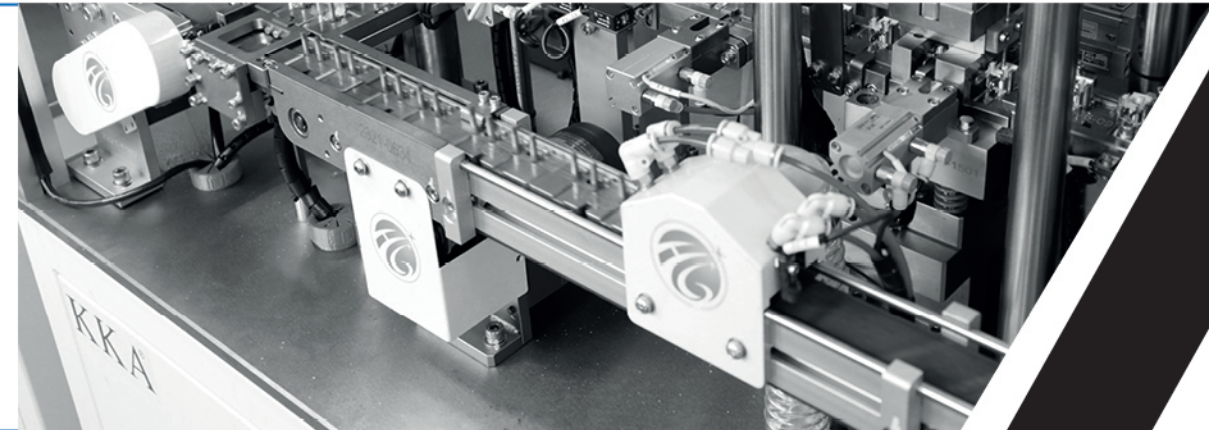
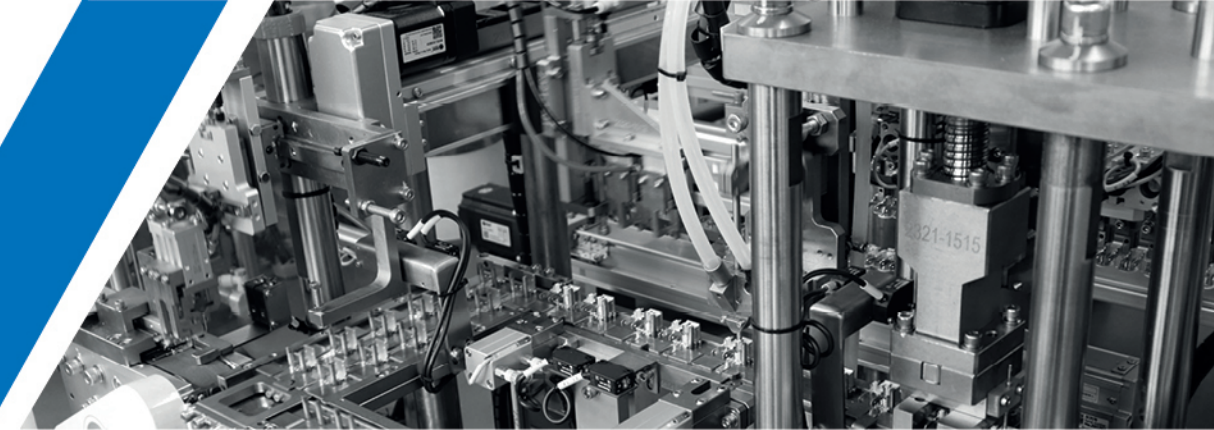


KKAR

KKAR



ZHEJIANG KKA

ZHEJIANG KKA ELECTRICS TECHNOLOGY CO., LTD.

Add.: 196-5 Weishier Road, Yueqing Economic Park, Yueqing, Wenzhou City,

Zhejiang Province, PR China

Tel: (+86) 0577-62721717

Email: info@kkacn.com

Chinese Website: www.kkacn.com

English Website: www.kkaele.com

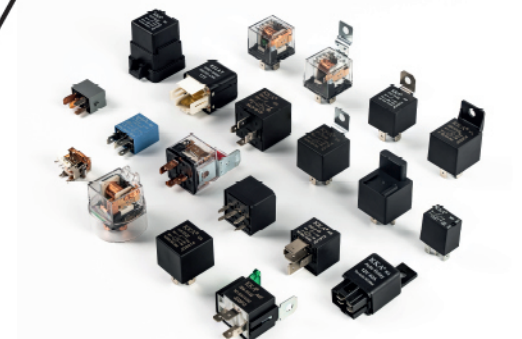
AUTOMOTIVE ELECTRICAL RELAY

KKAR ELECTRICS

IATF 16949:2016 Certified Company

AUTOMOTIVE RELAY

ZHEJIANG KKA ELECTRICS TECHNOLOGY CO., LTD.



COMPANY PROFILE >>>

Zhejiang KKA Electrics Technology Co., Ltd. is a professional manufacturer of automotive electrical appliances such as automotive relays, DC relays, high-power relays, auto flashers, and car battery switches. Our company has a 10,000m² self-owned production site and has passed the IATF16949:2016 automotive quality management system certification. We strictly follow the IATF16949 management system to deepen our efforts in the field of automotive electrical parts and strive to become a highly competitive automotive relay manufacturer worldwide.

Our company's products are mainly used by OEMs factories such as FAW, SINOTRUK, Shanxi Automobile, BYD, JAC, Dongfeng Motor, and world famous wiring harness manufacturers such as YAZAKI and LEONI, etc..

Specialized team, create high-quality products. Our company's core team consists of senior industry engineers with 20 years of professional experience in the production and development of automotive relays, and postgraduate and undergraduates from famous domestic and foreign universities. The team specializes in the development and production of various types of automotive relays, and can provide customers with various production needs more stably and effectively.

Advanced equipment, focus on research and development. Our company continues to introduce modern first-class production equipment and manufacturing processes. KKA has multiple fully automated assembly lines, and the daily output of each production line can reach 20,000pcs. Now we have a complete set of core technologies for product development and manufacturing, and continue to provide safe, stable and high-quality products to customers around the world.

Scientific management, excellent quality and price. The KKA" and "Koersted" brand products produced by our company are deeply favored by the market for their stable quality and excellent cost performance. They are recognized by the industry for their complete and scientific quality management system and honest and reliable product strength. The company has always adhered to the business philosophy of "taking technology as the driving force and quality as the survival", and is committed to building a trustworthy distribution platform and a trustworthy industry service provider, and strives to provide customers with high-quality products and services.

KKA[®]

COMPANY CERTIFICATION

GTS		Test Report		Date: November 21, 2022	
Report No.:	GTS2211140161EN	Job No.:	G170		
Applicant:	Zhejiang KKA Electrics Technology Co., Ltd.				
Address:	195-5 Waihai Road, Yueqing Economic Zone, Yueqing Wenzhou City, Zhejiang Province				
Sample Name:	Automotive Relay				
Sample Model:	KKA-VA, KKA-JAF				
Other Information:	A Series, B Series, C Series, D Series, E Series, F Series, G Series, H Series, I Series, J Series, K Series, L Series, M Series, N Series, O Series, P Series, Q Series, R Series, S Series, T Series, U Series, V Series, W Series, X Series, Y Series, Z Series				
Sample Receiving date:	2022-11-14				
Test period:	2022-11-14 ~ 2022-11-21				
Test Requirement:	The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment, RoHS Directive 2011/65/EU and its amendment Directive (EU) 2015/863.				
Test Method:	Please refer to next page(s).				
Test result:	Please refer to next page(s).				
Conclusion:	Please refer to next page(s).				
Note:	Applicant address sample name and model information have been provided by the customer GTS is not responsible for its authenticity.				



Authorized Signature: *Edna Yang*
Edna Yang
Approved Signature: GTS/SHK

Page: 1 of 9

RoHS

Certificate of Registration



This is to certify that the Quality Management System of:
Zhejiang KKA Electrics Technology Co., Ltd.
4th Floor, No. 104-6, Waihai Road, Yueqing Economic Development Zone, Yueqing, Wenzhou City, Zhejiang Province, 325600, China
(IATF USI: 30X9H9)

applicable to:
The manufacture of relays

has been assessed and registered by NQA, Warwick House, Houghton Hall Park, Houghton Regis, Dunstable, LU5 2ZX, UK

against the provisions of:
IATF 16949:2016
(Clause 8.3 product design of IATF 16949:2016 is justifiably excluded)

This registration is subject to the company maintaining a quality management system to the above standard, which will be monitored by NQA.

Managing Director

NQA Certificate No:
IATF Certificate No:
First Issue Date:
Valid Until:
Version:

T184390
0488423
29 January 2024
26 January 2027
1



IATF16949



ZERTIFIKAT

Verification No.: GEL/21121005288

GTS

VERIFICATION OF EMC COMPLIANCE

Applicant: Zhejiang KKA Electrics Technology Co., Ltd.

Address of applicant: 100-5 Waihai Road, Yueqing Economic Zone, Yueqing, Wenzhou City, Zhejiang Province

Manufacturer: Zhejiang KKA Electrics Technology Co., Ltd.

Address of manufacturer: 195-5 Waihai Road, Yueqing Economic Zone, Yueqing, Wenzhou City, Zhejiang Province

Product Description: Automotive Relay

Model No.: A series, B series, C series, D series, E series, F series, G series, H series, I series, J series, K series, L series, M series, N series, P series, Q series, R series, S series, T series, U series, V series, W series, X series, Y series, Z series

Sufficient samples of the product have been tested and found to be in conformity with Test Standard: EN 55014-1:2017+A11:2020, EN 55014-2:2010

As shown in the Test Report Number(s): T182231121036288

Date of issue: December 19th, 2021

Date of expiry: December 12th, 2026

CE

This Verification of EMC Compliance has been granted to the applicant based on the results of the TCF performed by Global Testing Services Co., Ltd. on the sample of the above-mentioned product in accordance with the provisions of the relevant standards and the Directive 2014/53/EU. The CE mark on shown below can be used. Under the responsibility of the manufacturer, after completion of an EU Declaration of Conformity and compliance with all relevant EU Directives. The affixing of the CE marking presumes in addition that the conditions in Articles 1, 2 and 17 of the Directive are fulfilled.

Approved by: *Henk van der Velden*

For use on behalf of Global Testing Services Co., Ltd.

Global Testing Services Co., Ltd.

Head Office: 100-5 Waihai Road, Yueqing Economic Zone, Yueqing, Wenzhou City, Zhejiang Province

Floor 3rd, Building D-1, No. 128 Shao Road, Ningbo District, Ningbo, China



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CE



AUTOMOTIVE ELECTRICAL RELAY

ZHEJIANG KKA ELECTRICS TECHNOLOGY CO., LTD.

**RELAY FOR YOU
RELAY ON US**

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AUTOMOTIVE RELAY SELECTION GUIDE >>>

10A-80A Automotive

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100-300A Relay

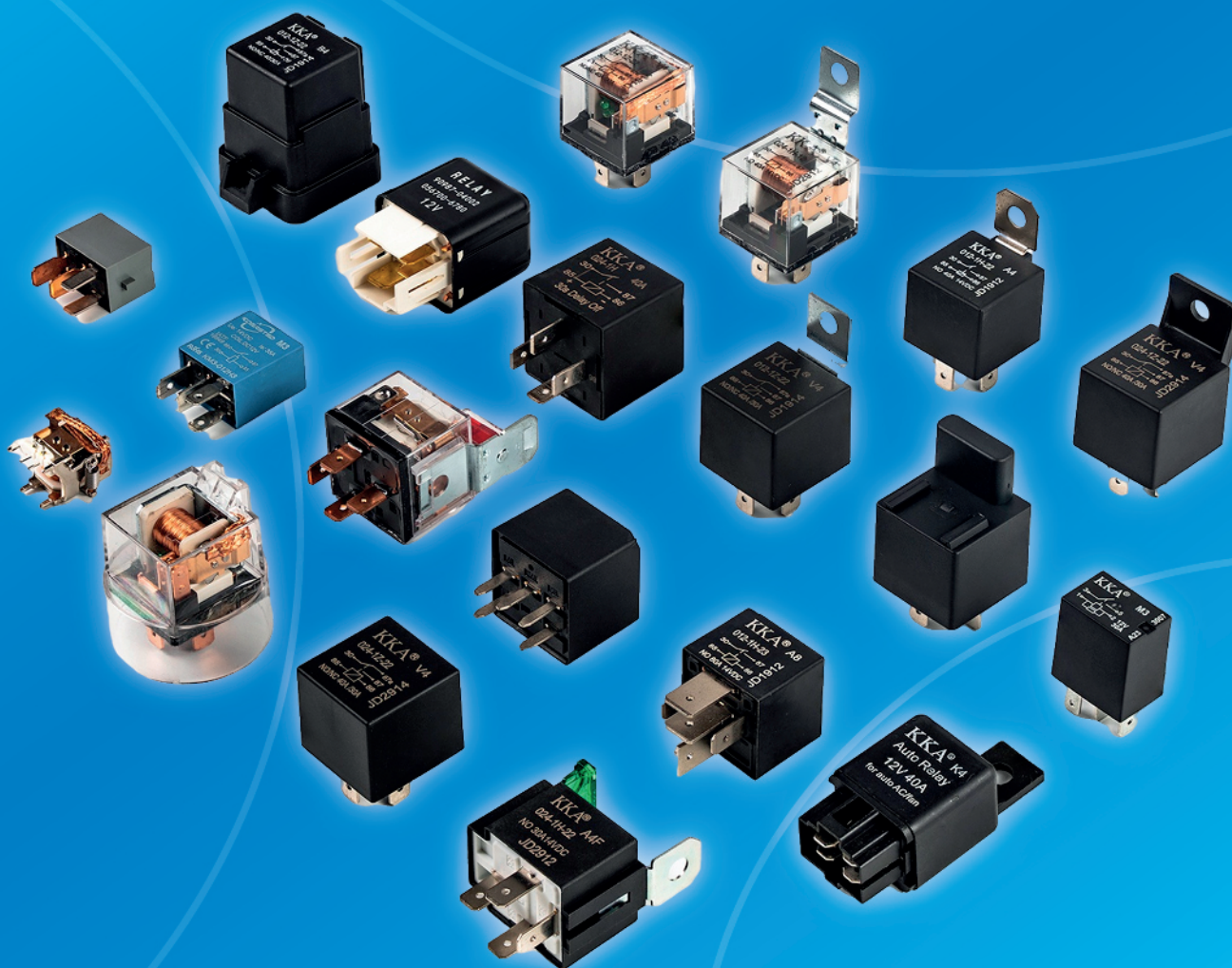
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Electronic Relay

[illegible]

01

10A-80A Automotive Relay



PRODUCT PROFILE

KKA®

KKA-A4

26*26mm 40A Automotive Relay

Features

- 40A switching capability
- 1 Form A, 1 Form B & 1 Form C contact arrangement
- Terminal position complies with ISO 7588 PART1
- Comply with RoHS, ELV directive

Typical Application

Applicable to automotive grade 40A circuits, such as: ABS control, blower, car alarm, cooling fan, electric power steering, energy management, engine control, fuel pump, heated front windshield, lights: headlights, taillights, fog lights, main switch/ power relay, valve, wiper control



Ordering Guide

	KKAA4	-012	1H	23	-R	(XXX)
Type	A4 - cubic shell A4M - with iron bracket					
Coil Voltage	012:12VDC 024:24VDC					
Contact Form	1H:1 Form A 1B:1 Form B 1Z: 1 Form C 1D:1 Form 2A					
Terminal Type	22: brass coil pin,brass working pin, default tinned 23: brass coil pin,copper working pin, default tinned					
Parallel Coil Components	Nil: without parallel component R: parallel transient supression resistors (680Ω, 12V) (2700Ω, 24V) D1:parallel transient supression diode, with anode connected to terminal #85 D2:parallel transient supression diode, with anode connected to terminal #86					
Special Code	(XXX):customer special requirement Nil: Standard					

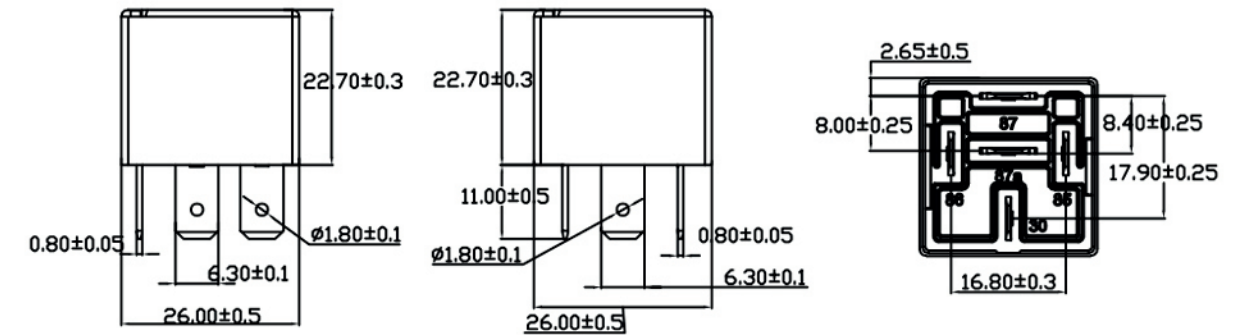
CHARACTERISTICS

Contact arrangement	1A (SPST-NO), 1C (SPDT)
Voltage drop	NO:Typ.20mV,250mV max. (at 10A) NC:Typ.30mV,250mV max. (at 10A)
Max.continuous current ¹⁾¹⁰⁾	NO:60A(at 23°C),40A(at 85°C),17A(at 125°C) NC:45A(at 23°C),30A(at 85°C), 12A(at 125°C)
Max.switching current ¹⁰⁾	Make(NO):150A ²⁾ Break(NO):40A(Resistive,13.5VDC)
Min.contact load	1A 6VDC
Electrical endurance	See "CONTACT DATA"
Mechanical endurance	1x10 ⁸ OPS (300OPS/min)
Insulation resistance	100M Ω (at 500VDC)
Dielectric strength ³⁾	500VAC
Operate time ¹⁰⁾	Max.:10ms (at nomi.vol.)
Release time ¹⁰⁾	Max.:10ms ⁴⁾
Ambient temperature	-40°C to 125°C
Vibration resistance ⁵⁾¹⁰⁾	5Hz to 22.3Hz 10mm DA 22.3Hz to 500Hz 98m/s ²
Shock resistance ⁵⁾¹⁰⁾	294m/s ²
Flammability ⁶⁾	UL94-HB or better(meets FMVSS 302)
Termination	QC ¹¹⁾ , PCB ⁷⁾
Construction	Plastic sealed,Dust protected
Unit weight	Approx.35g
Mechanical data ⁸⁾	housing retention (pull &push):200N min. terminal retention(pull &push):100N min. Terminal resistance to bending (front &side):10N min ⁹⁾

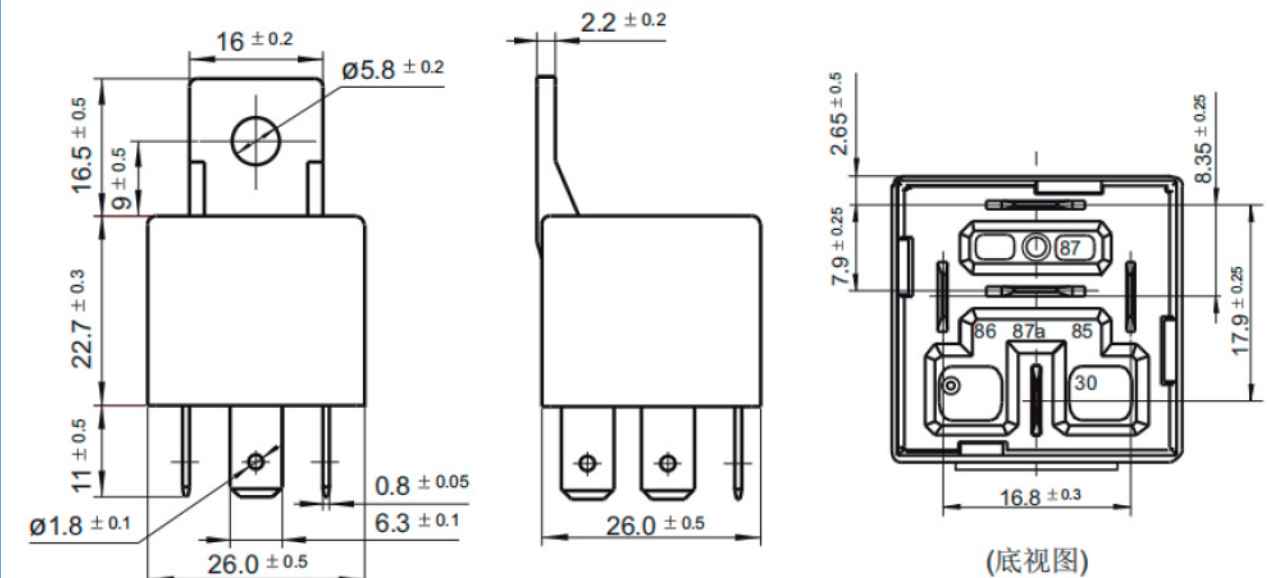
- 1)For NO contacts,measured when applying 100% rated voltage on coil.
- For NC contacts,measured when applying zero voltage on coil.
- 2)Inrush peak current under amp load,at 13.5VDC.
- 3)1min, leakage current less than 1mA.
- 4)The value is measured when voltage drops suddenly from nominal voltage to 0 VDC and coil is not paralleled with suppression circuit.
- 5)When energized, opening time of NO contacts shall not exceed 1ms, when non-energized,opening time of NC contacts shall not exceed 1ms, meantime, NO contacts shall not be closed.
- 6)FMVSS:Federal Motor Vehicle Safety Standard.
- 7)Since it is an environmental friendly product, please select lead-free solder when welding.The recommended soldering temperature and time is (250±3)C,(5±0.3)s.
- 8)Only valid for QC version.
- 9)Test point is at 2mm away from terminal end,and after removing testing force, the terminal transfiguration shall not exceed 0.5mm.
- 10) Only for the 12VDC coil voltage type.
- 11)Do NOT knock on relays with hard objects such as rubber rod and rubber hammer during mounting, which might lead to relay damage.

DIMENSION

A4



A4M



Remark: In case of no tolerance shown in outline dimension: outline dimension≤1mm, tolerance should be ±0.2mm;
Outline dimension>1mm and≤5mm, tolerance should be ±0.3mm; outline dimension>5mm, tolerance should be ±0.4mm.

COIL DATA

at 23°C

Nominal voltage VDC	Pick-up voltage VDC max.	Drop-out voltage VDC min.	Coil resistance x(1±10%)Ω	Parallel Resistance ²⁾ x(1±5%)Ω	Equivalent resistance Ω	Power consumption W	Max.allowable overdrive voltage ¹⁾ VDC	
							at 23°C	at 85°C
12	7.2	1.2	90			1.6	20.2	15.7
12	7.2	1.2	90	680	79.5	1.8	20.2	15.7
24	16	2.4	320			1.8	40.5	31.5
24	16	2.4	320	2700	286	2.0	40.5	31.5

1)Max.allowable overdrive voltage is stated with no load applied.

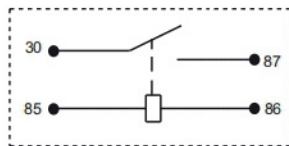
2)with the type with parallel resistor (680Ω,12V),(2700Ω,24V).

