ES Shield Coaxial Shield	Diode ES Shield	Diode

TOWARD RELAYS

SIP-Y SIP-C 	SIL 	MSIP 	MSIP-2A 	OSIP OSIP-I 	VSIP VSIP-I 	BU 
Instrumentation Grade	High Voltage Reed Relays	Instrumentation Grade	Instrumentation Grade	Instrumentation Grade	Instrumentation Grade	Instrumentation Grade SMD
1A, 1B	1A	1A	2A	1A	1A	1A, 1C
Molded	Potted	Molded	Molded	Molded	Molded	Molded
5, 12, 24	5, 12, 24	5, 12	5, 12	5, 12	5, 12	3.3, 5
10 15	100	10	10	10 15	10	A 10 C 3
100 200	350 1000	200	200	200	170	A 170 C 30
0.5	1.0	0.5	0.5	0.5 1.0	0.5	A 0.5 C 0.1
1.0 1.75 1.25	2.5	1.5	1.5	1.0	1.0	A 1.0 C 0.2
0.15	0.15	0.125	0.14	0.12	0.12	0.15
200 250 200	3000	200	200	200	200	A 210 C 200
1500	4000	1500	1500	1500	1500	A 1500 C 1000
10^{12}	10^{13}	10^{12}	10^{12}	10^{12}	10^{12}	10^{12}
			External Magnetic Shield	Internal Magnetic Shield	External Magnetic Shield	External Magnetic Shield Coaxial Shield
Diode	Diode	Diode Internal Magnetic Shield	Diode	Diode	Diode	

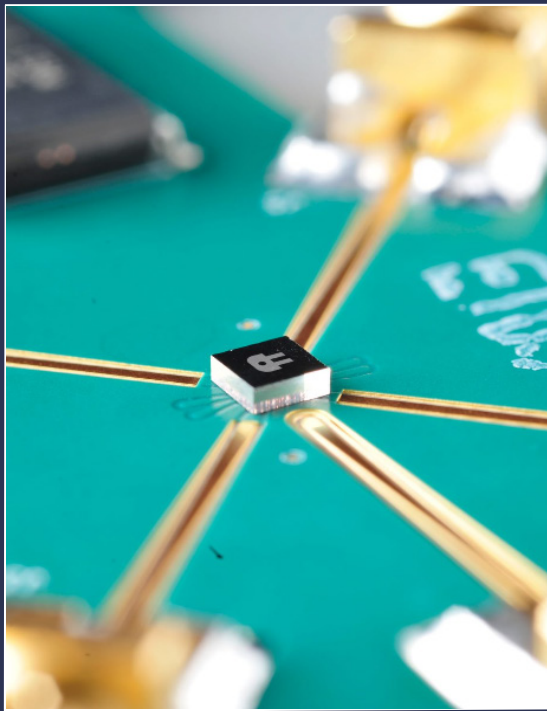
REED RELAYS

Reed Relay Series	 HRR/HRL	 HRR2	 LRL-10	 LRL-20	 HMR	 HML
Description	Long Life Reed Relays	High Voltage Reed Relays	High Voltage Reed Relays	High Voltage Reed Relays	Long Life Wet Reed Relays	Long Life Wet Reed Relays
Contact Form	1A, 2A, 3A	1A	1A	2A	1A, 2A, 3A	1A, 2A, 3A
Package Style	Potted	Molded	Potted	Potted	Potted	Potted
Nominal Coil Voltage (VDC)	5, 12, 24	5, 12, 24	12, 24	5, 12, 24	5, 12, 24	5, 12, 24
Contact Rating (Max Watts)	50 100	10 60	50 200	50	50	50
Switching Voltage (Max VDC)	300 350 1000	230 300 1000	3500 7500-12K	7500	500 1500	500 1500
Switching Current (Max Amps)	1.0	0.5 1.0 3.0	3.0	3.0	1.0 2.0	1.0 2.0
Carry Current (Max Amps)	2.5	1.3 4.0	5.0	5.0	2.0 3.0	2.0 3.0
Contact Resistance (Max Ohms)	0.15	0.08 0.10 0.15	0.15	0.15	0.1	0.1
Dielectric Strength Between Contacts (Min VDC)	500 1000 3000	400 1000 2000	7500 10K-20K	10K	1500 2000 3500	1500 2000 3500
Dielectric Strength Contact to Coil (Min VDC)	2500	400 1000 2000	10000	10000	2500 3000	2500 3000
Insulation Resistance@100V, 20C, 40%RH (Min Ohms)	10^{10-13}	10^{10}	10^{10}	10^{10}	10^{10-13}	10^{10-13}
Features	External Magnetic Shield		Internal Magnetic Shield	Internal Magnetic Shield	External Magnetic Shield	External Magnetic Shield
Options		Diode				

