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	$1x10^8$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℃ to 125℃
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.37g
Mechanical data[8)]	housing retention (pull &push):200N min. terminal retention(pull &push):100N min. Terminal resisitance 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°℃

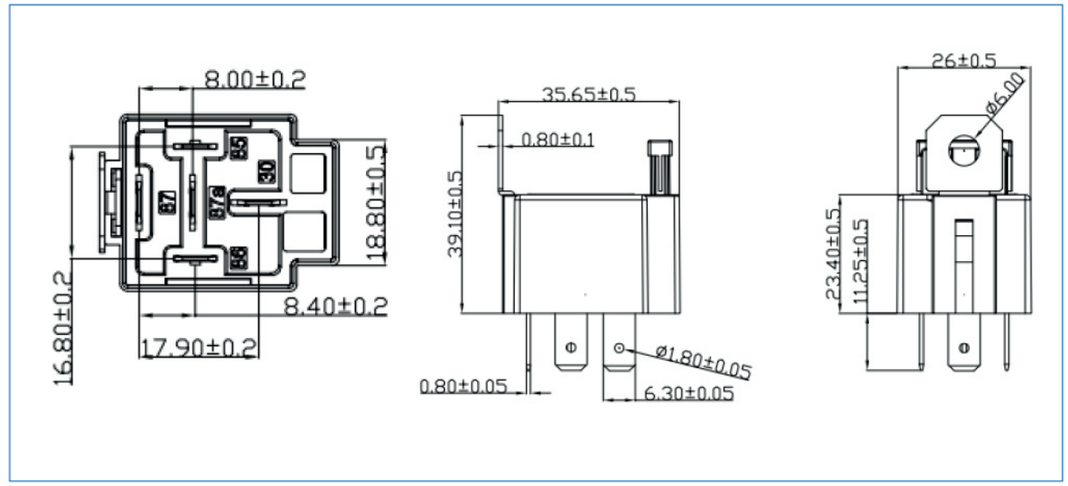
Nominal voltage VDC	Pick-up voltage VDC max.	Drop-out voltage VDC min.	Coil resistance x(1±10%)Ω	Parallel Resistance[2)] x(1±5%)Ω	Equivalent resistance Ω	Power consumption W	Max.allowable overdrive voltage[1)] VDC	
							at 23℃	at 85℃
12	7.2	1.2	90			1.6	20.2	15.7
12	7.2	1.2	90	680	79.5	1.8	20.2	15.7
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) 1C NO	1C NC	1A	On/Off ratio OnS	OffS	Electrical Endurance OPS	Contact Material	Ambient temp
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					

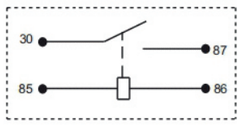
DIMENSION



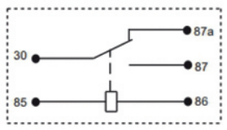
Remark: In case of no tolerance shown in outline dimension: outline dimension≤1mm, tolerance should be ±0.2mm;
Outline dimension＞1mm and≤5mm, tolerance should be ±0.3mm; outline dimension＞5mm, tolerance should be ±0.4mm.

WIRING DIAGRAM

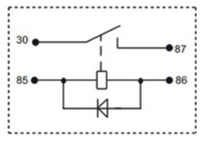
KKAA4F-□1H□-□



KKAA4F-□1Z□-□



KKAA4F-□1H□-D1



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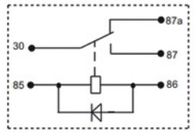
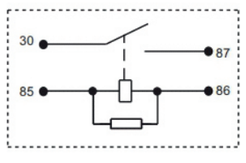
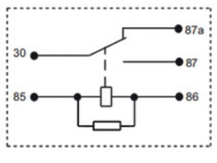


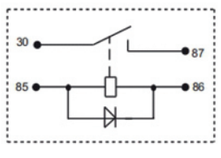
KKAA4F-□1H□-R



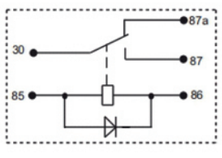
KKAA4F-□1Z□-R



KKAA4F-□1H□-D2

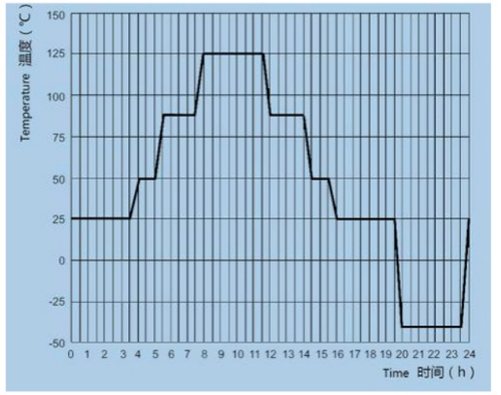


KKAA4F-□1Z□-D2



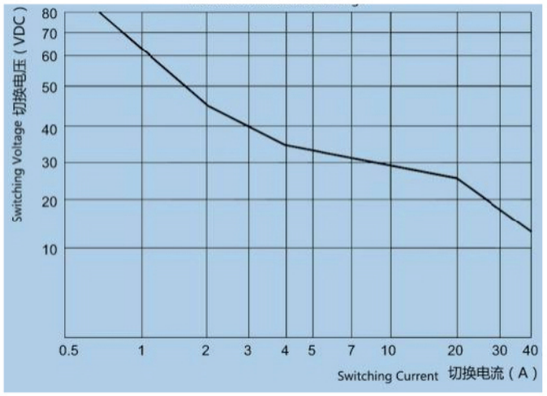
CHARACTERISTICS CURVES

Characteristics Curves



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

2.Load limit curve (at 23℃)



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.