CONTACT DATA

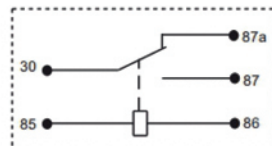
Load voltage	Load type		Load current (A)			On/Off ratio		Electrical Endurance OPS	Contact Material	Ambient temp
			1C		1A	OnS	OffS			
			NO	NC						
13.5 VDC	Resistive	Make	40	30	40	2	2	1×10 ⁵	AgSnO ₂	See Ambient Temp. Curve
		Break	40	30	40					
	Lamp	Make	150	-	150	2	2	1×10 ⁵	AgSnO ₂	
		Break	30	-	30					
	Inductive	Make	80	40	80	2	2	1×10 ⁵	AgSnO ₂	
		Break	33	20	33					
27VDC	Resistive	Make	20	10	20	2	2	1×10 ⁵	AgSnO ₂	
		Break	20	10	20					

WIRING DIAGRAM

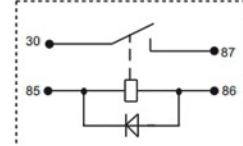
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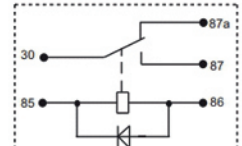
KKAA4-□1Z□-□



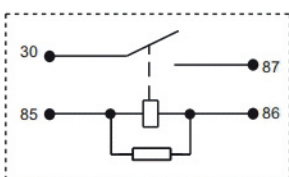
KKAA4-□1H□-D1



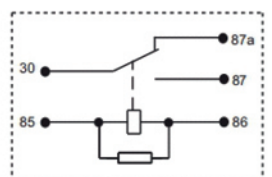
KKAA4-□1Z□-D1



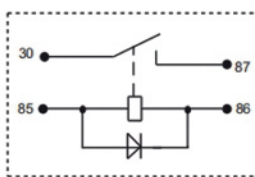
KKAA4-□1H□-R



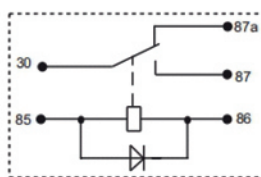
KKAA4-□1Z□-R



KKAA4-□1H□-D2



KKAA4-□1Z□-D2

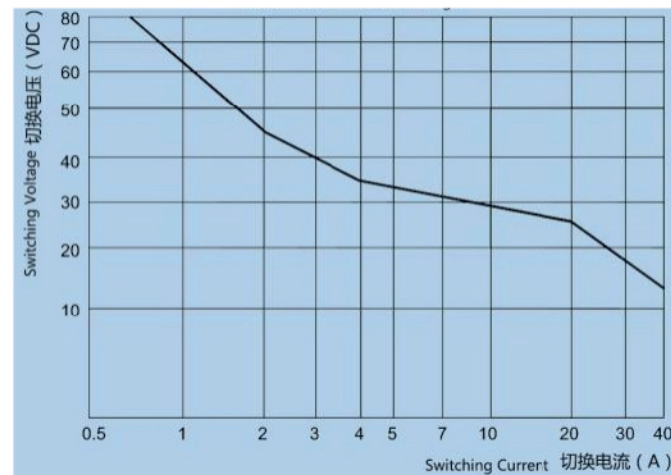


CHARACTERISTICS CURVES

Ambient temperature curve of the electrical endurance test



Load limit curve (at 23°C)



- 1)The minimum temperature is -40°C.
- 2)The maximum temperature is 125°C.

- 1)This chart takes NO contact,resistive load as example.
- 2)The load and electrical endurance tests are made according to "CONTACT DATA" parameters' table. If actual load voltage, current, or operate frequency is different from "CONTACT DATA" table, please arrange corresponding tests for confirmation.



KKAA[®] RELAY FOR YOU RELY ON US

-ZHEJIANG·CHINA-

KKA-A4F

40A Fused Relay

Features

- 40A switching capability
- 1 Form A, & 1 Form C contact arrangement
- Terminal position complies with ISO 7588 PART1
- Installed with fuse, high current protect
- Comply with RoHS, ELV directive

Typical Application

Applicable to automotive grade 40A circuits, such as: ABS control, blower, car alarm, cooling fan, electric power steering, energy management, engine control, fuel pump, heated front windshield, lights: headlights, taillights, fog lights, main switch/power relay, valve, wiper control



Ordering Guide

	KKAA4F	-012	1H	22	-R	(XXX)
Type	KKAA4F-Fused Relay					
Coil Voltage	012:12VDC	024:24VDC				
Contact Form	1H:1 Form A	1Z: 1 Form C				
Terminal Type	22: brass coil pin,brass working pin, default tinned 23: brass coil pin,copper working pin, default tinned					
Parallel Coil Components	Nil: without parallel component R: parallel transient supression resistors (680Ω, 12V) (2700Ω, 24V) D1:parallel transient supression diode, with anode connected to terminal #85 D2:parallel transient supression diode, with anode connected to terminal #86					
Special Code	(XXX):customer special requirement Nil: Standard					

CHARACTERISTICS

Contact arrangement	1A (SPST-NO), 1C (SPDT)
Voltage drop	NO:Typ.20mV,250mV max. (at 10A) NC:Typ.30mV,250mV max. (at 10A)
Max.continuous current ^{1) 10)}	NO:60A(at 23°C),40A(at 85°C),17A(at 125°C) NC:45A(at 23°C),30A(at 85°C), 12A(at 125°C)
Max.switching current ¹⁰⁾	Make(NO):150A ²⁾ Break(NO):40A(Resistive,13.5VDC)
Min.contact load	1A 6VDC
Electrical endurance	See "CONTACT DATA"
Mechanical endurance	1x10 ⁶ OPS (300OPS/min)
Insulation resistance	100M Ω (at 500VDC)
Dielectric strength ³⁾	500VAC
Operate time ¹⁰⁾	Max.:10ms (at nomi.vol.)
Release time ¹⁰⁾	Max.:10ms ⁴⁾
Ambient temperature	-40°C to 125°C
Vibration resistance ⁵⁾¹⁰⁾	5Hz to 22.3Hz 10mm DA 22.3Hz to 500Hz 98m/s ²
Shock resistance ⁵⁾¹⁰⁾	294m/s ²
Flammability ⁹⁾	UL94-HB or better(meets FMVSS 302)
Termination	QC ¹¹⁾ , PCB ⁷⁾
Construction	Plastic sealed,Dust protected
Unit weight	Approx.37g
Mechanical data ⁹⁾	housing retention (pull &push):200N min. terminal retention(pull &push):100N min. Terminal resisatnce to bending (front &side):10N min ⁹⁾

1)For NO contacts,measured when applying 100% rated voltage on coil.

For NC contacts,measured when applying zero voltage on coil.

2)Inrush peak current under amp load,at 13.5VDC.

3)1min, leakage current less than 1mA.

4)The value is measured when voltage drops suddenly from nominal voltage to 0 VDC and coil is not paralleled with suppression circuit.

5)When energized, opening time of NO contacts shall not exceed 1ms, when non-energized,opening time of NC contacts shall not exceed 1ms, meantime, NO contacts shall not be closed.

6)FMVSS:Federal Motor Vehicle Safety Standard.

7)Since it is an environmental friendly product, please select lead-free solder when welding.The recommended soldering temperature and time is (250±3)C,(5±0.3)s.

8)Only valid for QC version.

9)Test point is at 2mm away from terminal end,and after removing testing force, the terminal transfiguration shall not exceed 0.5mm.

10) Only for the 12VDC coil voltage type.

11)Do NOT knock on relays with hard objects such as rubber rod and rubber hammer during mounting, which might lead to relay damage.

COIL DATA

at 23°C

Nominal voltage VDC	Pick-up voltage VDC max.	Drop-out voltage VDC min.	Coil resistance x(1±10%)Ω	Parallel Resistance ²⁾ x(1±5%)Ω	Equivalent resistance Ω	Power consumption W	Max.allowable overdrive voltage ¹⁾ VDC	
							at 23°C	at 85°C
12	7.2	1.2	90			1.6	20.2	15.7
12	7.2	1.2	90	680	79.5	1.8	20.2	15.7
24	16	2.4	320			1.8	40.5	31.5
24	16	2.4	320	2700	286	2.0	40.5	31.5

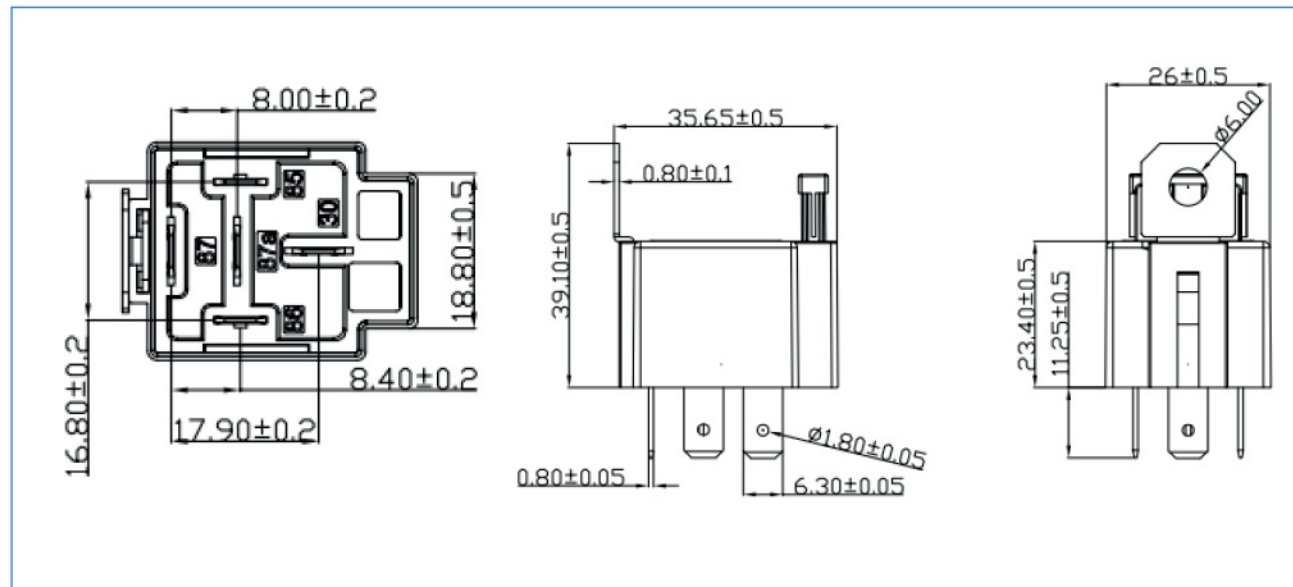
1)Max.allowable overdrive voltage is stated with no load applied.

2)with the type with parallel resistor (680Ω,12V),(2700Ω,24V).

CONTACT DATA

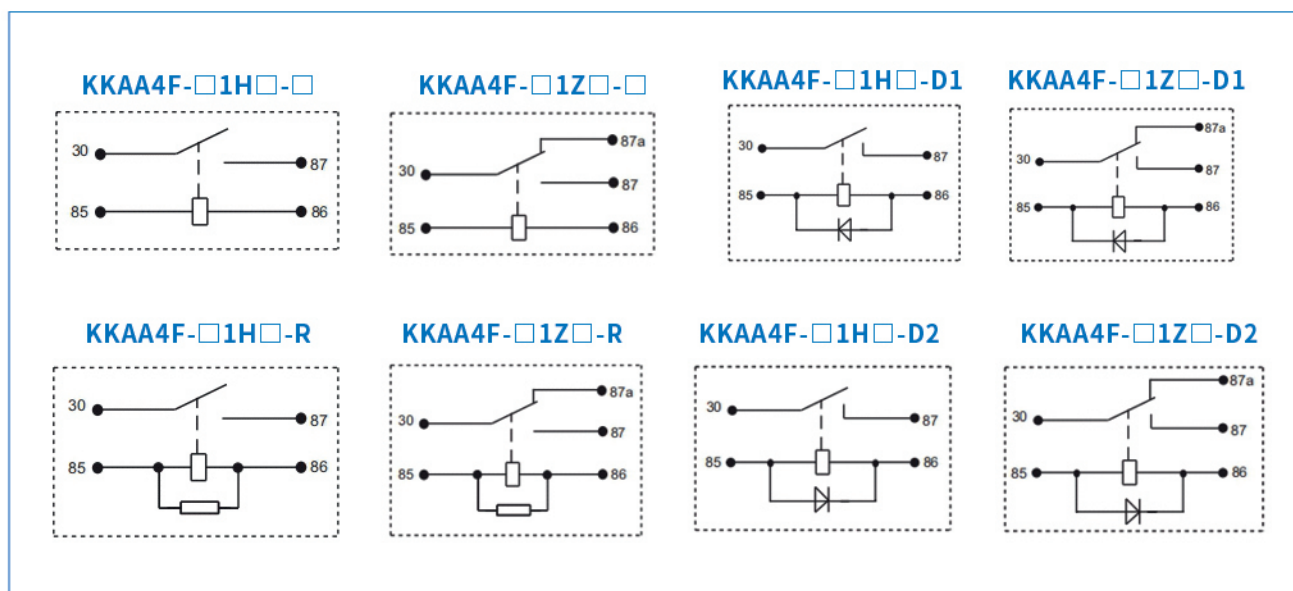
Load voltage	Load type		Load current (A)			On/Off ratio		Electrical Endurance OPS	Contact Material	Ambient temp
			1C		1A	OnS	OffS			
			NO	NC						
13.5 VDC	Resistive	Make	40	30	40	2	2	1×10 ⁵	AgSnO ₂	See Ambient Temp. Curve
		Break	40	30	40					
	Lamp	Make	150	-	150	2	2	1×10 ⁵	AgSnO ₂	
		Break	30	-	30					
	Inductive	Make	80	40	80	2	2	1×10 ⁵	AgSnO ₂	
		Break	33	20	33					
27VDC	Resistive	Make	20	10	20	2	2	1×10 ⁵	AgSnO ₂	
		Break	20	10	20					

DIMENSION

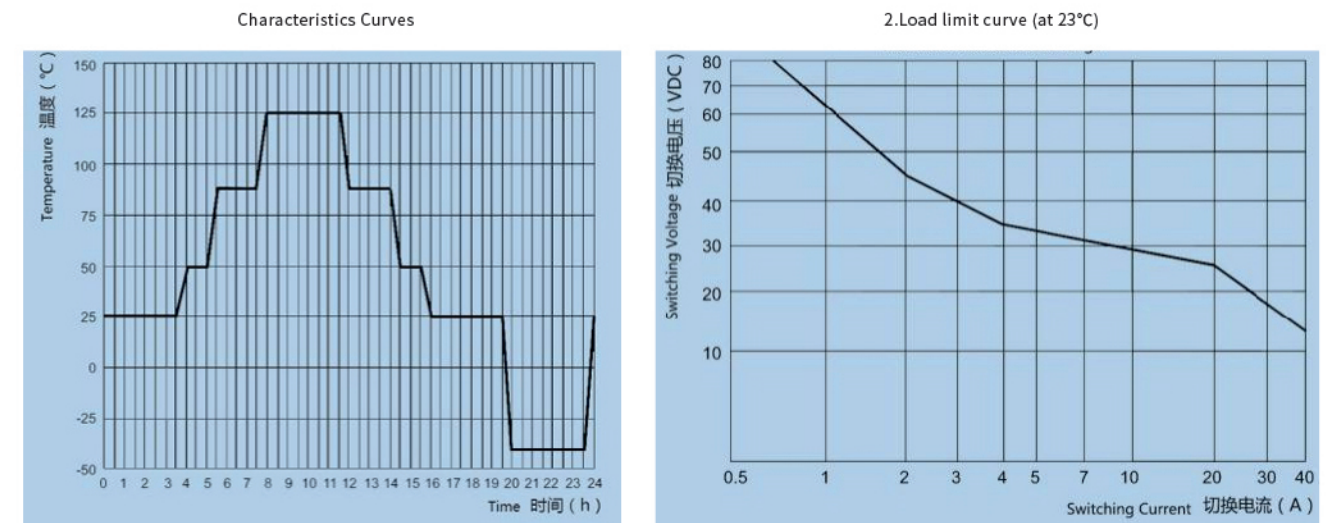


Remark: In case of no tolerance shown in outline dimension: outline dimension ≤ 1mm, tolerance should be ±0.2mm;
Outline dimension > 1mm and ≤ 5mm, tolerance should be ±0.3mm; outline dimension > 5mm, tolerance should be ±0.4mm.

WIRING DIAGRAM

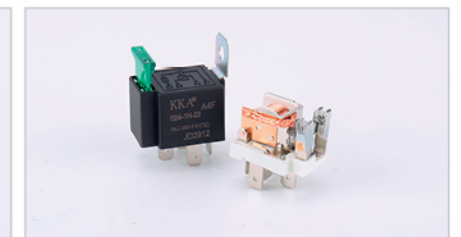
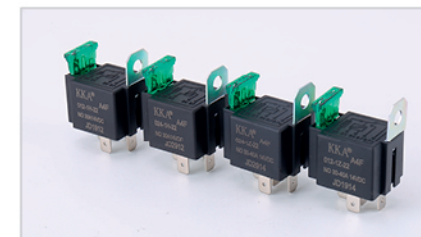


CHARACTERISTICS CURVES



- 1)The minimum temperature is -40°C .
- 2)The maximum temperature is 125°C .

- 1)This chart takes NO contact,resistive load as example.
- 2)The load and electrical endurance tests are made according to "CONTACT DATA" parameters' table. If actual load voltage, current, or operate frequency is different from "CONTACT DATA" table, please arrange corresponding tests for confirmation.



KKA-A8

70A Automotive Relay

Features

- 70A switching capability, 26*26mm size
- 1 Form A & 1 Form C contact arrangement
- Plug in and PCB terminals for option
- Resistor and diode available
- Comply with RoHS, ELV directive

Typical Application

Applicable to automotive grade 70A circuits: ABS control, cooling fan, power management, engine control, glow plugs, heated front windshield, ignition, lights: headlights, taillights, fog lights, main switch/power relay.



ORDERING GUIDE

	KKAA8	-012	1H	23	-R	(XXX)
Type	A8 - cubic shell A8 - with iron bracket					
Coil Voltage	012:12VDC 024:24VDC					
Contact Form	1H:1 Form A					
Terminal Type	23: brass coil pin,copper working pin, default tinned					
Parallel Coil Components	Nil: without parallel component R: parallel transient suppression resistors D1:parallel transient suppression diode, with anode connected to terminal #85 D2:parallel transient suppression diode, with anode connected to terminal #86					
Special Code	(XXX):customer special requirement Nil: Standard					

CHARACTERISTICS

Contact arrangement	SPST-NO(1H)
Voltage drop	Typ.20mV,250mV max. (at 10A)
Max.continuous current ¹⁾¹⁰⁾	70A(at 23°C),50A(at 85°C),30A(at 125°C)
Max.switching current ¹⁰⁾	Make(NO):200A ²⁾ Break(NO):70A(Resistive,13.5VDC)
Min.contact load	1A 6VDC
Electrical endurance	See "CONTACT DATA"
Mechanical endurance	1x10 ⁸ OPS (300OPS/min)
Insulation resistance	100M Ω (at 500VDC)
Dielectric strength ³⁾	500VAC
Operate time ¹⁰⁾	Max.:10ms (at nomi.vol.)
Release time ¹⁰⁾	Max.:10ms
Ambient temperature	-40°C to 125°C
Vibration resistance ⁵⁾¹⁰⁾	5Hz to 22.3Hz 10mm DA 22.3Hz to 500Hz 98m/s ²
Shock resistance ⁵⁾¹⁰⁾	294m/s ²
Flammability ⁶⁾	UL94-HB or better(meets FMVSS 302)
Termination	QC ¹¹⁾ , PCB ⁷⁾
Construction	Plastic sealed,Dust protected
Unit weight	Approx.38g
Mechanical data ⁸⁾	housing retention (pull & push):200N min. terminal retention(pull & push):100N min. Terminal resistance to bending (front & side):10N min ⁹⁾

1)Measured when applying 100% rated voltage on coil.

2)Inrush peak current under lamp load, at 13.5VDC.

3)1min, leakage current less than 1mA

4)The value is measured when voltage drops suddenly from nominal voltage to 0 VDC and coil is not paralleled with suppression circuit.

5)When energized, opening time of NO contacts shall not exceed 100μs.

6)FMVSS: Federal Motor Vehicle Safety Standard.

7)Since it is an environmental friendly product, please select lead-free solder when welding. The recommended soldering temperature and time is(250±3)°C,(5±0.3)s.

8)Only valid for QC version.

9)Test point is at 2mm away from terminal end, and after removing testing force, the terminal transfiguration shall not exceed 0.3mm.

10)Only for the 12VDC coil voltage type.

11)Do NOT knock on relays with hard objects such as rubber rod and rubber hammer during mounting, which might lead to relay damage.

COIL DATA

at 23°C

Nominal voltage VDC	Pick-up voltage VDC max.	Drop-out voltage VDC min.	Coil resistance x(1±10%)Ω	Parallel Resistance ²⁾ x(1±5%)Ω	Equivalent resistance Ω	Power consumption W	Max.allowable overdrive voltage ¹⁾ VDC	
							at 23°C	at 85°C
12	7.2	1.2	90			1.6	20.2	15.7
12	7.2	1.2	90	680	79.5	1.8	20.2	15.7
24	16	2.4	320			1.8	40.5	31.5
24	16	2.4	320	2700	286	2.0	40.5	31.5

1)Max.allowable overdrive voltage is stated with no load applied.

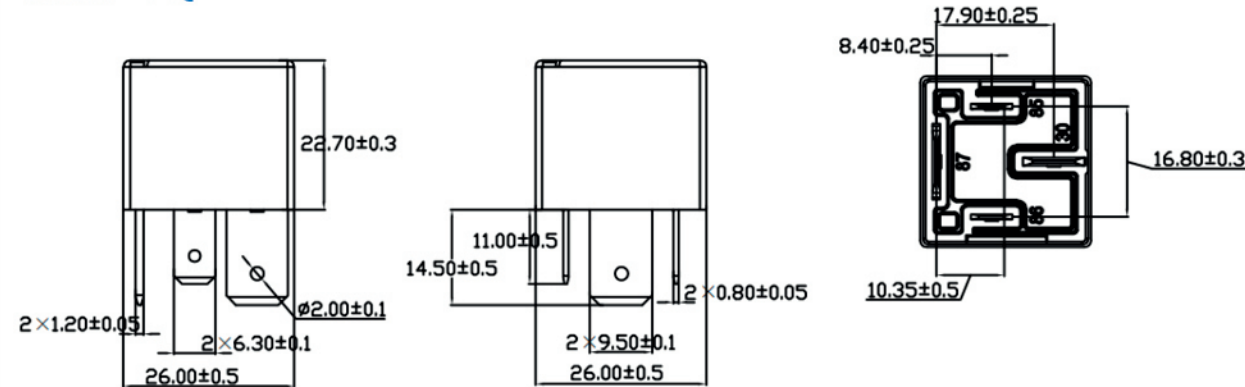
2)with the type with parallel resistor (680Ω,12V),(2700Ω,24V).

CONTACT DATA

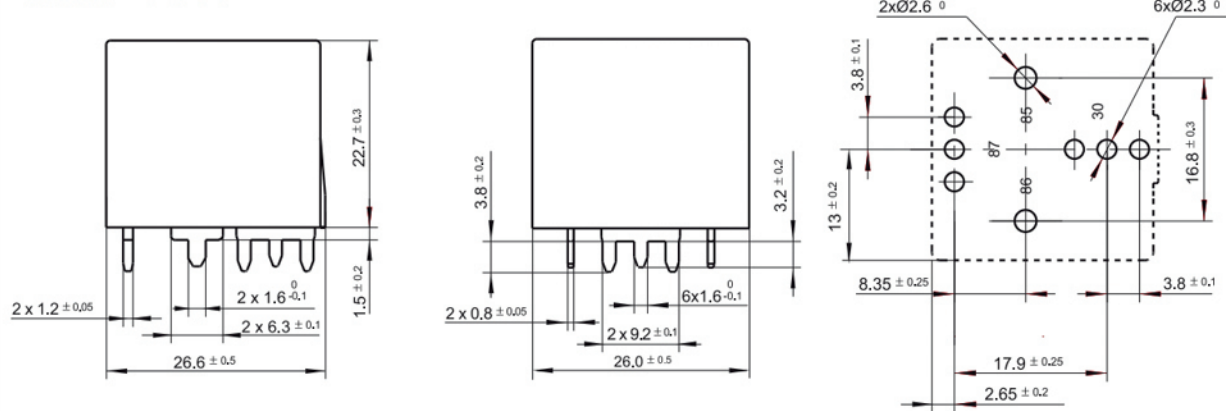
Load voltage	Load type		Load current (A)	On/Off ratio		Electrical EnduranceOPS	Contact Material	Ambient tem
				OnS	OffS			
13.5 VDC	Resistive	Make	70	2	2	1×10 ⁵	AgSnO ₂	See Ambient Temp. Curve
		Break	70					
	Lamp	Make	200	2	2	1×10 ⁵	AgSnO ₂	
		Break	40					
	Inductive	Make	150	2	2	1×10 ⁵	AgSnO ₂	
		Break	50					
27VDC	Resistive	Make	40	2	2	1×10 ⁵	AgSnO ₂	
		Break	40					

DIMENSION

KKAA8-□□Q-□



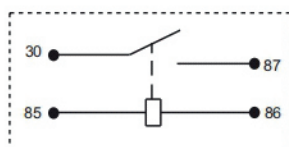
KKAA8-□□P-□



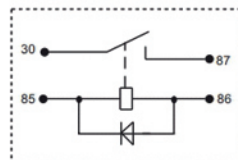
Remark: In case of no tolerance shown in outline dimension: outline dimension≤1mm, tolerance should be ±0.2mm;
Outline dimension>1mm and≤5mm, tolerance should be ±0.3mm; outline dimension>5mm, tolerance should be ±0.4mm.