TOWARD RELAYS

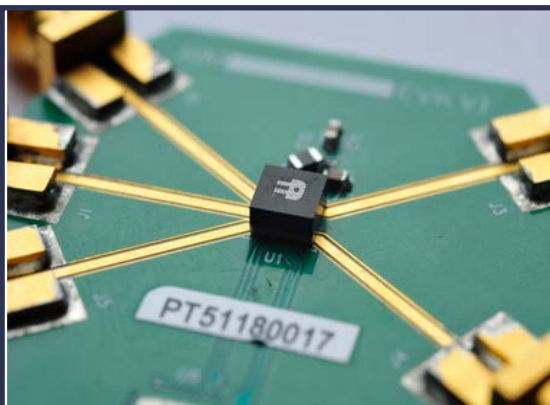
DIW	DIWN	SIW	SIWN	TH	TML	TMR
						
Wet DIP Relays	Wet DIP Relays	Wet DIP Relays	Wet SIP Relays	High Power Wet Reed Relays	High Power Wet Reed Relays	High Power Wet Reed Relays
1A	1A	1A	1A	1A	1A	1A
Molded	Molded	Molded	Molded	Potted	Potted	Potted
5, 12, 24	5, 12, 24	5, 12, 24	5, 12, 24	5, 12, 24	5, 12, 24	5, 12, 24
50	50	50	50	100	100	100
1500	500	1500	500	5000	1000	2000
2.0	2.0	2.0	2.0	5.0	2.0	2.0
3.0	3.0	3.0	3.0	10.0	10.0	10.0
0.1	0.1	0.1	0.1	0.1	0.1	0.05
1500 2000	1500 2000	1500 2000	1500 2000	8000	4000	4500
1500	1500	1500	1500	8000	4000	4500
10 ¹⁰	10 ¹⁰	10 ¹⁰	10 ¹⁰	10 ¹⁰	10 ⁹	10 ¹¹
	All Position Diode		All Position Diode			

RF MEMS RELAYS



MM5130

- DC to 26 GHz
- CW Input Power at 6GHz: 25W
- Peak Input Power at 6GHz: 150W
- Insertion Loss at 18GHz: 1.3 dB
- Insertion Loss at 6GHz: 0.2 dB
- Return Loss at 6GHz: 15dB
- Return Loss at 18GHz: 10dB
- Coff at 15 fF
- three billion on/off switching cycles
- switching time: 8 μ sec (8 micro sec)
- 2.5*2.5 (mm) WLCSP Package



MM5120

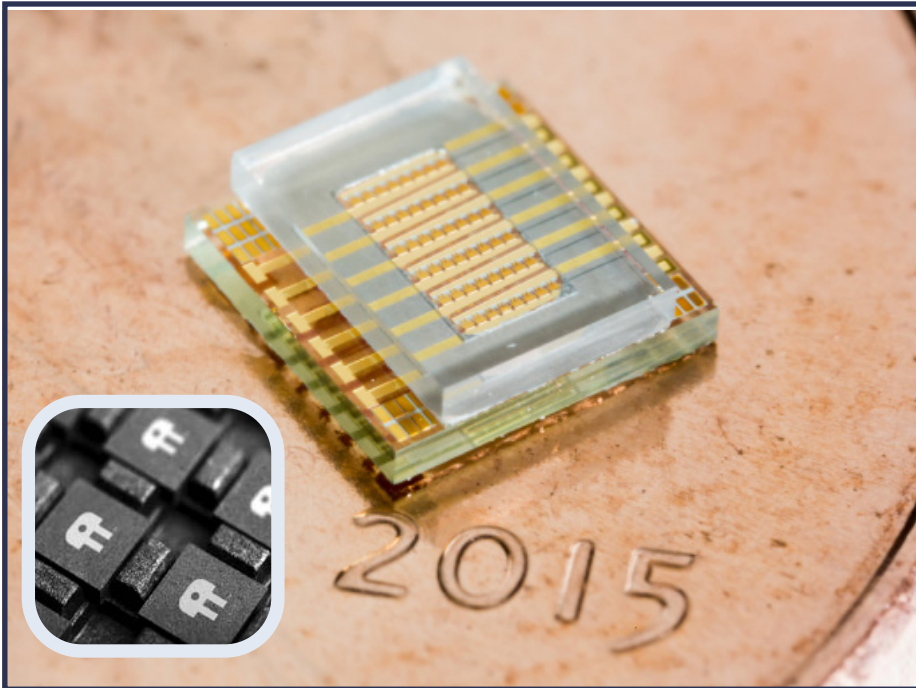
- SP4T DC to 12 GHz
- 25 W/Channel CW
- 4.0*4.0 (mm) LGA
- Embedded Control w. V Boost



MM1200

- 6 Channel SPST
- DC to 1.0 GHz
- Up to 200V
- SPI Bus Control
- 6.0*6.0 (mm) BGA



**MM3100**

- 6 Channel SPST
- 25 W/Channel CW
- DC to 3.0 GHz
- 6.0*6.0 (mm) BGA
- Embedded Controller