WIRING DIAGRAM

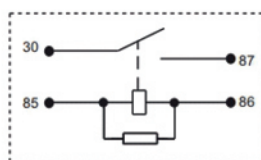
KKAA8-□1H□-□



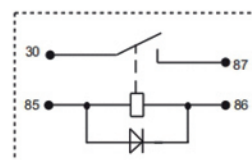
KKAA8-□1H□-D1



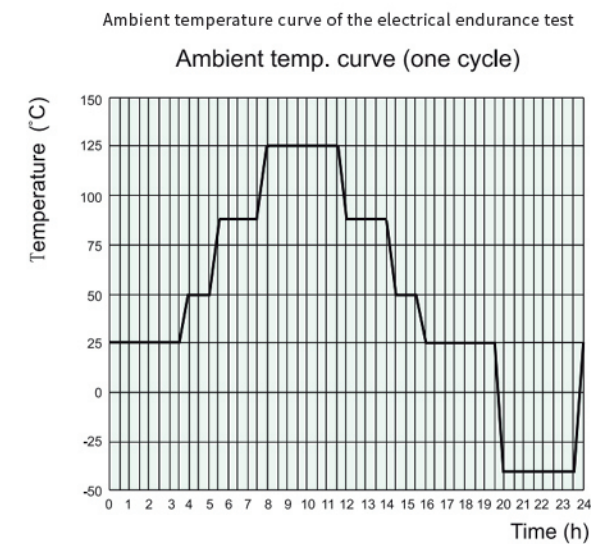
KKAA8-□1H□-R



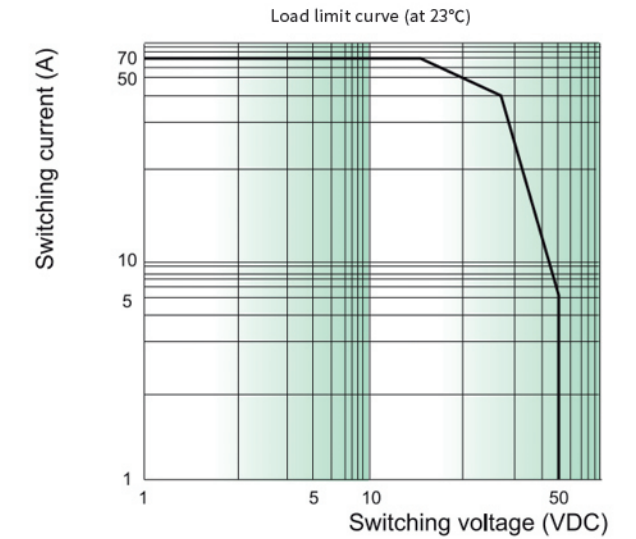
KKAA8-□1H□-D2



CHARACTERISTICS CURVES



- 1)The minimum temperature is -40°C .
- 2)The maximum temperature is 125°C .



- 1)This chart takes NO contact,resistive load as example.
- 2)The load and electrical endurance tests are made according to "CONTACT DATA" parameters' table. If actual load voltage, current, or operate frequency is different from "CONTACT DATA" table, please arrange corresponding tests for confirmation.



KKA-B8

80A Automotive Relay

Features

- 80A switching capability, 28*28mm size
- 1 Form A & 1 Form C contact arrangement
- Plug in and PCB terminals for option
- Paralleled resistor and diode available
- Comply with RoHS, ELV directive

Typical Application

Applicable to automotive grade 80A circuits: ABS control, cooling fan, power management, engine control, glow plugs, heated front windshield, ignition, lights: headlights, taillights, fog lights, main switch/power relay.



ORDERING GUIDE

	KKAB8	-012	1H	23	-R	(XXX)
Type	B8 - cubic shell B8M - with iron bracket B8P - with plastic bracket B8T - Transparent with LED light					
Coil Voltage	012:12VDC 024:24VDC					
Contact Form	1H:1 Form A 1Z:1 Form C					
Terminal Type	23: brass coil pin, copper working pin, default tinned					
Parallel Coil Components	Nil: without parallel component R: parallel transient suppression resistors D1: parallel transient suppression diode, with anode connected to terminal #85 D2: parallel transient suppression diode, with anode connected to terminal #86					
Special Code	(XXX):customer special requirement Nil: Standard					

CHARACTERISTICS

Contact arrangement	SPST-NO(1H), SPDT(1Z)
Voltage drop	Typ.20mV, 250mV max. (at 10A)
Max.continuous current ¹⁾¹⁰⁾	70A(at 23°C),50A(at 85°C),30A(at 125°C)
Max.switching current ¹⁰⁾	Make(NO):200A ²⁾ Break(NO):70A(Resistive,13.5VDC)
Min.contact load	1A 6VDC
Electrical endurance	See "CONTACT DATA"
Mechanical endurance	1x10 ⁶ OPS (300OPS/min)
Insulation resistance	100M Ω (at 500VDC)
Dielectric strength ³⁾	500VAC
Operate time ¹⁰⁾	Max.:10ms (at nomi.vol.)
Release time ¹⁰⁾	Max.:10ms
Ambient temperature	-40°C to 125°C
Vibration resistance ⁵⁾¹⁰⁾	5Hz to 22.3Hz 10mm DA 22.3Hz to 500Hz 98m/s ²
Shock resistance ⁵⁾¹⁰⁾	294m/s ²
Flammability ⁶⁾	UL94-HB or better(meets FMVSS 302)
Termination	QC ¹¹⁾ , PCB ⁷⁾
Construction	Plastic sealed,Dust protected
Unit weight	Approx.38g
Mechanical data ⁹⁾	housing retention (pull &push):200N min. terminal retention(pull &push):100N min. Terminal resistance to bending (front &side):10N min ⁹⁾

1)Measured when applying 100% rated voltage on coil.

2)Inrush peak current under lamp load, at 13.5VDC.

3)1min, leakage current less than 1mA

4)The value is measured when voltage drops suddenly from nominal voltage to 0 VDC and coil is not paralleled with suppression circuit.

5)When energized, opening time of NO contacts shall not exceed 100μs.

6)FMVSS: Federal Motor Vehicle Safety Standard.

7)Since it is an environmental friendly product, please select lead-free solder when welding. The recommended soldering temperature and time is(250±3)°C,(5±0.3)s.

8)Only valid for QC version.

9)Test point is at 2mm away from terminal end, and after removing testing force, the terminal transfiguration shall not exceed 0.3mm.

10)Only for the 12VDC coil voltage type.

11)Do NOT knock on relays with hard objects such as rubber rod and rubber hammer during mounting, which might lead to relay damage.

COIL DATA

at 23°C

Nominal voltage VDC	Pick-up voltage VDC max.	Drop-out voltage VDC min.	Coil resistance x(1±10%)Ω	Parallel Resistance ²⁾ x(1±5%)Ω	Equivalent resistance Ω	Power consumption W	Max.allowable overdrive voltage ¹⁾ VDC	
							at 23°C	at 85°C
12	7.2	1.2	90			1.6	20.2	15.7
12	7.2	1.2	90	680	79.5	1.8	20.2	15.7
24	16	2.4	320			1.8	40.5	31.5
24	16	2.4	320	2700	286	2.0	40.5	31.5

1)Max.allowable overdrive voltage is stated with no load applied.

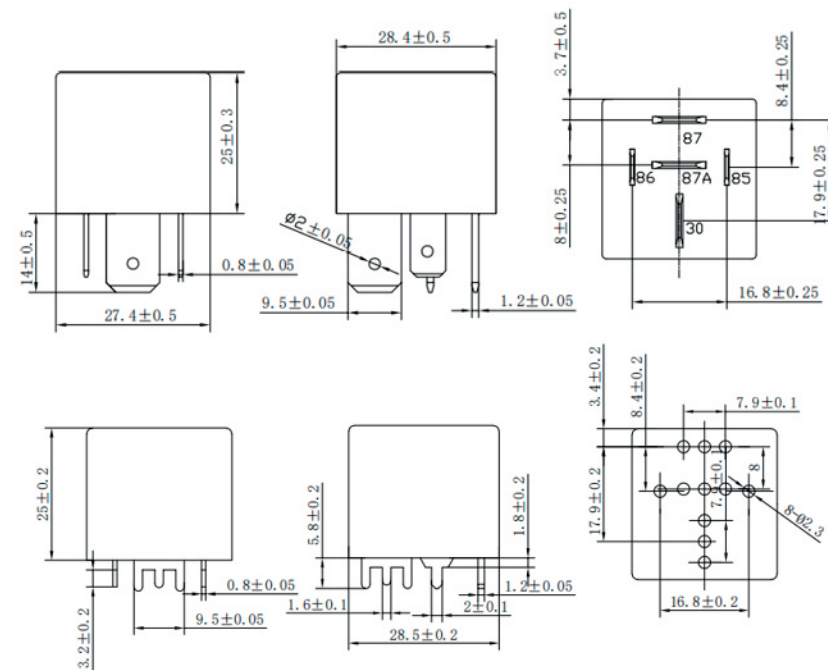
2)with the type with parallel resistor (680Ω,12V),(2700Ω,24V).

CONTACT DATA

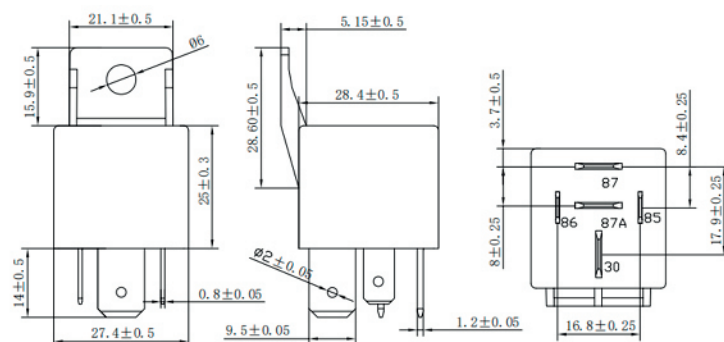
Load voltage	Load type		Load current (A)	On/Off ratio		Electrical Endurance OPS	Contact Material	Ambienttemp
				OnS	OffS			
13.5 VDC	Resistive	Make	70	2	2	1×10 ⁵	AgSnO ₂	See Ambient Temp. Curve
		Break	70					
	Lamp	Make	200	2	2	1×10 ⁵	AgSnO ₂	
		Break	40					
	Inductive	Make	150	2	2	1×10 ⁵	AgSnO ₂	
		Break	50					
27VDC	Resistive	Make	40	2	2	1×10 ⁵	AgSnO ₂	
		Break	40					

DIMENSION

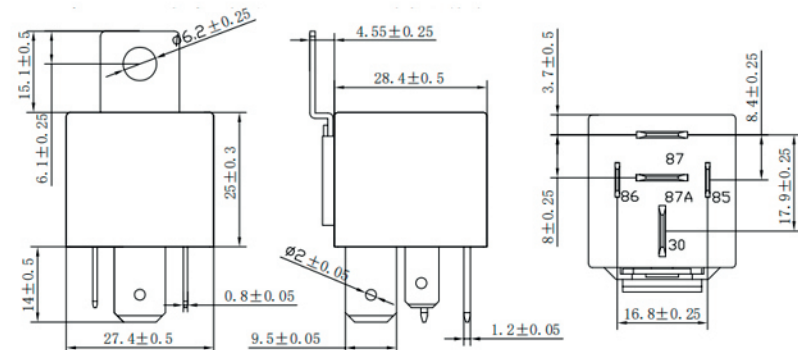
B8



B8P

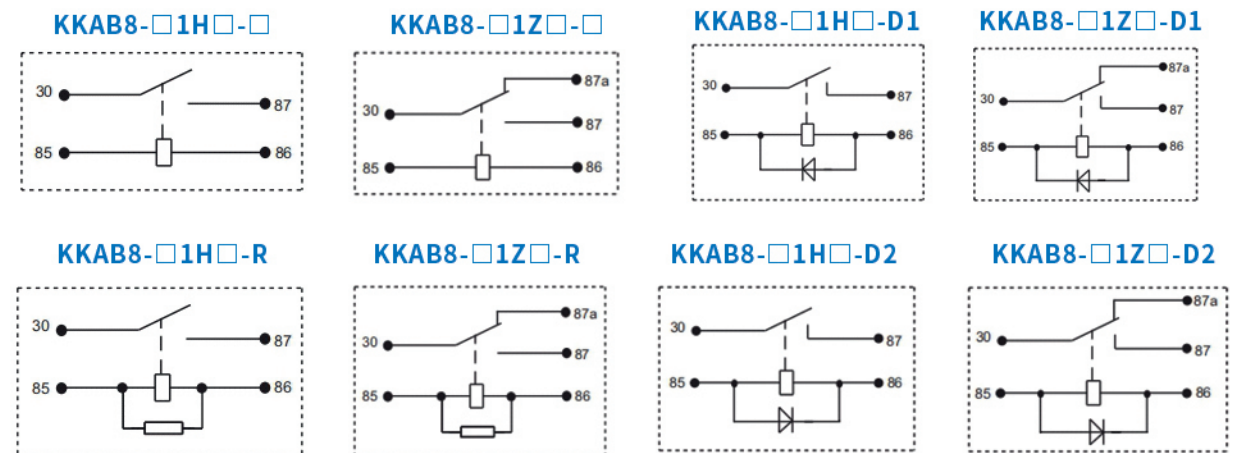


B8M



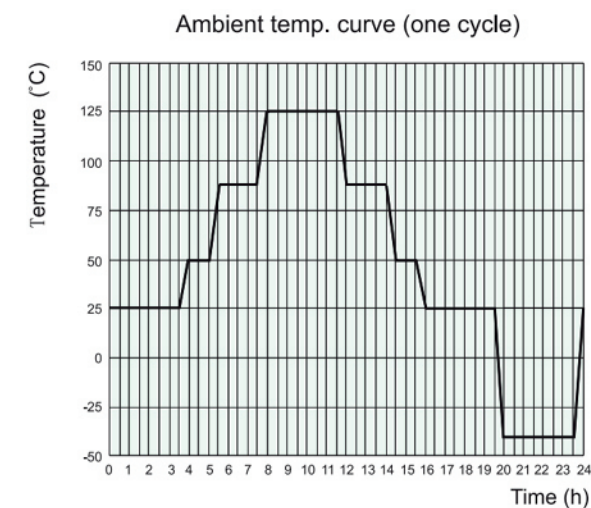
Remark: In case of no tolerance shown in outline dimension: outline dimension $\leq 1\text{mm}$, tolerance should be $\pm 0.2\text{mm}$;
Outline dimension $> 1\text{mm}$ and $\leq 5\text{mm}$, tolerance should be $\pm 0.3\text{mm}$; outline dimension $> 5\text{mm}$, tolerance should be $\pm 0.4\text{mm}$.

WIRING DIAGRAM



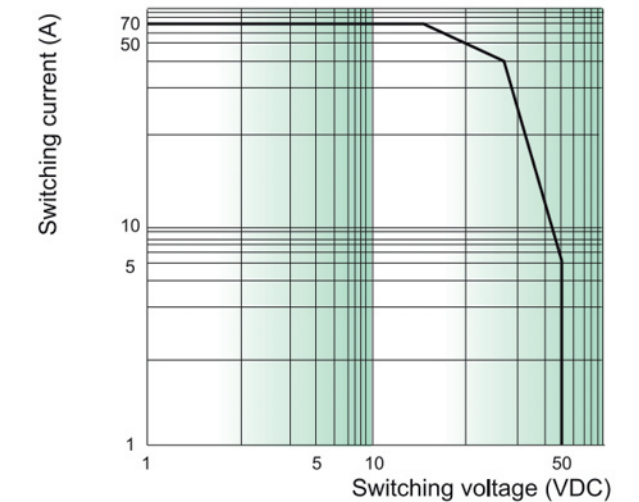
CHARACTERISTICS CURVES

Ambient temperature curve of the electrical endurance test



- 1) The minimum temperature is -40°C .
- 2) The maximum temperature is 125°C .

Load limit curve (at 23°C)



- 1) This chart takes NO contact, resistive load as example.
- 2) The load and electrical endurance tests are made according to "CONTACT DATA" parameters' table. If actual load voltage, current, or operate frequency is different from "CONTACT DATA" table, please arrange corresponding tests for confirmation.



KKA-M3

30/35A Mini Automotive Relay

Features

- 30A/35A switching capability
- 1 Form A & 1 Form C contact arrangement
- Resistor and diode for coil component available
- Comply with RoHS, ELV directive

Typical Application

Applicable for 30A/35A Automotive Grade Circuit: Lighting control, Headlight control, Electromagnet control Air-conditioning, Heaters (seat, front/rear windows), Fan motors control, Fuel pump control, Wiper motors control



ORDERING GUIDE

	KKAM3	-012	1H	23	-R	(P)
Type	KKAM3 - Standard					
Coil Voltage	012:12VDC 024:24VDC					
Contact Form	1H:1Form A 1Z: 1 Form C					
Terminal Type	12: iron coil pin, brass working pin, default tinned 22: brass coil pin,brass working pin, default tinned 23: brass coil pin,copper working pin, default tinned					
Parallel Coil Components	Nil: without parallel component R: parallel transient suppression resistors D1:parallel transient suppression diode, with anode connected to terminal #1 D2:parallel transient suppression diode, with anode connected to terminal #2					
Special Code	(XXX):customer special requirement Nil: Standard					

CHARACTERISTICS

Contact arrangement	1H (SPST-NO),1Z (SPDT)
Voltage drop	NO:Typ.15mV,250mV max. (at 10A) NC:Typ.25mV,250mV max. (at 10A)
Max.continuous current ¹⁾¹⁰⁾	NO:30A(at 23°C),25A(at 85°C),13A(at 125°C) NC:25A(at 23°C),15A(at 85°C), 10A(at 125°C)
Max.switching current ¹⁰⁾	35A (resistive)
Max. switching voltage ²⁾	27VDC (resistive)
Min.contact load	1A 6VDC
Electrical endurance	See "CONTACT DATA"
Mechanical endurance	1x10 ⁷ OPS (300OPS/min)
Insulation resistance	100M Ω (at 500VDC)
Dielectric strength ³⁾	500VAC
Operate time ¹⁰⁾	Max.:10ms (at nomi.vol.)
Release time ¹⁰⁾	Max.:10ms ⁴⁾
Ambient temperature	-40°C to 125°C
Vibration resistance ⁵⁾¹⁰⁾	10Hz to 60Hz 0.35mm DA 60Hz to 500Hz 49m/s ²
Shock resistance ⁵⁾¹⁰⁾	196m/s ²
Flammability ⁶⁾	UL94-HB or better(meets FMVSS 302)
Termination	QC ⁷⁾
Construction	Plastic sealed,Dust protected
Unit weight	Approx.22g
Mechanical data ⁸⁾	housing retention (pull &push):200N min. terminal retention(pull &push):100N min. Terminal resistance to bending (front &side):10N min ⁹⁾

1)For NO contacts,measured when applying 100% rated voltage on coil.

2)See "Load limit curve" for details

3)1min, leakage current less than 1mA.

4)The value is measured when voltage drops suddenly from nominal voltage to 0 VDC and coil is not paralleled with suppression circuit.

5)When energized, opening time of NO contacts shall not exceed 100μs, when non-energized,opening time of NC contacts shall not exceed 100μs, meantime, NO contacts shall not be closed.

6)FMVSS:Federal Motor Vehicle Safety Standard.

7)Do NOT knock on relays with hard objects such as rubber rod and rubber hammer during mounting, which might lead to relay damage.

8)Only valid for QC version.

9)Test point is at 2mm away from terminal end,and after removing testing force, the terminal transfiguration shall not exceed 0.5mm.

10)Only for the 12VDC coil voltage type.

COIL DATA

at 23°C

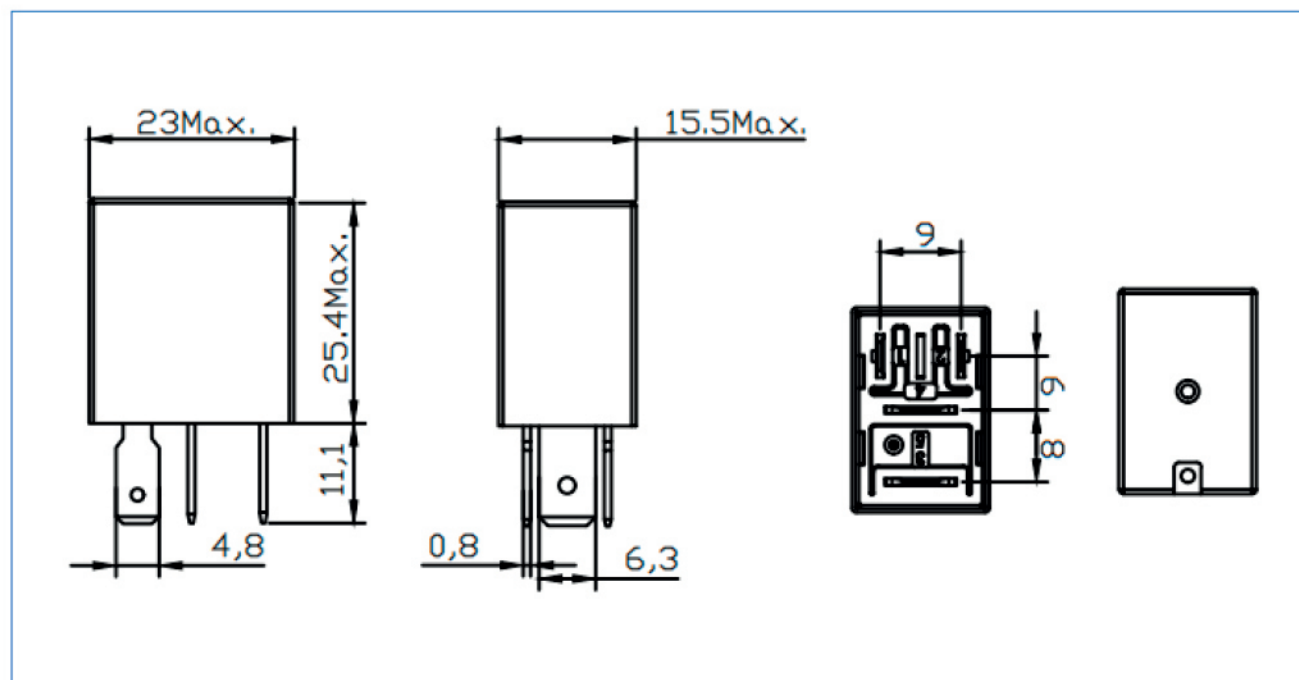
	Nominal voltage VDC	Pick-up voltage VDC max.	Drop-out voltage VDC min.	Coil resistance x(1±10%)Ω	Parallel Resistance ²⁾ x(1±5%)Ω	Equivalent resistance Ω	Power consumption W	Max.allowable overdrive voltage ¹⁾ VDC	
								at 23°C	at 85°C
Standard	12	7.2	1.2	90			1.6	20	15
	12	7.2	1.2	90	680	79.5	1.8	20	15
	24	14.4	2.4	360			1.6	40	30
	24	14.4	2.4	360	2700	317.6	1.8	40	30
Sensitive	12	7.2	1.2	124			1.2	25	19
	12	7.2	1.2	124	680	104.9	1.4	20	15
	24	14.4	2.4	441			1.3	47	35
	24	14.4	2.4	441	1800	354.2	1.6	33	25

1)Max.allowable overdrive voltage is stated with no load applied and minimum coil resistance.

CONTACT DATA

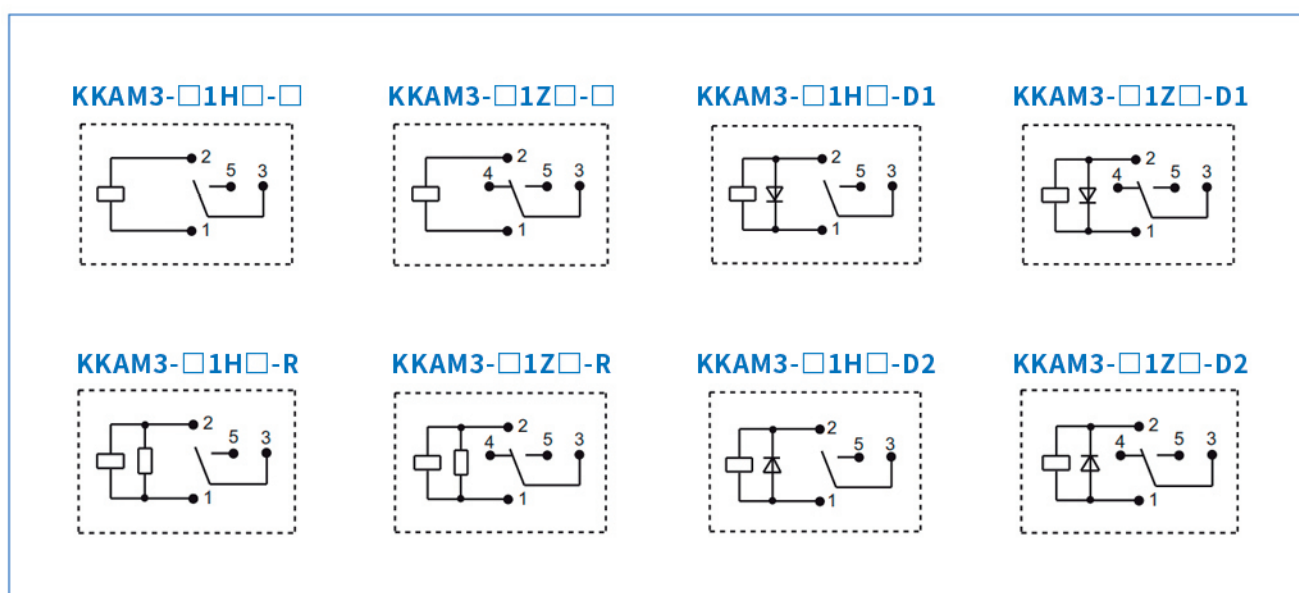
Load voltage	Load type		Load current (A)			On/Off ratio		Electrical Endurance OPS	Contact Material	Ambient temp
			1C		1A	OnS	OffS			
			NO	NC						
13.5 VDC	Resistive	Make	35	20	35	2	2	1×10 ⁵	AgSnO ₂	See Ambient Temp. Curve
		Break	35	20	35					
	Lamp	Make	150	-	150	2	2	1×10 ⁵	AgSnO ₂	
		Break	30		30					
	Inductive	Make	80	---	80	2	2	1×10 ⁵	AgSnO ₂	
		Break	30	---	30					

DIMENSION

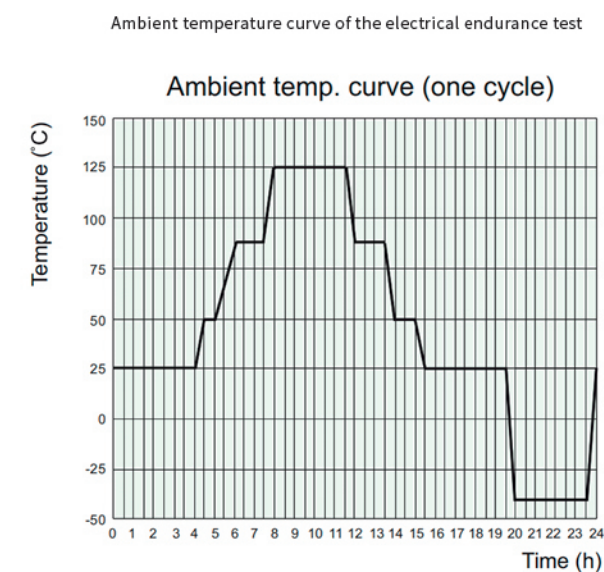


Remark: In case of no tolerance shown in outline dimension: outline dimension $\leq 1\text{mm}$, tolerance should be $\pm 0.2\text{mm}$;
Outline dimension $> 1\text{mm}$ and $\leq 5\text{mm}$, tolerance should be $\pm 0.3\text{mm}$; outline dimension $> 5\text{mm}$, tolerance should be $\pm 0.4\text{mm}$.

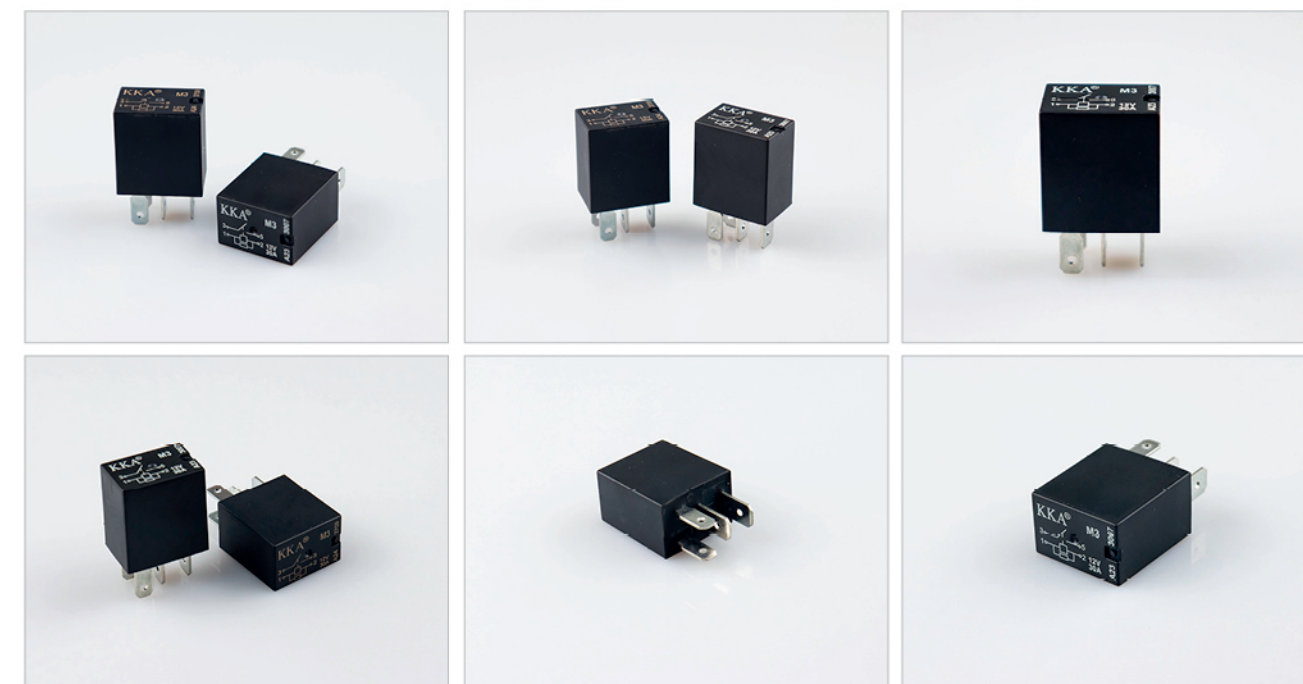
WIRING DIAGRAM



CHARACTERISTICS CURVES



Disclaimer
The specification is for reference only. See to "Terminology and Guidelines" for more information. Specifications subject to change without notice. In case there is specific criterion (such as mission profile, technical specification, PPAP etc.) checked and agreed by and between customer and KKA, this specific criterion should be taken as standard regarding any requirement on KKA product.
We could not evaluate the performance and all the parameters for every possible application. Thus the user should be in a right position to choose the suitable product for their own application. If there is any query, please contact KKA for the technical service. However, it is the users responsibility to determine which product should be used only.



KKA-V4

28*28mm 40A Automotive Relay

Features

- 40A switching capability
- 1 Form A, 1 Form B & 1 Form C contact arrangement
- Terminal position complies with ISO 7588 PART1
- Comply with RoHS, ELV directive

Typical Application

Fog lamp & headlight control , Rear window defogger,
Air-conditioning , Fuel pump control , cooling fan control , Battery disconnection device , start/stop control



ORDERING GUIDE

	KKAV4	-012	1H	23	-R	(XXX)
Type	V4 - cubic shell V4M - with iron bracket V4P - with nylon bracket V4C - transparent one contact V4T - transparent two contacts V4W - waterproof type					
Coil Voltage	012:12VDC 024:24VDC					
Contact Form	1H:1 Form A 1B:1 Form B 1Z: 1 Form C 1D:1 Form 2A					
Terminal Type	12: iron coil pin,brass working pin, default tinned 22: brass coil pin,brass working pin, default tinned 23: brass coil pin,copper working pin, default tinned					
Parallel Coil Components	Nil: without parallel component L: paralleled with LED light R: parallel transient suppression resistors (680Ω, 12V) (2700Ω, 24V) D1:parallel transient suppression diode, with anode connected to terminal #85 D2:parallel transient suppression diode, with anode connected to terminal #86					
Special Code	(XXX):customer special requirement Nil: Standard					

CHARACTERISTICS

Contact arrangement	1A (SPST-NO), 1C (SPDT)
Voltage drop	NO:Typ.20mV,250mV max. (at 10A) NC:Typ.30mV,250mV max. (at 10A)
Max.continuous current ^{1) 10)}	NO:60A(at 23°C),40A(at 85°C),17A(at 125°C) NC:45A(at 23°C),30A(at 85°C), 12A(at 125°C)
Max.switching current ¹⁰⁾	Make(NO):150A ²⁾ Break(NO):40A(Resistive,13.5VDC)
Min.contact load	1A 6VDC
Electrical endurance	See "CONTACT DATA"
Mechanical endurance	1x10 ⁸ OPS (300OPS/min)
Insulation resistance	100M Ω (at 500VDC)
Dielectric strength ³⁾	500VAC
Operate time ¹⁰⁾	Max.:10ms (at nomi.vol.)
Release time ¹⁰⁾	Max.:10ms ⁴⁾
Ambient temperature	-40°C to 125°C
Vibration resistance ⁵⁾¹⁰⁾	5Hz to 22.3Hz 10mm DA 22.3Hz to 500Hz 98m/s ²
Shock resistance ⁵⁾¹⁰⁾	294m/s ²
Flammability ⁶⁾	UL94-HB or better(meets FMVSS 302)
Termination	QC ¹¹⁾ , PCB ⁷⁾
Construction	Plastic sealed,Dust protected
Unit weight	Approx.35g
Mechanical data ⁸⁾	housing retention (pull &push):200N min. terminal retention(pull &push):100N min. Terminal resistance to bending (front &side):10N min ⁹⁾

1)For NO contacts,measured when applying 100% rated voltage on coil.

For NC contacts,measured when applying zero voltage on coil.

2)Inrush peak current under amp load,at 13.5VDC.

3)1min, leakage current less than 1mA.

4)The value is measured when voltage drops suddenly from nominal voltage to 0 VDC and coil is not paralleled with suppression circuit.

5)When energized, opening time of NO contacts shall not exceed 1ms, when non-energized,opening time of NC contacts shall not exceed 1ms, meantime, NO contacts shall not be closed.

6)FMVSS:Federal Motor Vehicle Safety Standard.

7)Since it is an environmental friendly product, please select lead-free solder when welding.The recommended soldering temperature and time is (250±3)C,(5±0.3)s.

8)Only valid for QC version.

9)Test point is at 2mm away from terminal end,and after removing testing force, the terminal transfiguration shall not exceed 0.5mm.

10) Only for the 12VDC coil voltage type.

11)Do NOT knock on relays with hard objects such as rubber rod and rubber hammer during mounting, which might lead to relay damage.

COIL DATA

at 23°C

Nominal voltage VDC	Pick-up voltage VDC max.	Drop-out voltage VDC min.	Coil resistance x(1±10%)Ω	Parallel Resistance ²⁾ x(1±5%)Ω	Equivalent resistance Ω	Power consumption W	Max.allowable overdrive voltage ¹⁾ VDC	
							at 23°C	at 85°C
12	7.2	1.2	90			1.6	20.2	15.7
12	7.2	1.2	90	680	79.5	1.8	20.2	15.7
24	16	2.4	320			1.8	40.5	31.5
24	16	2.4	320	2700	286	2.0	40.5	31.5

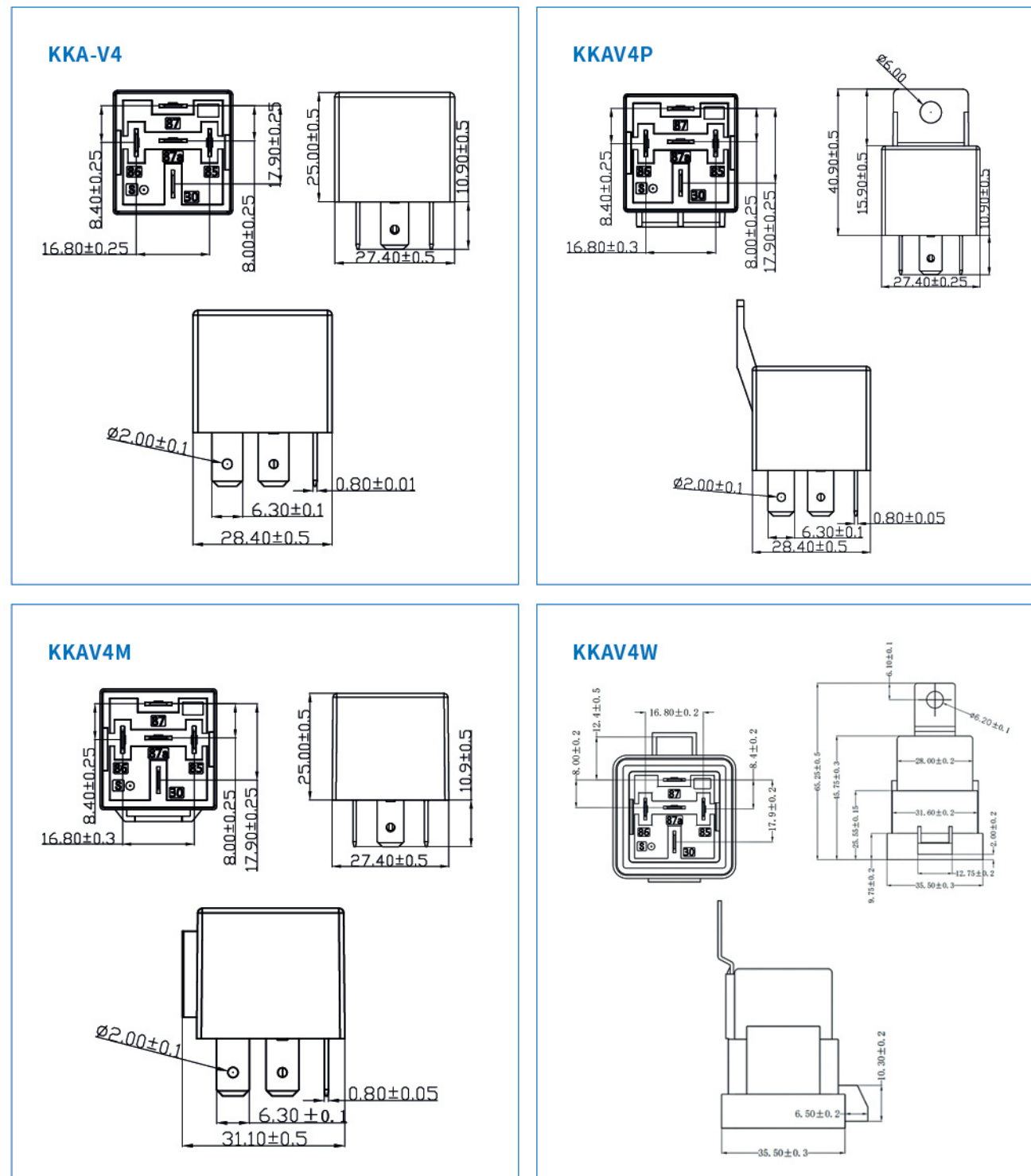
1)Max.allowable overdrive voltage is stated with no load applied.

2)with the type with parallel resistor (680Ω,12V),(2700Ω,24V).

CONTACT DATA

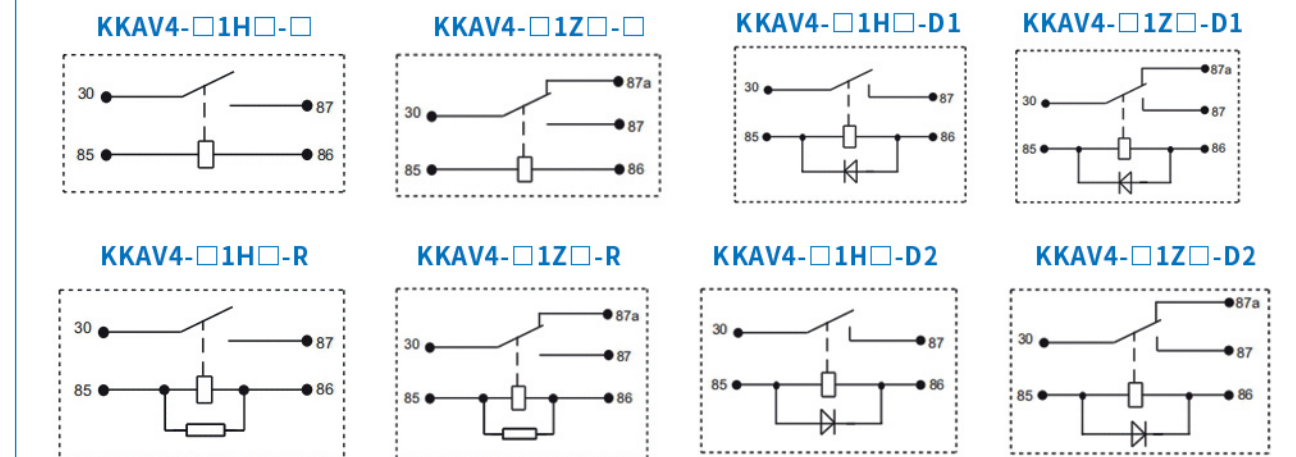
Load voltage	Load type		Load current (A)			On/Off ratio		Electrical Endurance OPS	Contact Material	Ambient tem
			1C		1A	OnS	OffS			
			NO	NC						
13.5 VDC	Resistive	Make	40	30	40	2	2	1×10 ⁵	AgSnO ₂	See Ambient Temp. Curve
		Break	40	30	40					
	Lamp	Make	150	-	150	2	2	1×10 ⁵	AgSnO ₂	
		Break	30	-	30					
	Inductive	Make	80	40	80	2	2	1×10 ⁵	AgSnO ₂	
		Break	33	20	33					
27VDC	Resistive	Make	20	10	20	2	2	1×10 ⁵	AgSnO ₂	
		Break	20	10	20					

DIMENSION

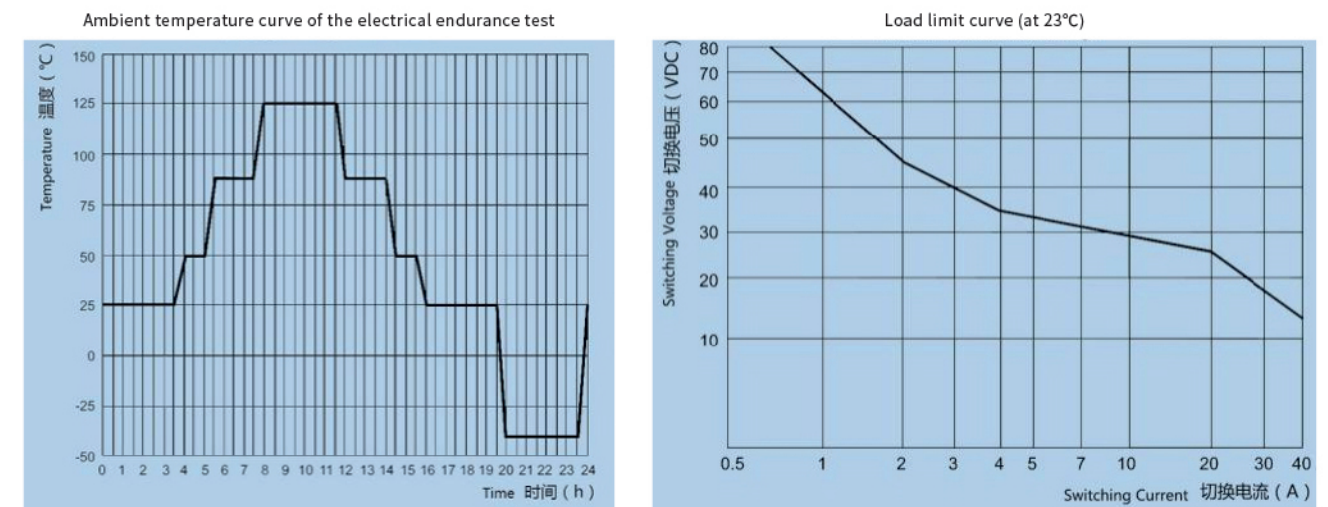


Remark: In case of no tolerance shown in outline dimension: outline dimension≤1mm, tolerance should be ±0.2mm;
Outline dimension>1mm and≤5mm, tolerance should be ±0.3mm; outline dimension>5mm, tolerance should be ±0.4mm.

WIRING DIAGRAM



CHARACTERISTICS CURVES



- 1)The minimum temperature is -40°C .
- 2)The maximum temperature is 125°C .

- 1)This chart takes NO contact,resistive load as example.
- 2)The load and electrical endurance tests are made according to "CONTACT DATA" parameters' table. If actual load voltage, current, or operate frequency is different from "CONTACT DATA" table, please arrange corresponding tests for confirmation.



KKA-V4F

EU Pin Position Fused Relay

Features

- 40A switching capability
- 1 Form 2A contact arrangement
- Circuit with fuse for protection
- Comply with RoHS, ELV directive

Typical Application

Apply for 40A automotive grade circuit: Fog lamp & headlight control , Rear window defogger,Air-conditioning , Fuel pump control , cooling fan control , Battery disconnection device , start/stop control



ORDERING GUIDE

	KKAV4F	-012	1H	22		(XXX)
Type	V4F - EU Type Fused Relay					
Coil Voltage	012:12VDC 024:24VDC					
Contact Form	1D:1 Form 2A					
Terminal Type	22: brass coil pin,brass working pin, default tinned 23: brass coil pin,copper working pin, default tinned					
Parallel Coil Components	Nil: without parallel component					
Special Code	(XXX):customer special requirement Nil: Standard					

CHARACTERISTICS

Contact arrangement	Double 87, 1 Form 2A(1D)
Voltage drop	NO:Typ.20mV,250mV max. (at 10A) NC:Typ.30mV,250mV max. (at 10A)
Max.continuous current ¹⁾¹⁰⁾	NO:60A(at 23°C),40A(at 85°C),17A(at 125°C) NC:45A(at 23°C),30A(at 85°C), 12A(at 125°C)
Max.switching current ¹⁰⁾	Make(NO):150A ²⁾ Break(NO):40A(Resistive,13.5VDC)
Min.contact load	1A 6VDC
Electrical endurance	See "CONTACT DATA"
Mechanical endurance	1x10 ⁸ OPS (300OPS/min)
Insulation resistance	100M Ω (at 500VDC)
Dielectric strength ³⁾	500VAC
Operate time ¹⁰⁾	Max.:10ms (at nomi.vol.)
Release time ¹⁰⁾	Max.:10ms ⁴⁾
Ambient temperature	-40°C to 125°C
Vibration resistance ⁵⁾¹⁰⁾	5Hz to 22.3Hz 10mm DA 22.3Hz to 500Hz 98m/s ²
Shock resistance ⁵⁾¹⁰⁾	294m/s ²
Flammability ⁶⁾	UL94-HB or better(meets FMVSS 302)
Termination	QC ¹¹⁾ , PCB ⁷⁾
Construction	Plastic sealed,Dust protected
Unit weight	Approx.35g
Mechanical data ⁸⁾	housing retention (pull &push):200N min. terminal retention(pull &push):100N min. Terminal resistance to bending (front &side):10N min ⁹⁾

1)For NO contacts,measured when applying 100% rated voltage on coil.

For NC contacts,measured when applying zero voltage on coil.

2)Inrush peak current under amp load,at 13.5VDC.

3)1min, leakage current less than 1mA.

4)The value is measured when voltage drops suddenly from nominal voltage to 0 VDC and coil is not paralleled with suppression circuit.

5)When energized, opening time of NO contacts shall not exceed 1ms, when non-energized,opening time of NC contacts shall not exceed 1ms, meantime, NO contacts shall not be closed.

6)FMVSS:Federal Motor Vehicle Safety Standard.

7)Since it is an environmental friendly product, please select lead-free solder when welding.The recommended soldering temperature and time is (250±3)C,(5±0.3)s.

8)Only valid for QC version.

9)Test point is at 2mm away from terminal end,and after removing testing force, the terminal transfiguration shall not exceed 0.5mm.

10) Only for the 12VDC coil voltage type.

11)Do NOT knock on relays with hard objects such as rubber rod and rubber hammer during mounting, which might lead to relay damage.