MM3130

- 6 Channel SPST
- High Power HF (50W)
- DC to 3.0 GHz
- 6.0*6.0 (mm) BGA

**MD05-90**

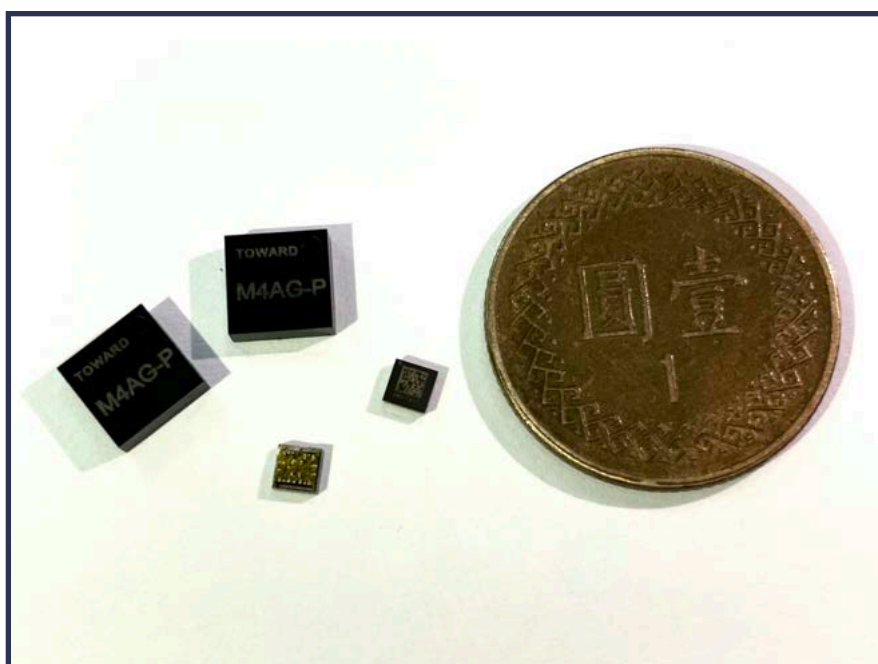
Converter for two options
for 300 pcs M4AC-P
for 600 pcs M2CG-P
Output Voltage: 3.5V up to 90V
10*10 mm

M4AG-P

SP4T DC 6-18 GHz
25W/Channel CW
5.8*5.8*1.8 (mm) QFN

M2CG-P

DPDT+SP4T
DC 6-18 GHz
25w/Channel CW
7.6*6.0*1.8 (mm) QFN



ACHIEVEMENTS



2020 創業楷模
MODEL OF ENTREPRENEURS



KEYSIGHT TOP 50 SUPPLIER AWARDS



Technology Innovation Awards
2015



中華精測 - 同舟共濟獎
Award from CHPT



鄧白氏 - 中小企業菁英獎
D&B TOP 1000 Elite
SME Award



AECQ101 Certificated - Optomos Relay

AB45S-Q (60V / 200mA)	AC45S-Q (60V / 200mA)
AB30S-Q (400V / 100mA)	AB47S-Q (80V / 1.25A)
AB38S-Q (600V / 70mA)	AC38F-Q (600V / 70mA)
AC38S-Q (600V / 60mA)	AA40-Q (1500V / 45mA)

IATF 16949:2016



RoHS

TOWARD RELAYS

RoHS 2.0 物質不含有害物質
Declaration of Non-use of RoHS 2.0 Substances

一、茲將本廠生產之所有產品以下開本公司標本保證書所列之所有產品，皆符合歐盟2011/65/EU及2015/863/EU關於RoHS 2.0之相關規定。

Bright Toward Industrial declares that all products mentioned are compatible with the European Union RoHS 2.0 Directive 2011/65/EU and 2015/863/EU requirement.

二、本公司所有產品均不含RoHS 2.0所列之有害物質，雙方簽字後，即生效力。

BRIGHT TOWARD Industrial agrees that both parties shall settle any dispute arising from or in connection with this Declaration of Conformity by friendly negotiations.

產品名稱: 光耦合器/繼電器 - Relay Relays - S.S.A.

有害物質名稱	CAS 編號	限制標準	法規標準
Name of hazardous substances	CAS No.	European Union Level	US Law
鎘及其化合物 Cadmium (Cd) / Cadmium Compounds	7440-43-4	<1000ppm (100%)	
鉛及其化合物 Lead (Pb) / Lead Compounds	7439-92-1		
汞及其化合物 Mercury (Hg) / Mercury Compounds	82798-02-4		2011 RoHS EU
六價鉻化合物 Chromium VI (Cr(VI)) / Chromium VI	21434-21-3	<1000ppm (100%)	RoHS 2.3
多環芳烴類(PAHs) / 多環芳烴類(PAHs)	87711-39-7		
多環芳烴類(PAHs) / 多環芳烴類(PAHs) (Other)			
鄰苯二甲酸二丁酯 (DBP)	115-85-7		
鄰苯二甲酸二乙酯 (DEHP)	84-74-2	<1000	2015 RoHS EU
鄰苯二甲酸二正丁酯 (DIBP)	24-68-5		

立證負責人:

公司名稱: 研達實業股份有限公司
Company name: BRIGHT TOWARD IND. CO. LTD.

公司代理人: 蔡宏銘
Company Representative: Philip Shyu

日期: 2020 / 09 / 04
Date: 2020 / 09 / 04

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ROHS 2.0 100% 0.01%
Page: 1 of 1

ISO 9001:2015



ISO 9001:2008



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- Tel: +86-512-6523-9239