COIL DATA

at 23°C

Nominal voltage VDC	Pick-up voltage VDC max.	Drop-out voltage VDC min.	Coil resistance x(1±10%)Ω	Parallel Resistance ²⁾ x(1±5%)Ω	Equivalent resistance Ω	Power consumption W	Max.allowable overdrive voltage ¹⁾ VDC	
							at 23°C	at 85°C
12	7.2	1.2	90			1.6	20.2	15.7
12	7.2	1.2	90	680	79.5	1.8	20.2	15.7
24	16	2.4	320			1.8	40.5	31.5
24	16	2.4	320	2700	286	2.0	40.5	31.5

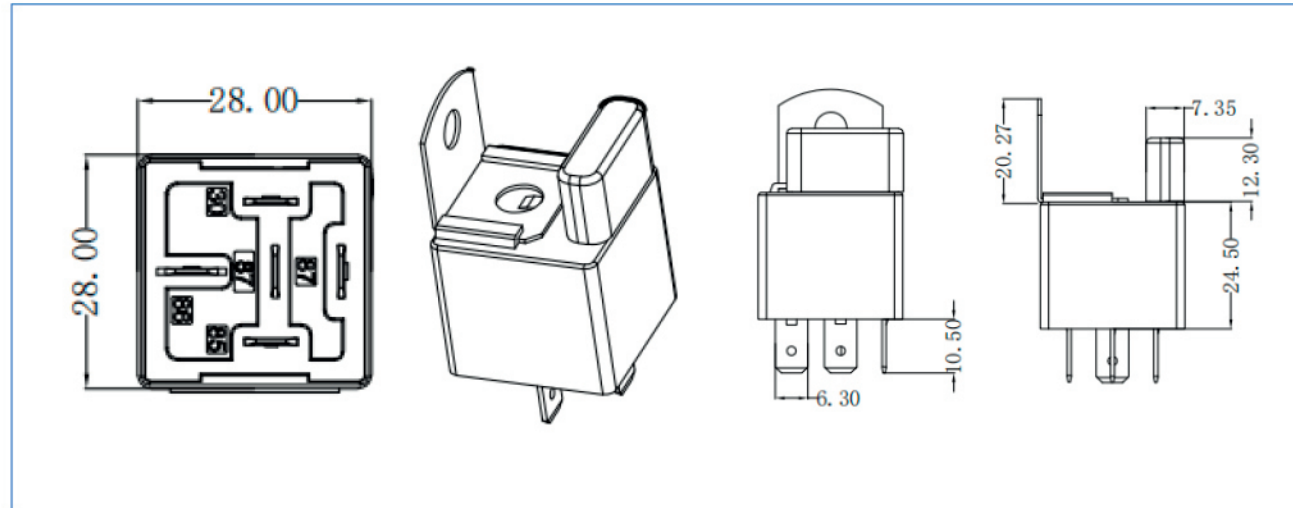
1)Max.allowable overdrive voltage is stated with no load applied.

2)with the type with parallel resistor (680Ω,12V),(2700Ω,24V).

CONTACT DATA

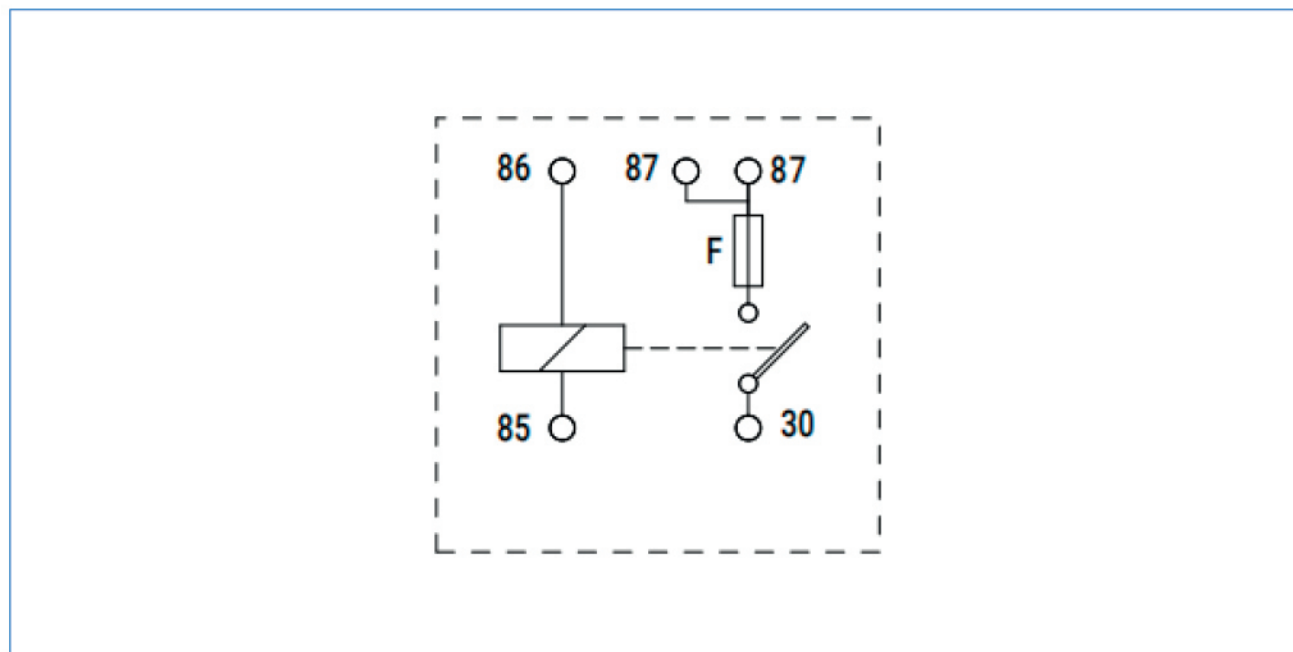
Load voltage	Load type		Load current (A)			On/Off ratio		Electrical Endurance OPS	Contact Material	Ambient temp
			1C		1A	OnS	OffS			
			NO	NC						
13.5 VDC	Resistive	Make	40	30	40	2	2	1×10 ⁵	AgSnO ₂	See Ambient Temp. Curve
		Break	40	30	40					
	Lamp	Make	150	-	150	2	2	1×10 ⁵	AgSnO ₂	
		Break	30	-	30					
	Inductive	Make	80	40	80	2	2	1×10 ⁵	AgSnO ₂	
		Break	33	20	33					
27VDC	Resistive	Make	20	10	20	2	2	1×10 ⁵	AgSnO ₂	
		Break	20	10	20					

DIMENSION

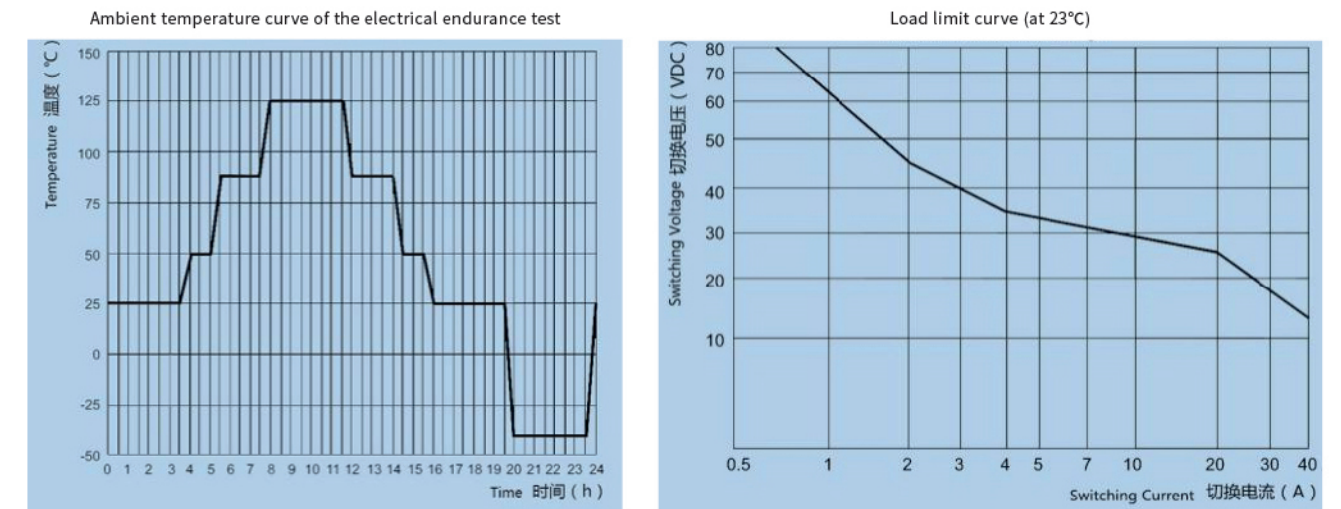


Remark: In case of no tolerance shown in outline dimension: outline dimension $\leq 1\text{mm}$, tolerance should be $\pm 0.2\text{mm}$;
Outline dimension $> 1\text{mm}$ and $\leq 5\text{mm}$, tolerance should be $\pm 0.3\text{mm}$; outline dimension $> 5\text{mm}$, tolerance should be $\pm 0.4\text{mm}$.

WIRING DIAGRAM

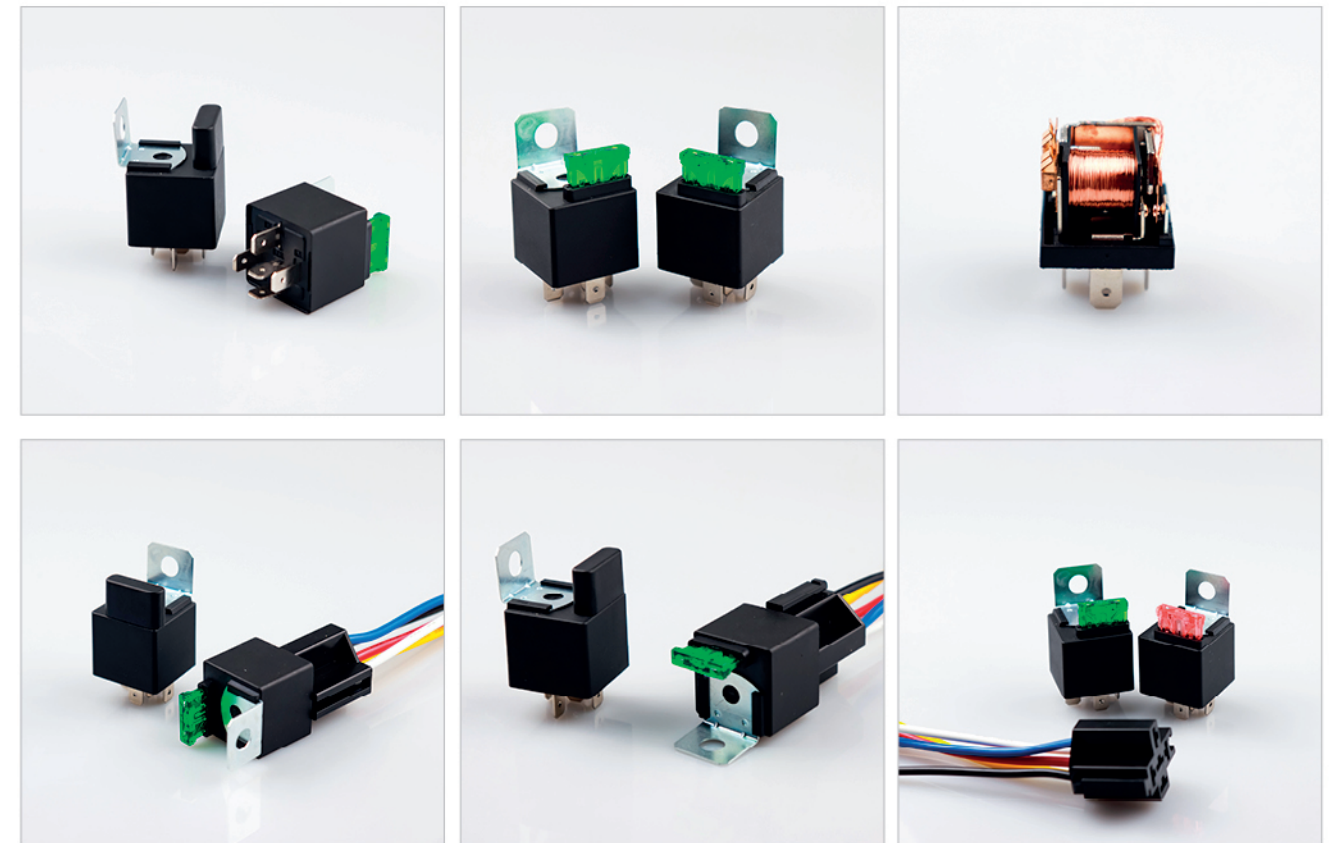


CHARACTERISTICS CURVES



1)The minimum temperature is -40°C .
2)The maximum temperature is 125°C .

1)This chart takes NO contact,resistive load as example.
2)The load and electrical endurance tests are made according to "CONTACT DATA" parameters' table. If actual load voltage, current, or operate frequency is different from "CONTACT DATA" table, please arrange corresponding tests for confirmation.



02

100-300A Relay



KKA-C150

150A Automotive Relay

Features

- 150A switching capability at both 12VDC and 24VDC
- 1 Form A (SPST-NO) contact arrangement
- Resistor and diode for coil component available
- Ambient temperature -40°C ~ +125°C



Typical Application

Applicable for 150A Automotive Grade Circuit: Engine start preheating system, power management system, heating plug, front windshield heating start/stop control, etc.

ORDERING GUIDE

	KKAC150	-012	1H	3.5	-R	(XXX)
Type	KKAC150					
Coil Voltage	012:12VDC 024:24VDC					
Contact Form	1H:1 Form A (SPST-NO)					
Coil Power	3.5W/3.9W/3.2W/4.1W Customization Available					
Parallel Coil Components	Nil: without parallel component R: parallel transient supression resistors D1:parallel transient supression diode, with anode connected to terminal #1 D2:parallel transient supression diode, with anode connected to terminal #2					
Special Code	(XXX):customer special requirement Nil: Standard					

COIL DATA

Nominal voltage (VDC)	Pick-up voltage(VDC)			Drop-out voltage(VDC)			Coil resistance x (1±10%)Ω	Paral ^{lel} resistance x(1+5%)Ω	Equivalent resistance x(1±10%)Ω	Power consumption (W)
	-40°C	23°C	125°C	-40°C	23°C	125°C				
12	≤ 7	≤ 8	≤ 11.5	≥ 0.8	≥ 1.2	≥ 1.4	40.8	--	--	3.5
12	≤ 7	≤ 8	≤ 11.5	≥ 0.8	≥ 1.2	≥ 1.4	40.8	390	37	3.9
24	≤ 14.5	≤ 16	≤ 24	≥ 1.6	≥ 2.4	≥ 2.8	177.5	--	--	3.2
24	≤ 14.5	≤ 16	≤ 24	≥ 1.6	≥ 2.4	≥ 2.8	177.5	680	141	4.1

1)Max.allowable overdrive voltage is stated with no load applied.
2)with the type with parallel resistor (680Ω,12V),(2700Ω,24V).

CHARACTERISTICS

Contact arrangement	1H (SPST-NO)
Contact Resistance	Typ.:0.7mΩ (at 100A) initial
Contact Rating ¹⁾	12VDC 150A 24VDC 150A
Max.continuous current ¹⁾	180A (23°C) 5min 150A (23°C) long-term 130A (85°C) long-term 70A (125°C) long-term
Overload current ²⁾	300A 1min (23°C) 750A 5s (23°C)
Short Circuit Resistance current ¹⁾²⁾	1500A 1s (23°C) 2000A 500ms (23°C) 3000A 20ms (23°C)
Min.contact load	1A 6VDC
Electrical endurance	See "CONTACT DATA"
Mechanical endurance	1x107OPS (60OPS/min)
Insulation resistance	100M Ω (at 500VDC)
Dielectric strength ³⁾	1000VAC 1min
Operate time ⁴⁾	Typ.:25ms
Release time ⁴⁾	Typ.:10ms
Noise ⁵⁾	Typ.: 75dB(A)
Ambient temperature	-40°C to +125°C No condensation and ice
Vibration resistance (random)(functional) ⁶⁾	10Hz to 2000Hz, >3g GB/T 28046.3 4.1.2.4 Test IV

Shock resistance	Energize: 50g (Half Sine, pulse 11ms) Non-energize: 20g (Half Sine, pulse 11ms)
Termination	Screw connection
Construction	Plastic sealed, Dust protected
Unit weight	Approx.220g
Protection grade ⁷⁾	Plastic sealed: IP6K7(GB/T 30038) Dust cover type: IP5K4(GB/T 30038)
Mechanical data ⁸⁾	housing retention (pull &push): 500N terminal retention(pull &push):150N min. Terminal torque: 6N · m ~ 8N · m

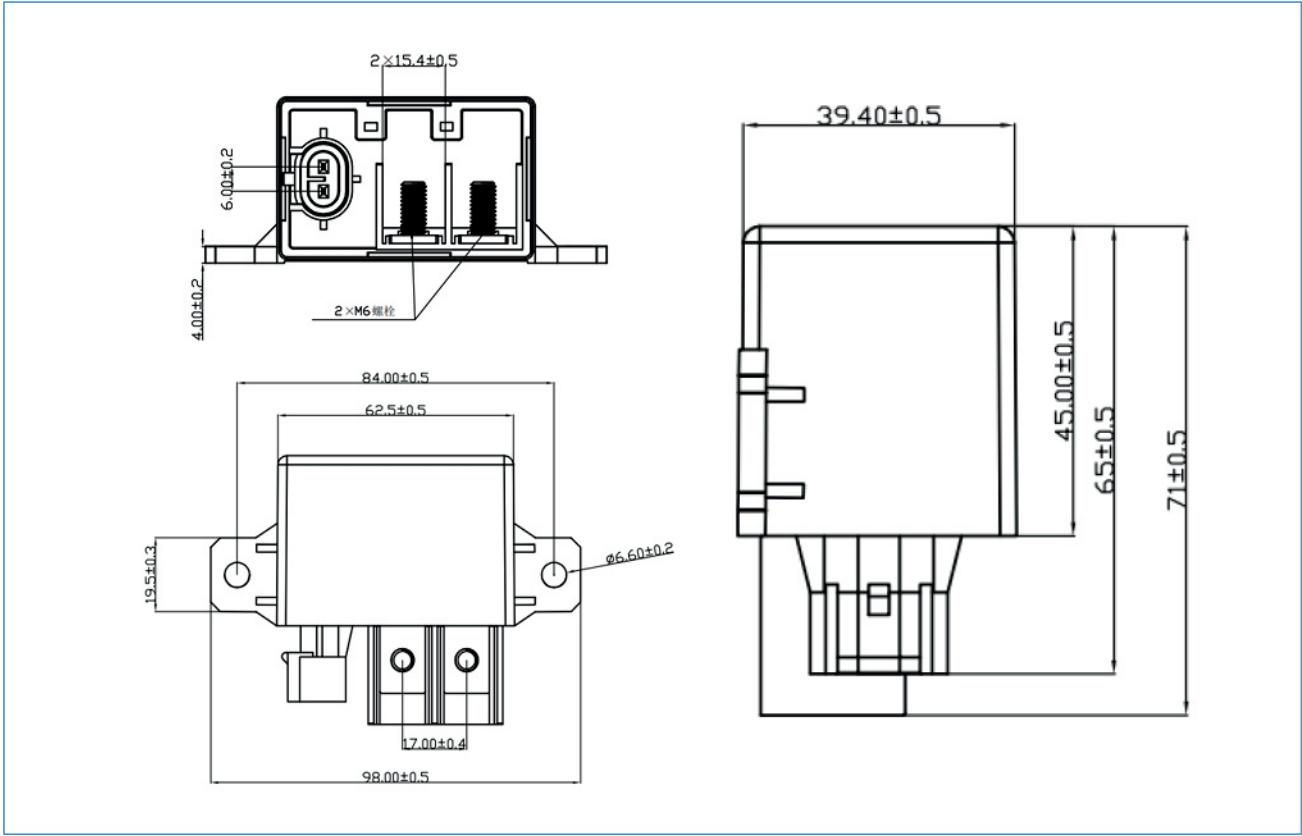
Notes:
1)The conductor cross section 25mm²
2)Failure criterion: No smoke, fire or explosion occurs during the test;
3)1 min,leakage current less than 1mA;
4)Measurement of coil shunt resistance at rated voltage;
5)Test distance 0.4m;
6)When energized,opening time of closed NO contact shall not exceed 10μs,when non-energized,close time of NO contacts shall not exceed 10μs;
7)Use matching sealed connectors for protection level testing.

CONTACT DATA

Load voltage (VDC)	Load type	Load current A	On/Off ratio		Electrical endurance (ops)	Contact Material	Ambient temp.
			On(s)	Off(s)			
14	Resistive	200	3	7	5 × 10 ⁴	AgSnO ₂ /In ₂ O ₃	23°C
28	Resistive	150	3	7	5 × 10 ⁴		

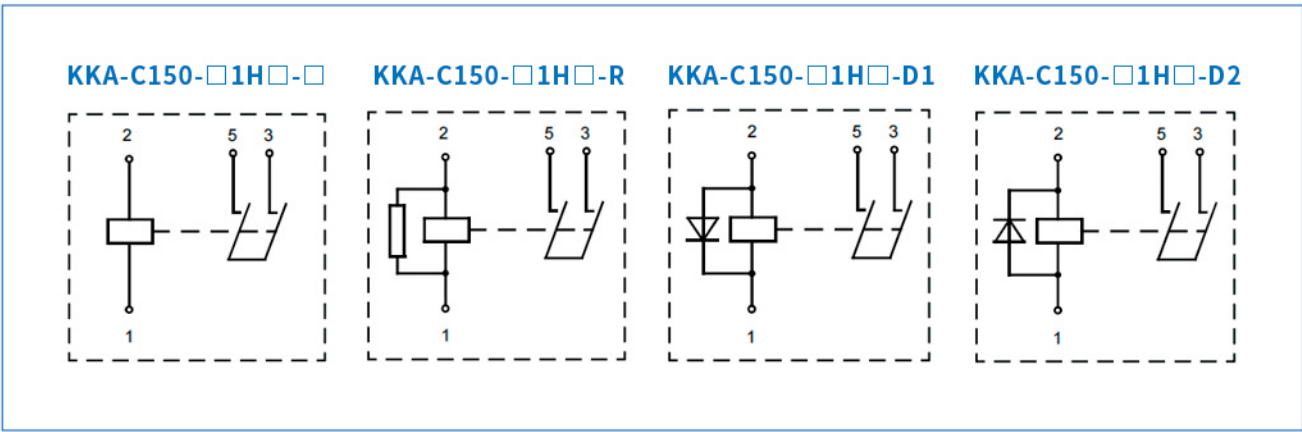
备注：(1)本表中负载仅针对线圈并联电阻的情况，如需使用并联二极管、稳压管等元件，请与库客安联系以便获得更多的支持;当使用负载条件与本表不相符时，请将相应详细使用条件提供给库客安以获取更多的支持。

DIMENSION



Remark: In case of no tolerance shown in outline dimension: outline dimension≤1mm, tolerance should be ±0.2mm;
Outline dimension>1mm and ≤5mm, tolerance should be ±0.3mm; outline dimension>5mm, tolerance should be ±0.4mm.

WIRING DIAGRAM

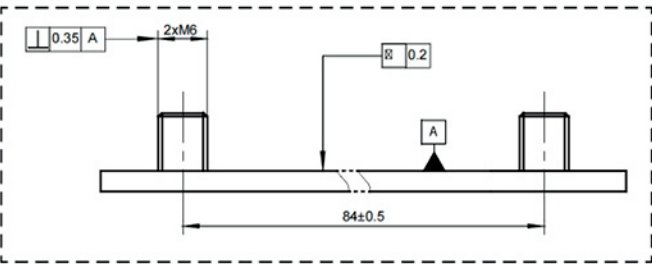


1.To prevent looseness, please use spring washer or jam nut when installing the relay. See the following table for installation requirements, if the scope is exceeded, the product may be damaged. When the use conditions are inconsistent with this table, please provide the corresponding detailed use conditions to KKA for more support.

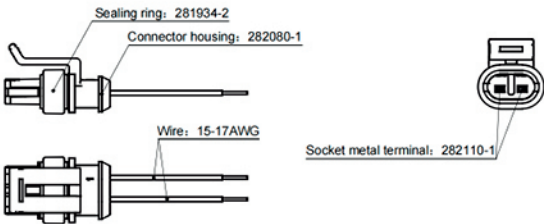
Load terminal mounting requirements						Housing mounting plate installation requirements		
InstallationMethod	Threadpitch	Torque Requirements	Gasket outer diameter	Copper nose model	Wire diameter	InstallationMethod	Torque Requirements	Base size requirements
M6 Nut gasket	1.0mm	6N·m ~ 8N·m	<φ15mm	SC25-6	25mm ²	M6 Screw	3.4N·m ~ 4.2N·m	See figure below for details

2. Please avoid grease and other foreign bodies on the terminal, please use the recommended specification of copper nose and wires in Article 1 of the precautions for installation, otherwise abnormal heat may occur at the load terminal.
3. Coil Terminal: Connector type AMP SUPERSEAL 1.5 series (Customer self-configuration: Connector housing 282080-1; Sealing ring 281934-2; Socket metal terminal 282110-1).

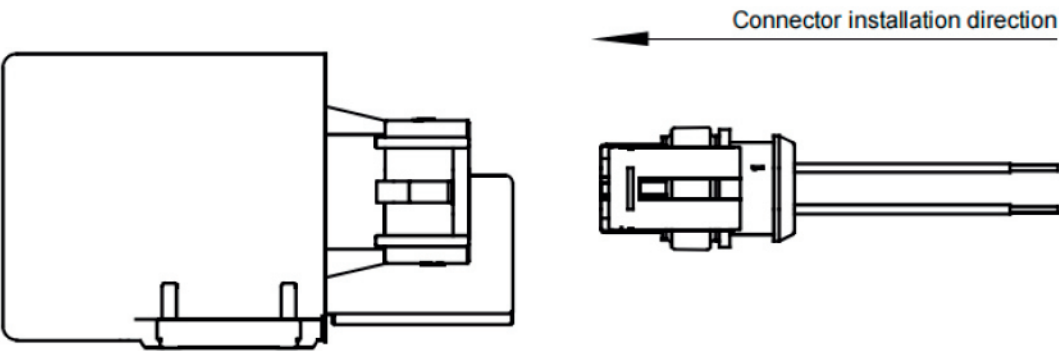
Base size requirements



TE connector: AMPSUPERSEAL 1.5 series(Customer self-configuration)



4.During the installation of the product, make sure that the connectors are inserted smoothly in the correct direction, the snap clips are in place, and do not plug and unplug more than once, to prevent the connector from distorting the opening of the metal terminal that connects, causing unreliable contact.

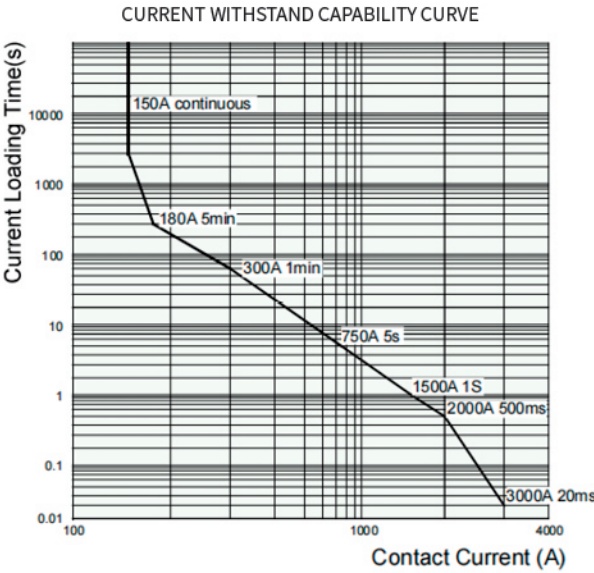


声明：

1、本资料仅供客户参考，库客安已尽力确保本资料中信息的准确性，但错误之处在所难免，且产品及Type、参数可能因产品改良等发生变更，其涉及到的每个产品的参数及性能请以库客安提供的Type书和样品为准，恕不另行通知。

2、关于应用领域，对库客安而言，不可能评定继电器在每个具体应用领域的所有CHARACTERISTICS要求 因而客户应根据具体的使用条件选择与之相匹配的产品，其中未明确规定的要求条件，请与库客安联系以便获取更多的技术支持。库客安明确声明对本资料中的信息仅供选型参考，且产品选型责任仅由客户负责。

CHARACTERISTICS CURVES



- Notes
- 1) The temperature is 23°C;
- 2) Resistive load, Load Line Diameter 25mm²;
- 3) When the actual application conditions exceed the specified range of the curve, please contact KKA and provide detailed application conditions for more technical support.



KKA-C200

200A 继电器

Features

- 200A switching capability at both 12VDC and 24VDC
- 1 Form A (SPST-NO) contact arrangement
- Resistor and diode for coil component available
- Ambient temperature -40°C ~ +125°C



Typical Application

Applicable for 200A Automotive Grade Circuit: Engine start preheating system, power management system, heating plug, front windshield heating start/stop control, etc.

ORDERING GUIDE

	KKAC200	-012	1H	3.5W	-R	(XXX)
Type	KKAC200					
Coil Voltage	012:12VDC 024:24VDC					
Contact Form	1H:1 Form A (SPST-NO)					
Coil Power	3.6W/3.8W/3.2W/4.1W Customization Available					
Parallel Coil Components	Nil: without parallel component L: paralleled with LED light R: parallel transient suppression resistors D1: parallel transient suppression diode, with anode connected to terminal #1 D2: parallel transient suppression diode, with anode connected to terminal #2					
Special Code	(XXX):customer special requirement Nil: Standard					

COIL DATA

Nominal poltage (VDC)	Pick-up voltage (VDC)	Drop-out voltage (VDC)	Coil resistance x (1±10%)Ω	Parallel resistance x(1+5%)Ω	Equivalent resistance x(1±10%)Ω	Power consumption (W)
	-40°C	125°C				
12	≤ 8	≥ 1.2	39.5	-	-	3.6
12	≤ 8	≥ 1.2	39.5	680	37	3.8
24	≤ 16	≥ 2.4	177.5	-	-	3.2
24	≤ 16	≥ 2.4	177.5	2700	141	4.1

CHARACTERISTICS

Contact arrangement	1H (SPST-NO)
Contact Rating ¹⁾	12VDC 300A 24VDC 200A
Max.continuous current ¹⁾	200A (23°C) long-term 170A (85°C) long-term
Overload current ²⁾	400A 1min (23°C)
Min.contact load	1A 6VDC
Electrical endurance	See "CONTACT DATA"
Mechanical endurance	1x107OPS (60OPS/min)
Insulation resistance	100M Ω (at 500VDC)
Dielectric strength ³⁾	1000VAC 1min
Operate time ⁴⁾	Typ.:50ms
Release time ⁴⁾	Typ.:10ms
Noise ⁵⁾	Typ.: 75dB(A)
Ambient temperature	-40°C to +125°C No condensation and ice
Vibration resistance (random)(functional) ⁶⁾	10Hz to 2000Hz, >3g GB/T 28046.3 4.1.2.4 Test IV

Shock resistance	Energize: 50g (Half Sine, pulse 11ms) Non-energize: 20g (Half Sine, pulse 11ms)
Termination	Screw connection
Construction	Plastic sealed, Dust protected
Unit weight	Approx.350g
Protection grade ⁷⁾	Plastic sealed: IP6K7(GB/T 30038) Dust cover type: IP5K4(GB/T 30038)
Mechanical data ⁸⁾	housing retention (pull &push): 500N terminal retention(pull &push):150N min. Terminal torque: 6N·m ~ 8N·m

Notes:

1)The conductor cross section 35mm²

2)Failure criterion: No smoke, fire or explosion occurs during the test;

3)1 min,leakage current less than 1mA;

4)Measurement of coil shunt resistance at rated voltage;

5)Test distance 0.4m;

6)Use matching sealed connectors for protection level testing.

Notes:

1)The conductor cross section 35mm²

2)Failure criterion: No smoke, fire or explosion occurs during the test;

3)1 min,leakage current less than 1mA;

4)Measurement of coil shunt resistance at rated voltage;

5)Test distance 0.4m;

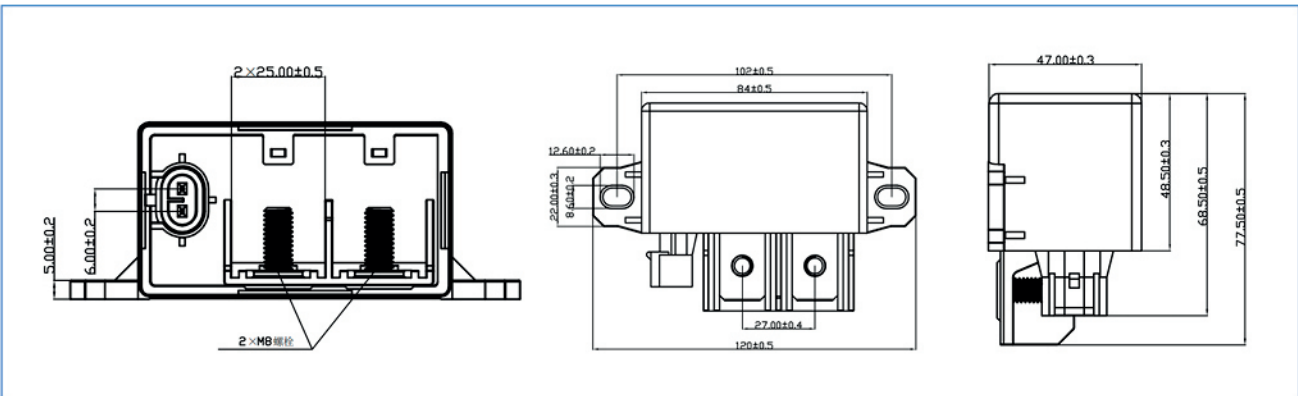
6)Use matching sealed connectors for protection level testing.

CONTACT DATA

Load voltage (VDC)	Load type	Load current A	On/Off ratio		Electrical endurance (ops)	Contact Material	Ambient temp
			On(s)	Off(s)			
14	Resistive	300	3	7	5×10 ⁴	AgSnO ₂ In ₂ O ₃	23°C
28	Resistive	200	3	7	5×10 ⁴		

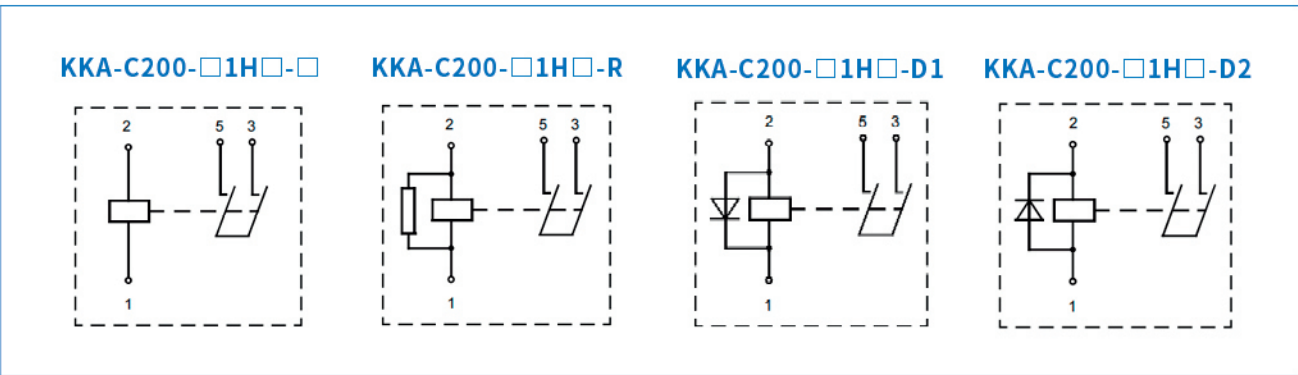
Notes:1) Load in this table is only for coil shunt resistance, Zener Diode or other components, please contact KKA for more technical supports; while the inductive load and the lamp load are the analog load. If the load conditions are not consistent with this table, please provide the corresponding detailed conditions to KKA for more support.

DIMENSION



Remark: In case of no tolerance shown in outline dimension: outline dimension≤1mm, tolerance should be ±0.2mm;
Outline dimension>1mm and≤5mm, tolerance should be ±0.3mm; outline dimension>5mm, tolerance should be ±0.4mm.

WIRING DIAGRAM

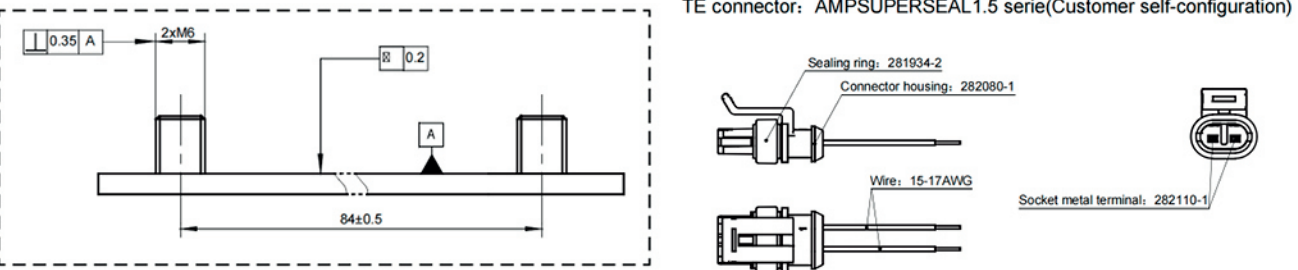


To prevent looseness, please use spring washer or jam nut when installing the relay. See the following table for installation requirements, if the scope is exceeded, the product may be damaged. When the use conditions are inconsistent with this table, please provide the corresponding detailed use conditions to KKA for more support.

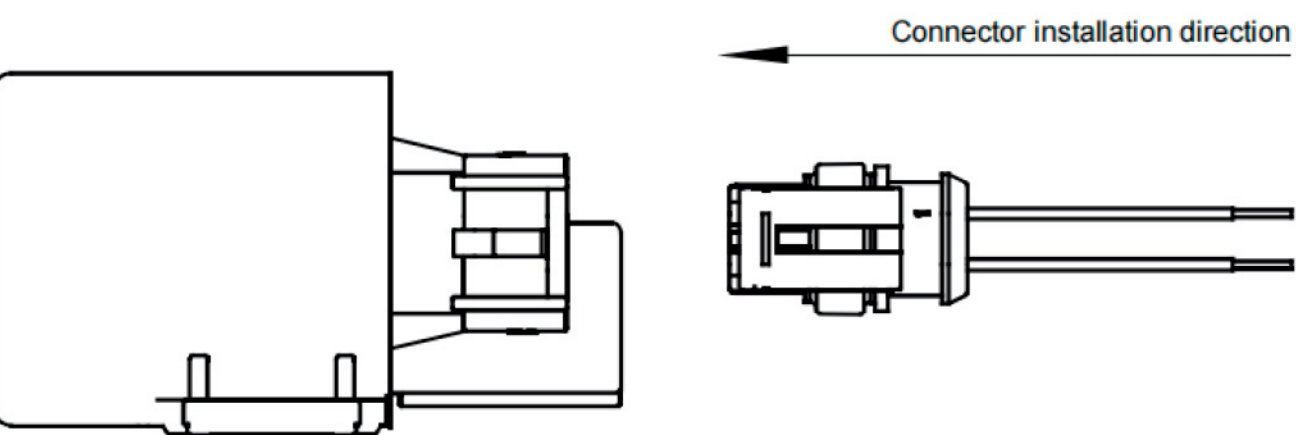
Load terminal mounting requirements						Housing mounting plate installation requirements		
InstallationMethod	Threadpitch	Torque Requirements	Gasket outer diameter	Copper nose model	Wire diameter	InstallationMethod	Torque Requirements	Base size requirements
M6 Nut gasket	1.0mm	6N·m ~ 8N·m	<φ15mm	SC25-6	25mm ²	M6 Screw	3.4N·m ~ 4.2N·m	See figure below for details

- Please avoid grease and other foreign bodies on the terminal, please use the recommended specification of copper nose and wires in Article 1 of the precautions for installation, otherwise abnormal heat may occur at the load terminal.
- Coil Terminal: Connector type AMP SUPERSEAL 1.5 series (Customer self-configuration: Connector housing 282080-1; Sealing ring 281934-2; Socket metal terminal 282110-1).

Base size requirements



- During the installation of the product, make sure that the connectors are inserted smoothly in the correct direction, the snap clips are in place, and do not plug and unplug more than once, to prevent the connector from distorting the opening of the metal terminal that connects, causing unreliable contact.



KKA-D120

120A Relay

Features

- 120A switching capability at both 12VDC and 24VDC
- 1 Form A (SPST-NO) and 1 Form C (SPDT) contact arrangement
- Resistor and diode for coil component available
- Ambient temperature -40°C ~ +125°C



Typical Application

Applicable for 120A Automotive Grade Circuit: Engine start preheating system, power management system, heating plug, front windshield heating start/stop control, etc.

ORDERING GUIDE

	KKAD120	-012	1H	2.4	P	(XXX)
Type	KKAD120 - Standard KKAD120C - Standard Magnetic Type KKAD120M - Mini Type KKAD120MC - Mini Magnetic Type					
Coil Voltage	012:12VDC 024:24VDC					
Contact Form	1H:1 Form A (SPST-NO) 1Z:1 Form C (SPDT)					
Coil Power	2.4: 2.4W coil power, applicable for long term working 4.8: 4.8W coil power, applicable for long term working					
Installation	Nil: standard type, without mounting bracket P: with installation mounting bracket					
Special Code	(XXX):customer special requirement Nil: Standard					

COIL DATA

Type	Coil Voltage		Coil resistance x (1±10%)Ω	Max. Operate Voltage (VDC)	Min. Release Voltage (VDC)	Power consumption (W)	Operate Time(s)	Release Time(s)
	Rated	Max.						
12V 2.4W	12	15.6	60	7.8	1.2	2.4W	≤ 10ms	≤ 5ms
24V 2.4W	24	31.2	240	15.6	2.4	2.4W		
12V 4.8W	12	15.6	80	7.8	1.2	4.8W	≤ 10ms	≤ 5ms
24V 4.8W	24	31.2	320	15.6	2.4	4.8W		

CONTACT DATA

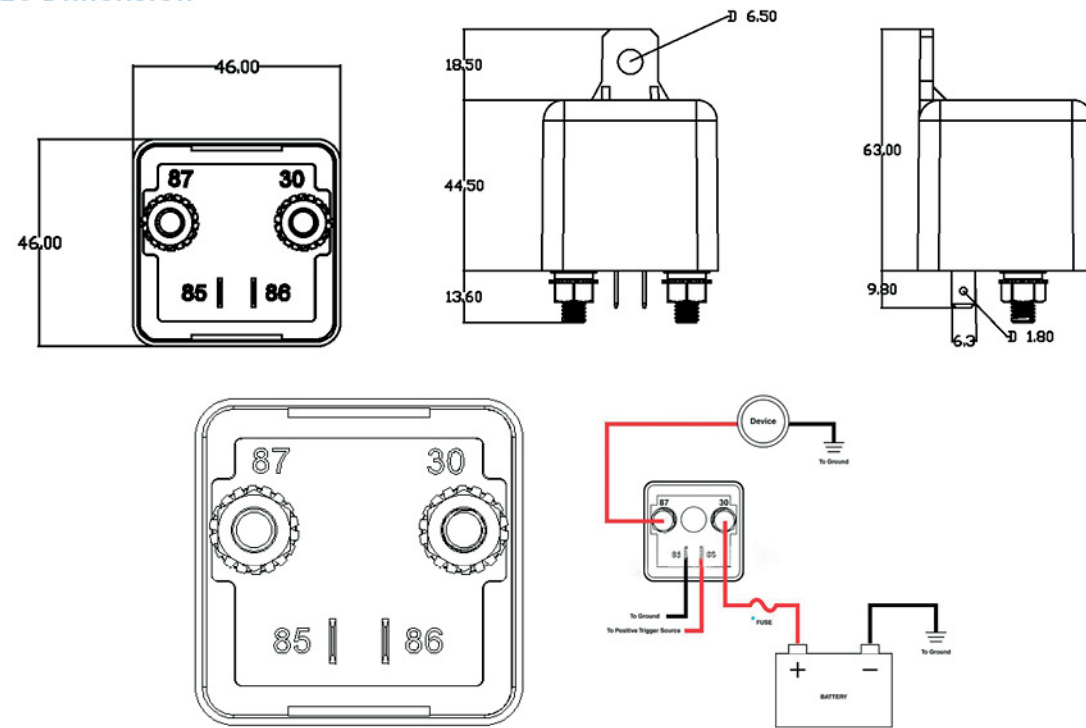
Contact arrangement	1H (SPST-NO)	
Contact Material	AgSnO2	
Contact Rating	120A/14VDC 60A/28VDC	
Max. Switching Voltage	40VDC	
Max. Switching Current	D120	120A
	D120C & D120MC	300A(3-6s) 600A(1s)
Max. Switching Power	1680W	
Contact Resistance	≤30mΩ item 4.12 of IEC 61810-7	
Electrical Life	1×10 ⁶ item 4.30 of IEC 61810-7	
Mechanical Life	1×10 ⁷ item 4.31 of IEC 61810-7	

CHARACTERISTICS

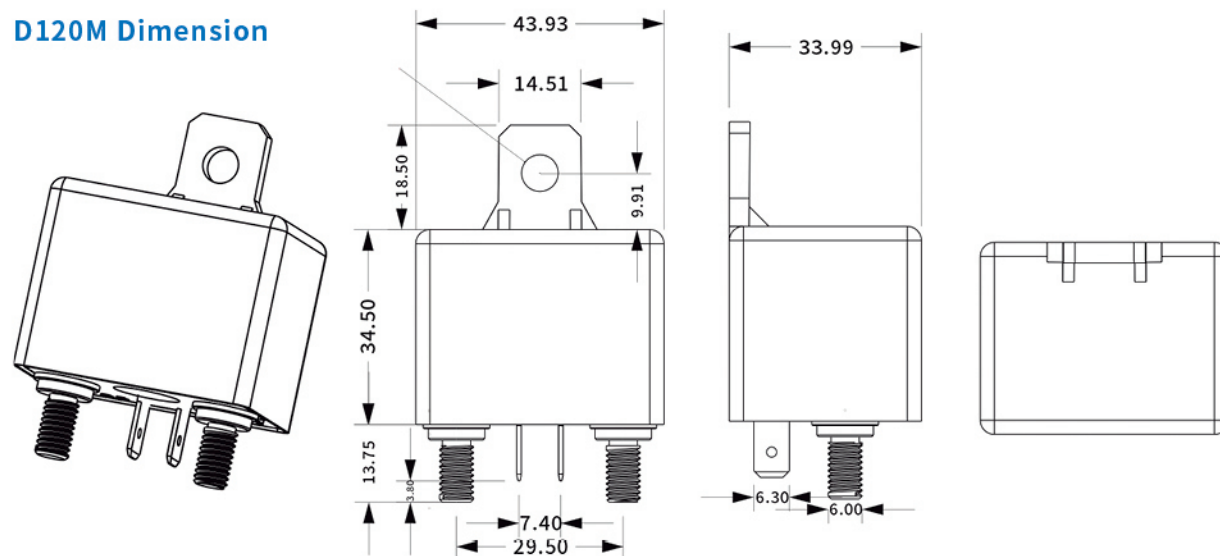
Insulation resistance	100MΩ min (at 500VDC)	Item 7 of IEC 60255-5
Dielectric strength	50Hz 500V	Item 6 of IEC 60255-5
	50Hz 500V	Item 6 of IEC 60255-5
Shock resistance	147m/s ²	IEC 68-2-27 Test Ea
Vibration	10-40Hz double amplitude 1.5mm	IEC 68-2-6 Test Fc
Termination	20N	IEC 68-2-21 Test Ua1
Soldering	235°C±2°C 3±0.5s	IEC 68-2-20 Test Ta method 1
Ambient Temperature	-40°C--85°C	
Relative Humidity	85% (at 40°C)	IEC 68-2-3 Test Ca
Weight	96g	

DIMENSION

D120 Dimension



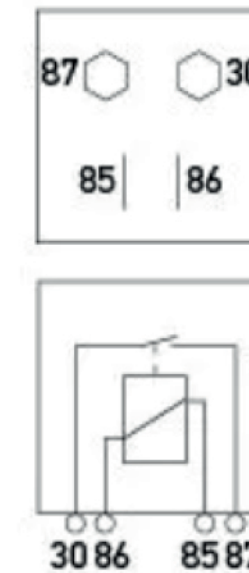
D120M Dimension



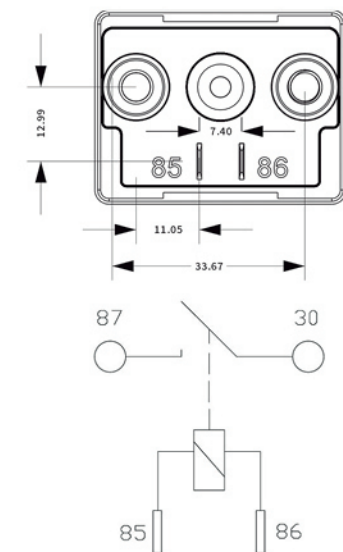
Remark: In case of no tolerance shown in outline dimension: outline dimension $\leq 1\text{mm}$, tolerance should be $\pm 0.2\text{mm}$;
Outline dimension $> 1\text{mm}$ and $\leq 5\text{mm}$, tolerance should be $\pm 0.3\text{mm}$; outline dimension $> 5\text{mm}$, tolerance should be $\pm 0.4\text{mm}$.

WIRING DIAGRAM

D120



D120M



KKA-D200

200A Relay

Features

- 200A switching capability at both 12VDC and 24VDC
- 1 Form A (SPST-NO) and 1 Form C (SPDT) contact arrangement
- Resistor and diode for coil component available
- Ambient temperature -40°C ~ +125°C



Typical Application

Applicable for 200A Automotive Grade Circuit: Engine start preheating system, power management system, heating plug, front windshield heating start/stop control, etc.

ORDERING GUIDE

	KKAD200	-012	1H	2.4	P	(XXX)
Type	KKAD200 - Standard KKAD200C - Standard Magnetic Type KKAD200M - Mini Type KKAD200MC - Mini Magnetic Type					
Coil Voltage	012:12VDC 024:24VDC					
Contact Form	1H:1 Form A (SPST-NO) 1Z:1 Form C (SPDT)					
Coil Power	2.4: 2.4W coil power, applicable for long term working 4.8: 4.8W coil power, applicable for long term working					
Installation	Nil: standard type, without mounting bracket P: with installation mounting bracket					
Special Code	(XXX):customer special requirement Nil: Standard					

COIL DATA

Type	Coil Voltage		Coil resistance x (1±10%)Ω	Max. Operate Voltage (VDC)	Min. Release Voltage (VDC)	Power consumption (W)	Operate Time(s)	Release Time(s)
	Rated	Max.						
12V 2.4W	12	15.6	60	7.8	1.2	2.4W	≤ 10ms	≤ 5ms
24V 2.4W	24	31.2	240	15.6	2.4	2.4W		
12V 4.8W	12	15.6	80	7.8	1.2	4.8W	≤ 10ms	≤ 5ms
24V 4.8W	24	31.2	320	15.6	2.4	4.8W		

CONTACT DATA

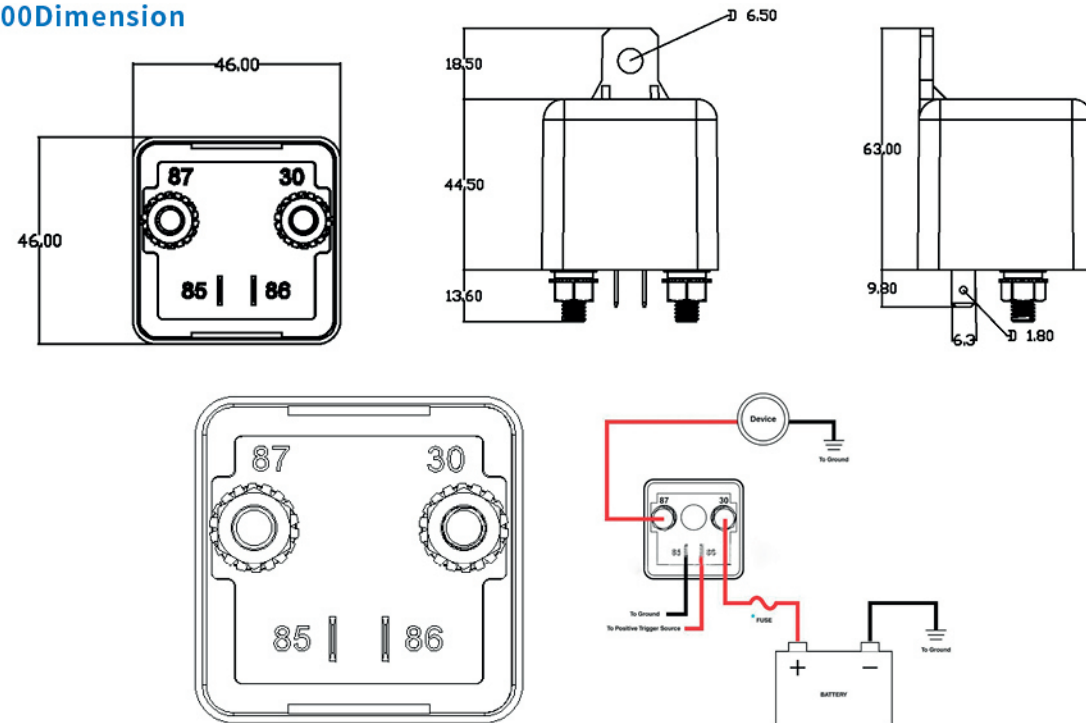
Contact arrangement	SPST-NO(1H)	
Contact Material	AgSnO ₂	
Contact Rating	200A/14VDC	
	100A/28VDC	
Max. Switching Voltage	40VDC	
Max. Switching Current	D200 200A 长时间	
	D200C & 200MC 400A(6s) 750A (1s)	
Max. Switching Power	2800W	
Contact Resistance	≤30mΩ Item 4.12 of IEC 61810-7	
Electrical Life	1*10 ⁵ Item 4.30 of TEC 61810-7	
Mechanical Life	1*10 ⁷ Item 4.31 of TEC 61810-7	

CHARACTERISTICS

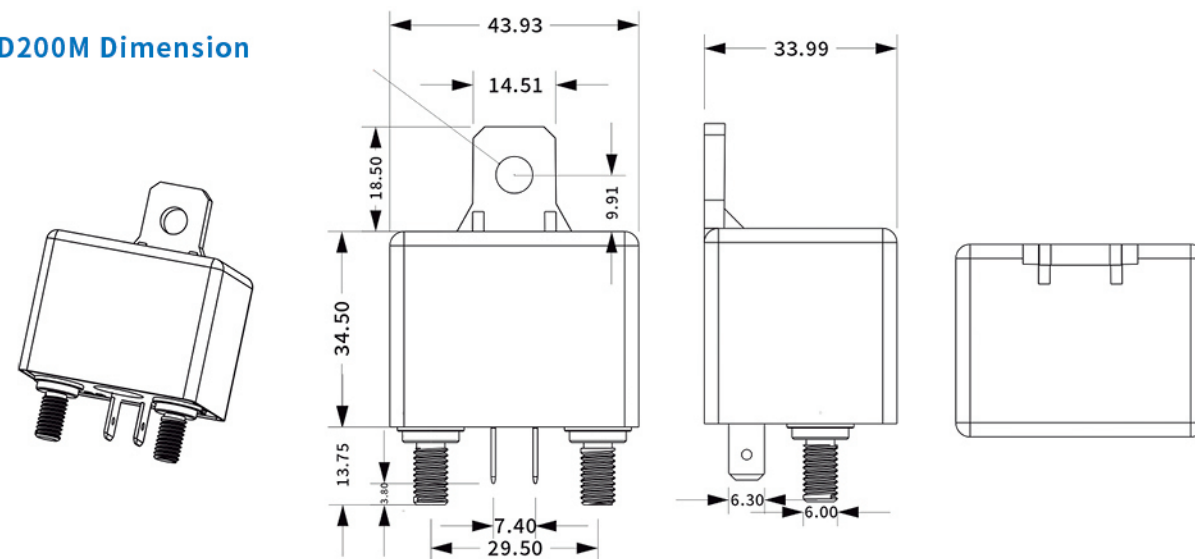
Insulation resistance	100MΩ min (at 500VDC)	Item 7 of IEC 60255-5
Dielectric strength	50Hz 500V	Item 6 of IEC 60255-5
	50Hz 500V	Item 6 of IEC 60255-5
Shock resistance	147m/s ²	IEC 68-2-27 Test Ea
Vibration	10-40Hz double amplitude 1.5mm	IEC 68-2-6 Test Fc
Termination	20N	IEC 68-2-21 Test Ua1
Soldering	235°C±2°C 3±0.5s	IEC 68-2-20 Test Ta method 1
Ambient Temperature	-40°C--85°C	
Relative Humidity	85% (at 40°C)	IEC 68-2-3 Test Ca
Weight	106g	

DIMENSION

D200 Dimension

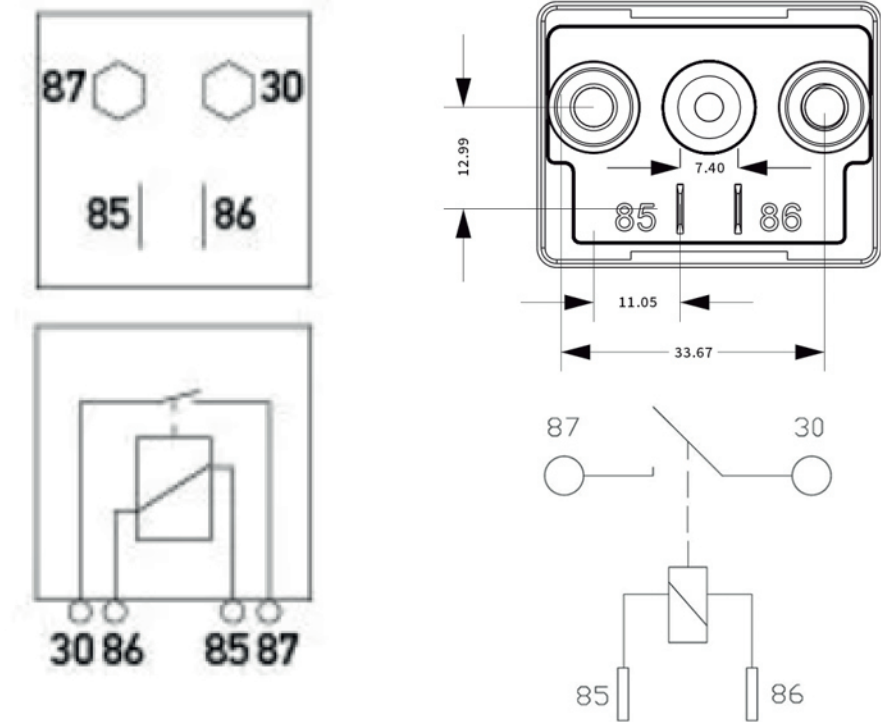


D200M Dimension



Remark: In case of no tolerance shown in outline dimension: outline dimension $\leq 1\text{mm}$, tolerance should be $\pm 0.2\text{mm}$;
Outline dimension $> 1\text{mm}$ and $\leq 5\text{mm}$, tolerance should be $\pm 0.3\text{mm}$; outline dimension $> 5\text{mm}$, tolerance should be $\pm 0.4\text{mm}$.

WIRING DIAGRAM



KKA-D250

250A Relay

Features

- 250A switching capability at both 12VDC and 24VDC
- 1 Form A (SPST-NO) and 1 Form C (SPDT) contact arrangement
- Resistor and diode for coil component available
- Ambient temperature -40°C ~ +125°C



Typical Application

Applicable for 250A Automotive Grade Circuit: Engine start preheating system, power management system, heating plug, front windshield heating start/stop control, etc.

ORDERING GUIDE

	KKAD250	-012	1H	2.4	P	(XXX)
Type	KKAD250 - Standard KKAD250C - Standard Magnetic Type KKAD250M - Mini Type KKAD250MC - Mini Magnetic Type					
Coil Voltage	012:12VDC 024:24VDC					
Contact Form	1H:1 Form A (SPST-NO) 1Z:1 Form C (SPDT)					
Coil Power	2.4: 2.4W coil power, applicable for long term working 4.8: 4.8W coil power, applicable for long term working					
Installation	Nil: standard type, without mounting bracket P: with installation mounting bracket					
Special Code	(XXX):customer special requirement Nil: Standard					

COIL DATA

Type	Coil Voltage		Coil resistance x (1±10%)Ω	Max. Operate Voltage (VDC)	Min. Release Voltage (VDC)	Power consumption (W)	Operate Time(s)	Release Time(s)
	Rated	Max.						
12V 2.4W	12	15.6	60	7.8	1.2	2.4W	≤ 10ms	≤ 5ms
24V 2.4W	24	31.2	240	15.6	2.4	2.4W		
12V 4.8W	12	15.6	80	7.8	1.2	4.8W	≤ 10ms	≤ 5ms
24V 4.8W	24	31.2	320	15.6	2.4	4.8W		

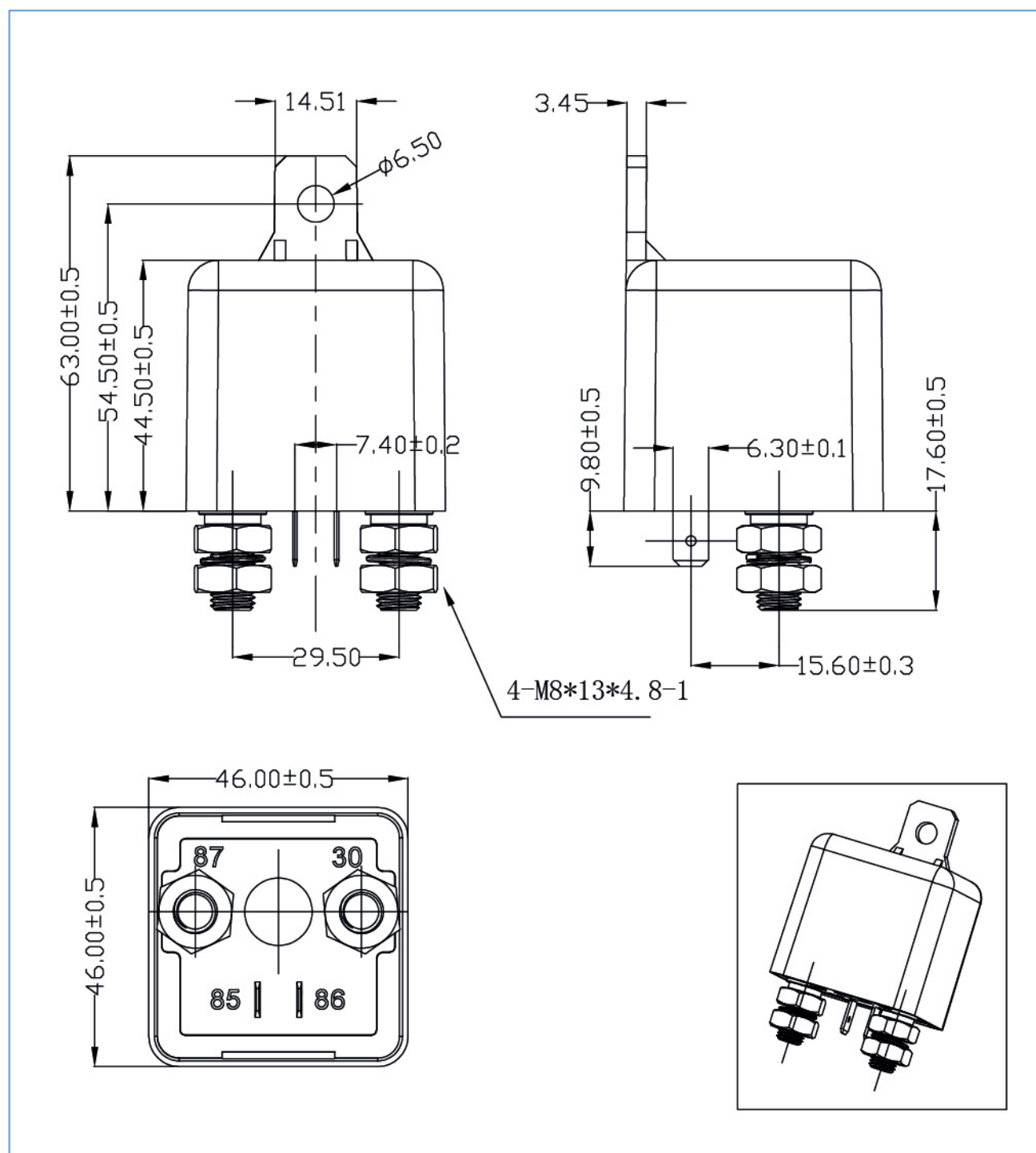
CONTACT DATA

Contact arrangement	SPST-NO(1H)	
Contact Material	AgSnO ₂	
Contact Rating	250A/14VDC	
	125A/28VDC	
Max. Switching Voltage	40VDC	
Max. Switching Current	250A	
Max. Switching Power	3500W	
Contact Resistance	≤ 30mΩ	Item 4.12 of IEC 61810-7
Electrical Life	1*10 ⁵	Item 4.30 of TEC 61810-7
Mechanical Life	1*10 ⁷	Item 4.31 of TEC 61810-7

CHARACTERISTICS

Insulation resistance	100MΩ min (at 500VDC)	Item 7 of IEC 60255-5
Dielectric strength	50Hz 500V	Item 6 of IEC 60255-5
	50Hz 500V	Item 6 of IEC 60255-5
Shock resistance	147m/s ²	IEC 68-2-27 Test Ea
Vibration	10-40Hz double amplitude 1.5mm	IEC 68-2-6 Test Fc
Termination	20N	IEC 68-2-21 Test Ua1
Soldering	235°C±2°C 3±0.5s	IEC 68-2-20 Test Ta method 1
Ambient Temperature	-40°C--85°C	
Relative Humidity	85% (at 40°C)	IEC 68-2-3 Test Ca
Weight	127g	

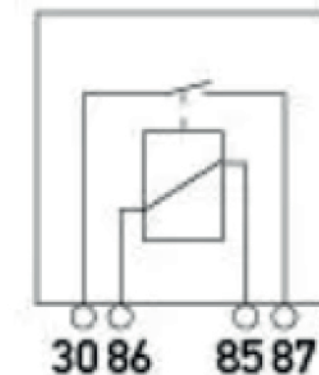
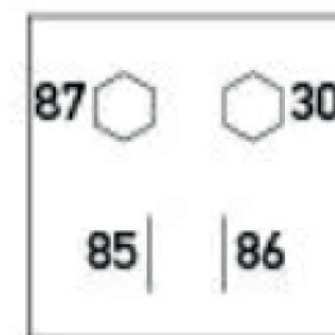
DIMENSION



Remark: In case of no tolerance shown in outline dimension: outline dimension $\leq 1\text{mm}$, tolerance should be $\pm 0.2\text{mm}$;
Outline dimension $> 1\text{mm}$ and $\leq 5\text{mm}$, tolerance should be $\pm 0.3\text{mm}$; outline dimension $> 5\text{mm}$, tolerance should be $\pm 0.4\text{mm}$.

WIRING DIAGRAM

安装孔位



KKA-E150

150A Automotive Relay

Features

- 150A switching capability at both 12VDC and 24VDC
- Able to load high voltage circuit
- 1 Form A (SPST-NO) contact arrangement
- Straight and flat installation
- Comply with RoHS, ELV Directive

Typical Application

Applicable for 150A Automotive Grade Circuit: Engine start preheating system, power management system, heating plug, front windshield heating, start/stop control, etc.



ORDERING GUIDE

	KKAE150	-012	1H	2.4		(XXX)
Type	KKAE150 - Standard type KKAE150A - Flat Install Type					
Coil Voltage	012:12VDC 024:24VDC 036:36VDC 048:48VDC 060:60VDC 072:72VDC					
Contact Form	1H:1 Form A (SPST-NO)					
Coil Power	2.4W Customization Available					
Parallel Coil Components	Nil: without parallel component L: paralleled with LED light R: parallel transient suppression resistors D1:parallel transient suppression diode, with anode connected to terminal #1 D2:parallel transient suppression diode, with anode connected to terminal #2					
Special Code	(XXX):customer special requirement Nil: Standard					

COIL DATA

Nominal voltage (VDC)	Pick-up voltage (VDC)	Drop-out voltage (VDC)	Coil resistance x (1±10%) Ω	Parallel resistance x(1+5%) Ω	Equivalent resistance x(1±10%)Ω	Power consumption (W)	允许 Max.Coil Voltage (VDC)
12	≤ 8	≥ 1	60	--	--	2.4	15
24	≤ 15	≥ 1	240	--	--	2.4	30

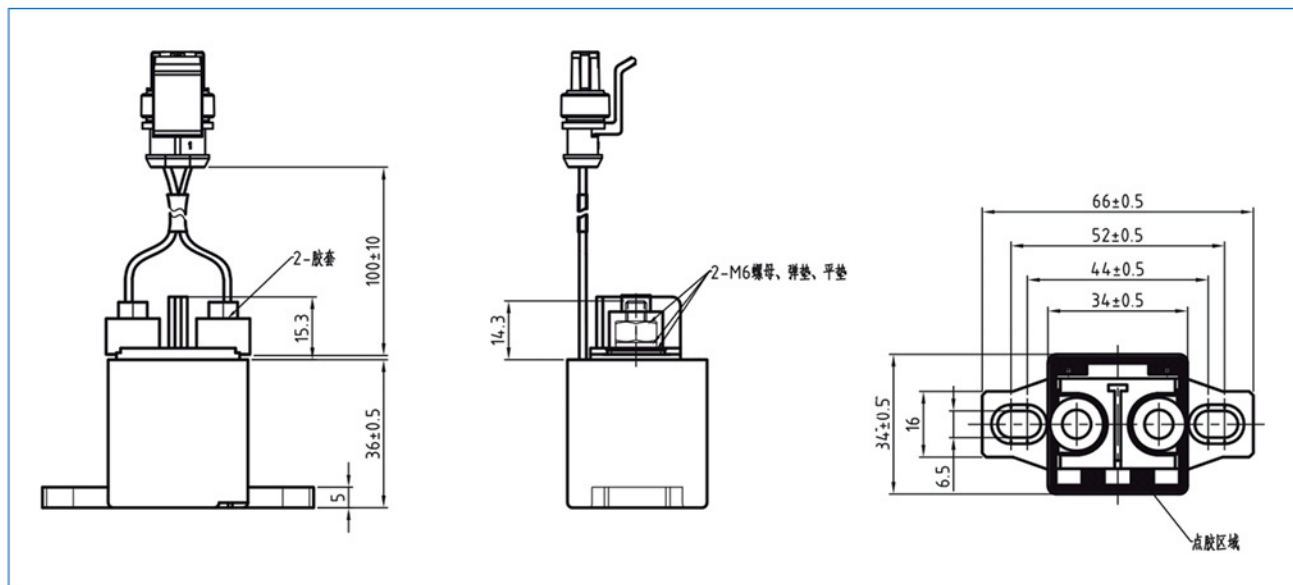
CONTACT DATA

Load voltage	Load type		Load current (A)	On/Off ratio		Electrical endurance OPS	Contact material	Ambient temp.
			NO	On S	Off S			
14VDC	Resistive	Make	150	1	4	5 × 10 ⁴	AgSnO ₂ In ₂ O ₃	23°C
		Break	150	1	4			
28VDC	Resistive	Make	100	1	4	5 × 10 ⁴	AgSnO ₂ In ₂ O ₃	23°C
		Break	100	1	4			
72VDC	Resistive	Make	50	1	4	5 × 10 ⁴	AgSnO ₂ In ₂ O ₃	23°C
		Break	50	1	4			
110VDC	Resistive	Make	30	1	4	5 × 10 ⁴	AgSnO ₂ In ₂ O ₃	23°C
		Break	30	1	4			

CHARACTERISTICS

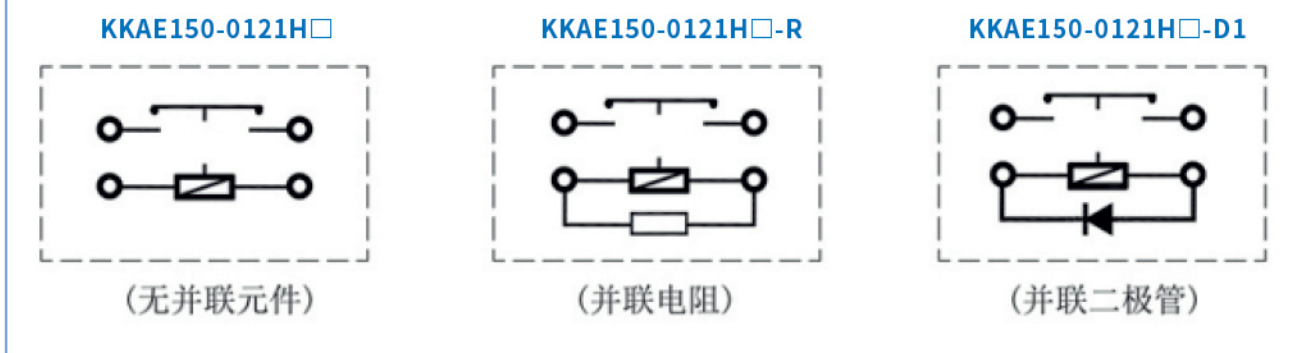
Contact arrangement	1H: SPST-NO	
Voltage drop(initial)	Typ. 160mV, Max.: 200mV(at 10A)	
Max.continuous current	150A(Resistive)	
Max.switching votlage	28VDC (Resistive)	
Min. contact load	1A 6VDC	
Electrical endurance	5×10 ⁴	
Mechanical endurance	1×10 ⁷ ops (300ops/min)	
Initial insulation resistance	20MΩ (500VDC)	
Dielectric strength	1000VAC	
Operate time	Max.50ms	
Release time	Max.50ms	
Ambient temperature	-40°C to 75°C	
Vibration resistance	10Hz ~500Hz , 5.0G	
Shock resistance	Steady work	10G
	Limit Damage	100G
torque requirement	6 ~8N·m	
Construction	Plastic sealed	

DIMENSION



Remark: In case of no tolerance shown in outline dimension: outline dimension $\leq 1\text{mm}$, tolerance should be $\pm 0.2\text{mm}$; Outline dimension $> 1\text{mm}$ and $\leq 5\text{mm}$, tolerance should be $\pm 0.3\text{mm}$; outline dimension $> 5\text{mm}$, tolerance should be $\pm 0.4\text{mm}$.

WIRING DIAGRAM



03

Electronic Relay

可定制任意功能Electronic Relay, 包括延时、闪光、雨刮、电压控制、脉冲等。



KKK-TR

Time Delay Relay

Features

- Delay time can be customized
- Delay on & delay off for option
- SPST-NO, SPDT and SPST-2NO contact arrangement

Typical Application

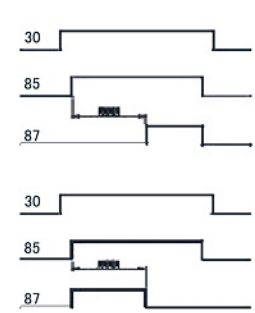
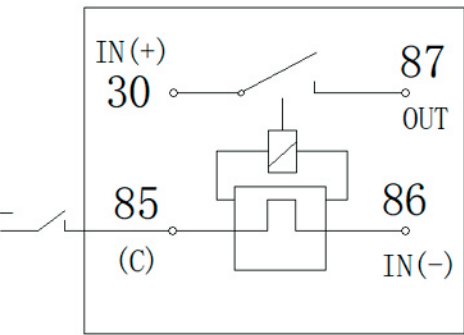
Applicable for under 40A automotive grade circuit: mainly used in delayed working scenarios such as oil pumps, car lights, radiators, and mechanical equipment.



Technical Data

Electrical Life	1 × 10 ⁵ cycles (at rated load)	Sealing	Dust-protect type, plastic sealing type
Ambient Temp.	-40°C ~ +85 °C	Housing Retention Force	Pull and press: ≥ 200N
Vibration	10Hz~50Hz, 5.0G	Terminal Retention Force	Pull and press: ≥ 100N
Shock	196m/s ²	Weight	Approx. 30g
Termination	Quick plug-in	Function	Function and delay time can be customized

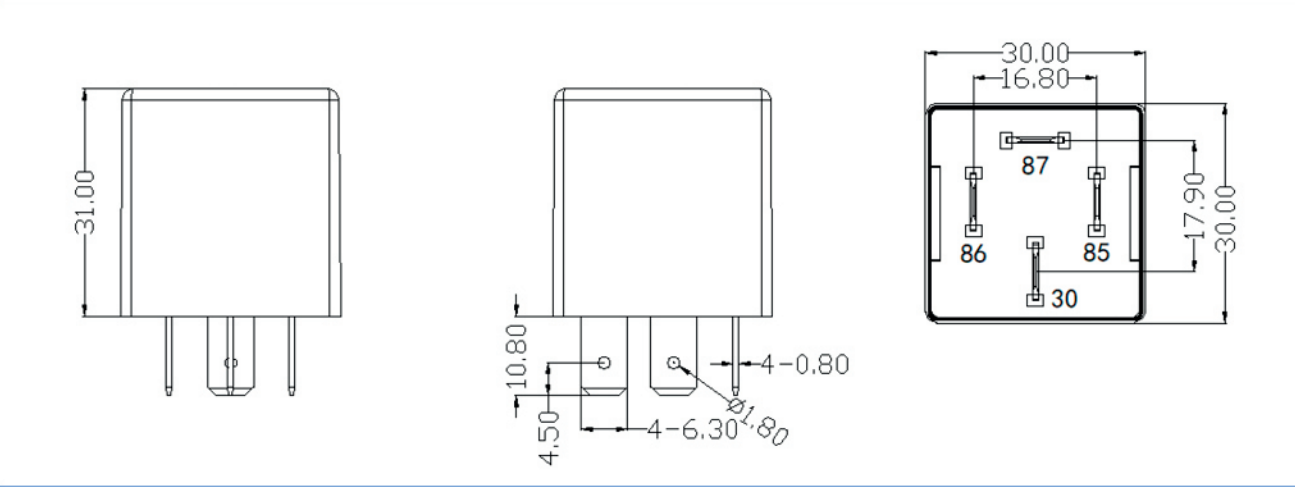
WIRING DIAGRAM



KKATR-ON
 1.30(+): positive pole of the power supply
 87(output): to load (device/equipment)
 86(-): to ground
 85(control): negative pole of the power supply
 Delay on Function: As shown in the logic diagram, when 85 pole receives the trigger signal, after the delay of a specified time, 30 and 87 are connected.

KKATR-OFF
 2.30(+): positive pole of the power supply
 87(output): to load (device/equipment)
 86(-): to ground
 85(control): negative pole of the power supply
 Delay off Function: As shown in the logic diagram, when 85 pole receives the trigger signal, 30 and 87 are disconnected. After the delay of a specified time, 30 and 87 are disconnected.

DIMENSION



ORDERING GUIDE

	KKATR-DO	-012	1H	10S	-P+E10	(XXX)
Type	KKATR-DO: Delay on type KKATR-DF: Delay off type					
Coil Voltage	012:12VDC 024:24VDC					
Contact Form	1H:1 Form A (SPST-NO) 1Z:1 Form C (SPDT) 1D: 1 Form 2A					
Delay Time	1S: 1-60 seconds 1M:1-60 minutes 1H: 1-60 hours (as customized)					
Trigger Pole	P+: positive trigger N-: negative trigger					
Special Code	(XXX):customer special requirement (VP): high voltage protection (WP): wrong wiring protection					

KKK-CF13 & 14

LED 3pins Square Flasher Relay

Features

- applicable for both LED and normal bulb
- adjustable and standard type for option
- different wiring direction for option
- Voltage, power, flashing frequency, shell can be customized

Typical Application

Applicable for LED and normal bulb flashing control: including but not only car brake light, turning light, hazard warning light, etc.



ORDERING GUIDE

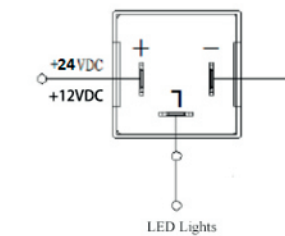
	KKACF13-KT	-012	A	(XXX)
Type	KKACF13 - Standard Type KKACF14 - Right + Standard Type KKACF13-KT - Adjustable Type KKACF14-KT - Right + Adjustable Type			
Coil Voltage	012:12VDC 024:24VDC			
Rated Load	A:120W B:150W C:240W (customization available)			
Hazard Warning	Nil: Standard type, no hazard warning function Q: with hazard warning function			
Special Code	(XXX):customer special requirement			

TECHNICAL DATA

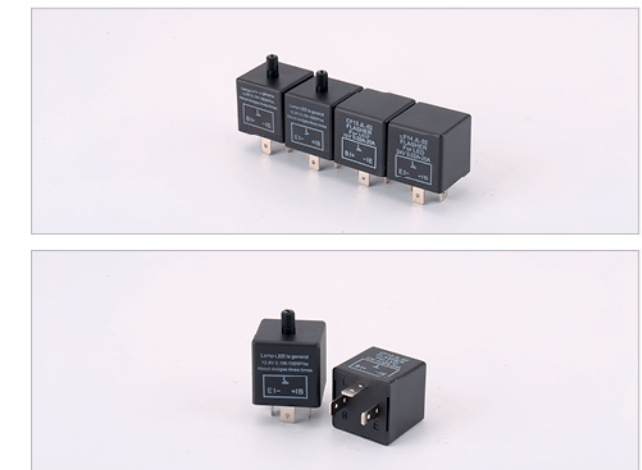
Rated Voltage	12VDC
Rated Current	10A
Working Voltage	11VDC ~ 15VDC
Switching Power	0.1W ~ 150W (0.02A ~ 20A)
Rated Power	120W
Max. Power	150W
Flashing Frequency	85 cycles/min
Ratio Rate	30% ~ 70%
Working temperature	-40°C ~ +80°C
Electrical Life	400 working hours
Weight	24g

Rated Voltage	12VDC
Rated Current	10A
Working Voltage	11VDC ~ 15VDC
Switching Power	0.1W ~ 150W (0.02A ~ 20A)
Rated Power	120W
Max. Power	150W
Flashing Frequency	60~120 cycles/min
Ratio Rate	30% ~ 70%
Working temperature	-40°C ~ +80°C
Electrical Life	400 working hours
Weight	24g

WIRING DIAGRAM

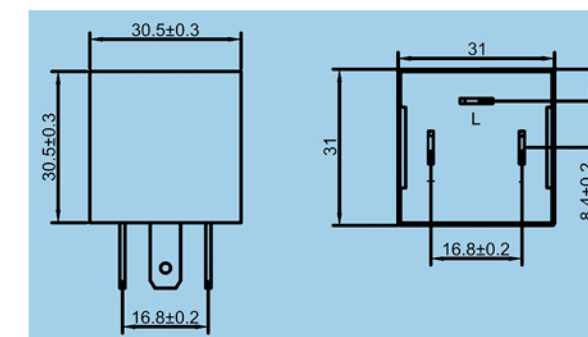


B(+): to positive pole of power supply
E(-): to negative pole of power supply
L: to light

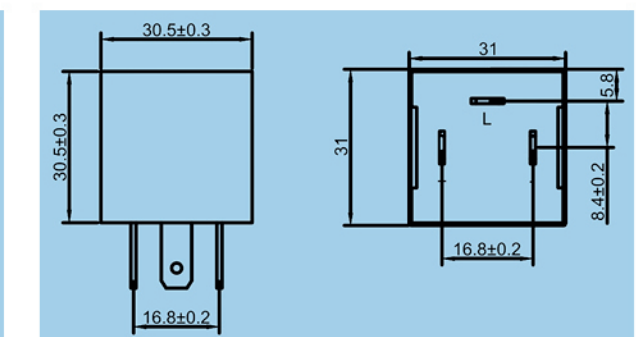


DIMENSION

CF13&CF14



CF13-KT&CF14-KT



KKK-LF2

2 Pin LED Flasher Relay

Features

- applicable for both LED and normal bulb
- adjustable and standard type for option
- widely used for motorcycle turning light
- Voltage, power, flashing frequency, shell can be customized

Typical Application

Applicable for LED and normal bulb flashing control: including but not only motorcycle brake light, turning light, hazard warning light, etc.

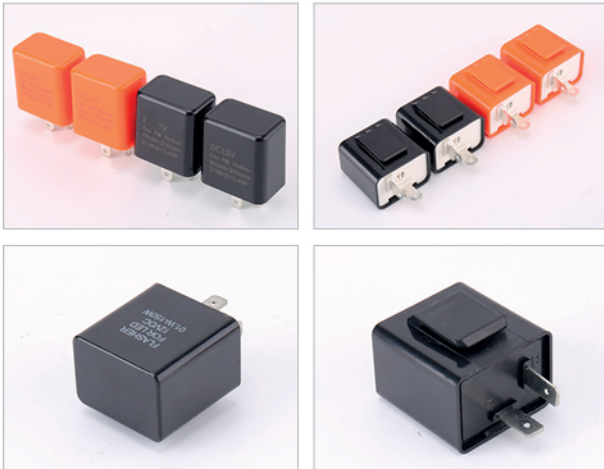
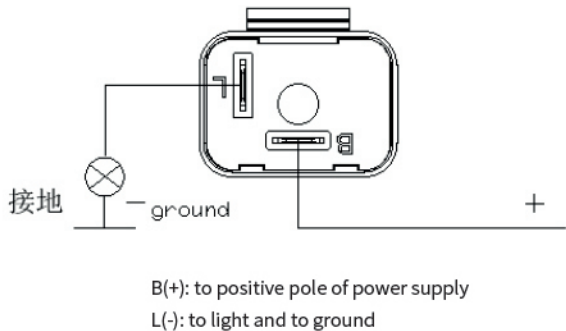


TECHNICAL DATA

Rated Voltage	12VDC
Rated Current	10A
Working Voltage	11VDC ~ 15VDC
Switching Power	0.1W ~ 150W (0.02A ~ 20A)
Rated Power	120W
Max. Power	150W
Flashing Frequency	85 cycles/min
Ratio Rate	30% ~ 70%
Working temperature	-40°C ~ +80°C
Electrical Life	400 working hours
Weight	24g

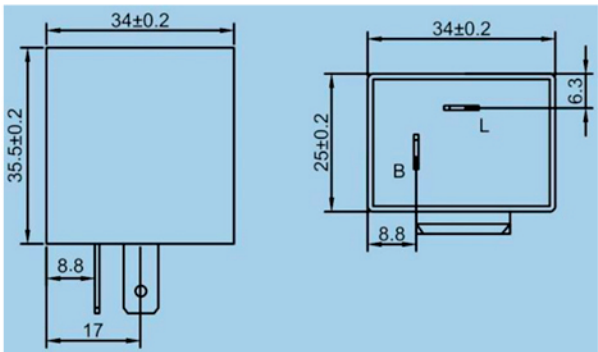
Rated Voltage	12VDC
Rated Current	10A
Working Voltage	11VDC ~ 15VDC
Switching Power	0.1W ~ 150W (0.02A ~ 20A)
Rated Power	120W
Max. Power	150W
Flashing Frequency	65~130 cycles/min
Ratio Rate	30% ~ 70%
Working temperature	-40°C ~ +80°C
Electrical Life	400 working hours
Weight	24g

WIRING DIAGRAM

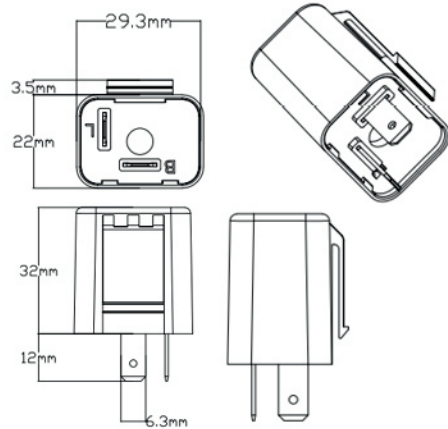


DIMENSION

LF2



LF2-KT



ORDERING GUIDE

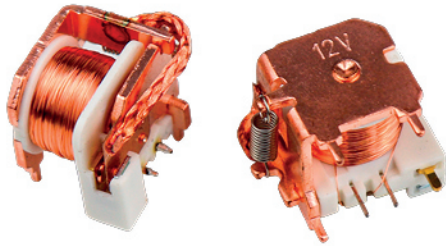
Type	KKALF2	-012	A	(XXX)
Coil Voltage	012:12VDC 024:24VDC			
Rated Load	A:120W B:150W C:240W (customization available)			
Special Code	(XXX):customer special requirement			

KKK-4119

40A Universal PCB Relay

Features

- 40A contact switching capability
- 1 Form A and 1 Form C contact form
- high quality materials and automation line production
- US standard and EU types for option



Typical Application

Widely used in PCB for controlling various electrical equipment, mainly used for auto electronics

ORDERING GUIDE

	KKA4119E	-012	1H	B	(XXX)
Type	KKA4119U - US standard type KKA4119E - EU standard type				
Coil Voltage	06:6VDC 012:12VDC 024:24VDC				
Contact Form	1H: 6P SPST-NO type 1Z: 7P SPDT type				
Coil Power	B: Standard type L: Sensitive Type				
Special Code	(XXX):customer special requirement				



COIL DATA

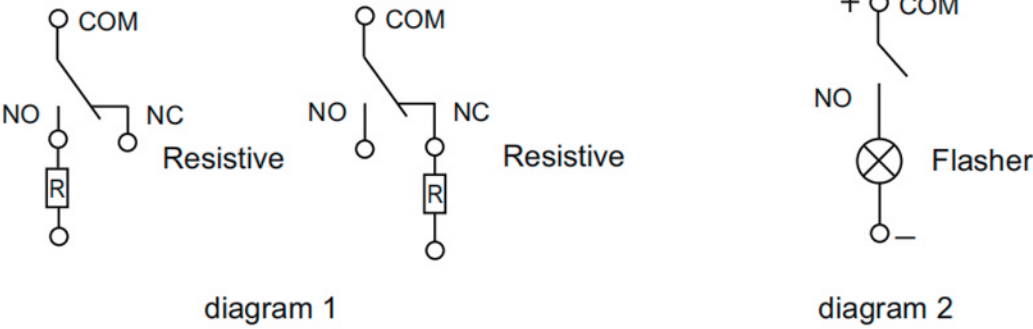
	Standard Type			Sensitive Type		
Power(W)	1.9	1.6	1.6	1.2	1.2	1.2
Rated Voltage (VDC)	6	12	24	6	12	24
Coil Resistance(Ω±10%)	19	60	360	30	120	480
Operate Voltage(Max.)	60% rated voltage			75% rated voltage		
Release Voltage (Min.)	10% rated voltage					
Allowable Max. Voltage	150% rated voltage					

CONTACT DATA

Contact Load	Load Type		Contact Load Current (A)			Ratio Rate		Electrical Life	Contact Material	Wiring Diagram ⁽²⁾
			1Z		1H	On(s)	Off(s)			
			NO	NC	NO					
13.5VDC	Resistive	on	45	30	45	1.5	1.5	1×105 次	AgSnO2	See diagram1
		off	45	30	45					
	Flash light ⁽¹⁾		2×21W+5W	-	2×21W+5W	0.375	0.375	1000h	Special AgSnO2	See diagram2
			4×21W+2×5W	-	4×21W+2×5W	0.375	0.375	360h		

Remark: (1) when it is utilized in flasher, a special AgSnO2 contact material should be used and the customer special code should be (170) as a suffix. Please connect by the polarity according to the diagram below.

(2)The load wiring diagrams are listed below:

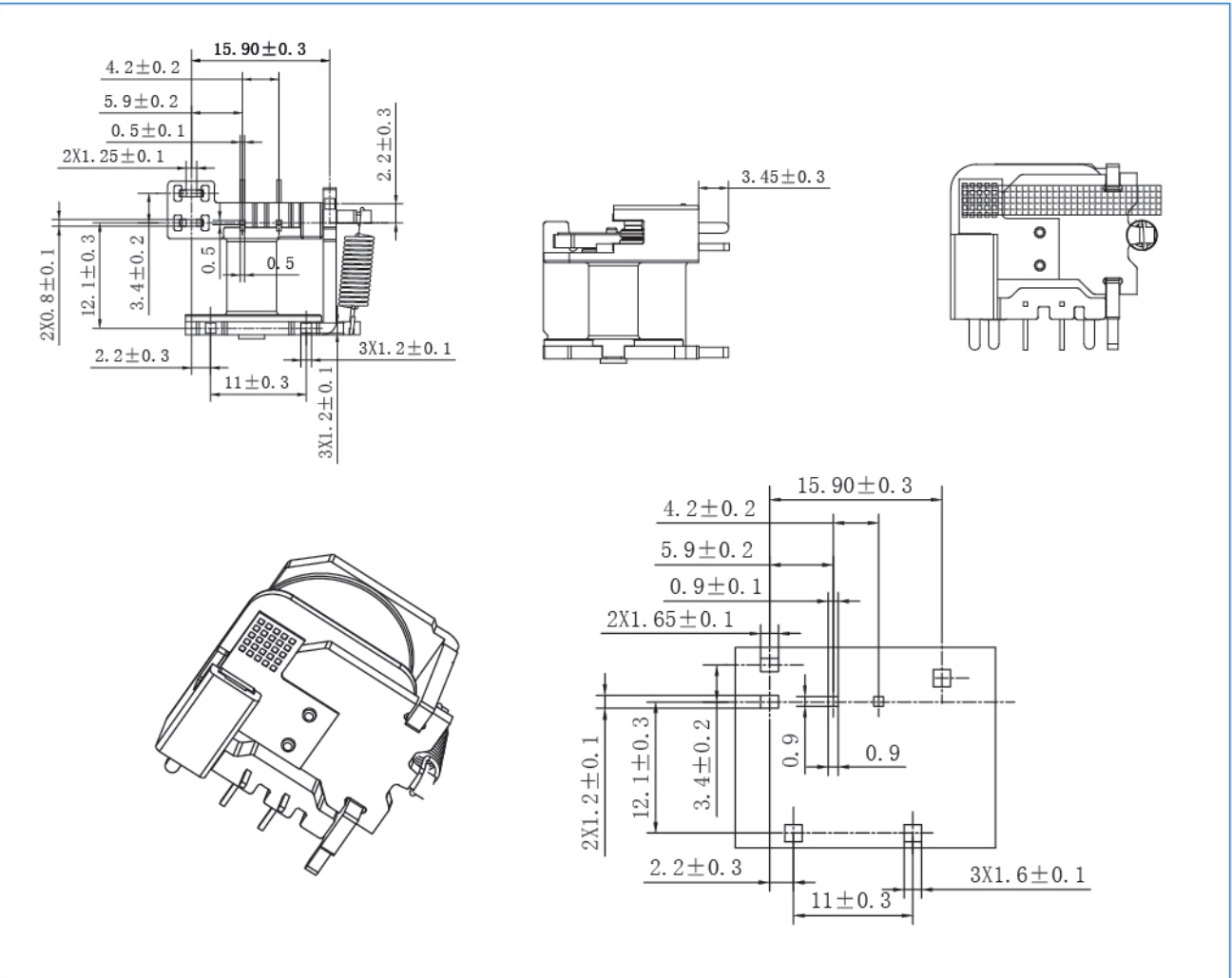


(3)When the load voltage is at 24VDC or higher, or the applications conditions are different from the table above, please submit the detailed application conditions to KKA to get more support.

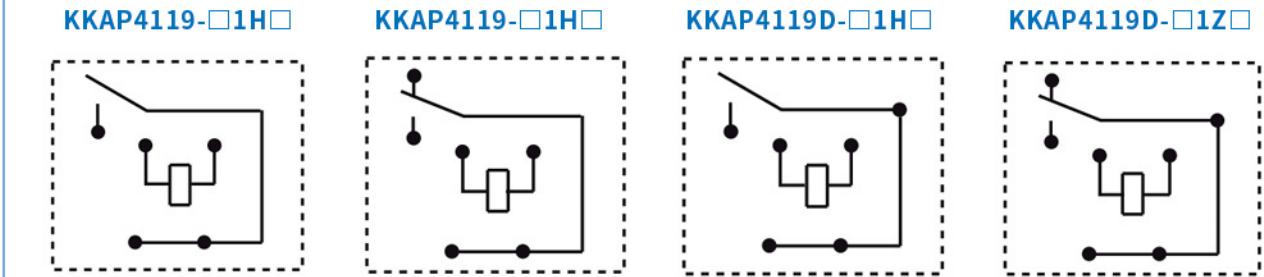
CHARACTERISTICS

Insulation Level	B/F
Insulation Resistance	100MΩ (500VDC)
Voltage Standing	500VAC 1 分钟
Operate time	≤ 10ms
Release time	≤ 10ms
Humidity	5% ~ 85% RH
Ambient Temperature	-40°C ~ +125°C
Vibration	10~40Hz 1.27mm double amplitude40~70Hz 49m/s ₂
	70~100Hz 0.5mm double amplitude100~500Hz 98m/s ₂
Shock	98m/s ₂
Weight	约 19g

DIMENSION

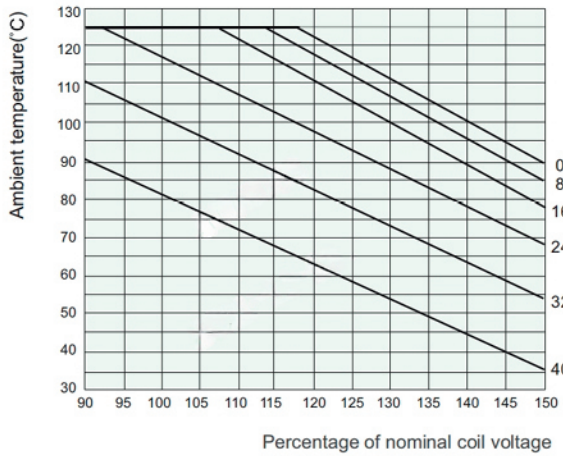


WIRING DIAGRAM



CHARACTERISTICS CURVES

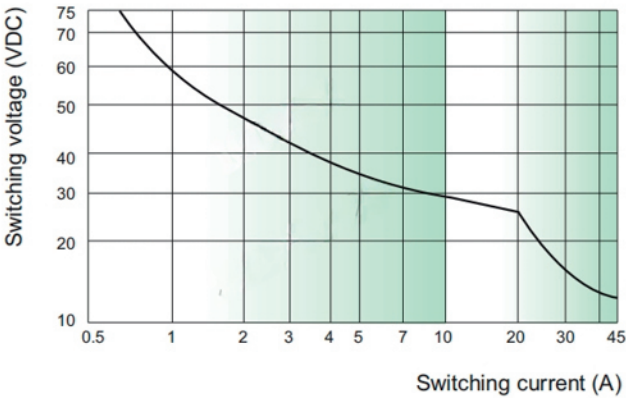
1. Coil operating voltage range



Note:

- (1) The maximum allowable coil temperature is 180°C. Considering that the coil temperature rise measured by the resistance method is an average value, it is recommended that the coil temperature should be less than 170°C when measured under different operating environments, different coil voltages, and different load conditions.
- (2) When the actual working voltage of the coil exceeds the specified range of the curve, please contact KKA and provide detailed operating conditions.

2. Load limit curve (at 23°C)



Note:

- (1) This figure takes the normally open contact as an example, and the current in this figure is resistive.
- (2) The product is subjected to load and durability tests according to the contact parameter table. If any of the actual load voltage, current, operating frequency, and ambient temperature is different from the contact parameter table, please re-confirm the test.