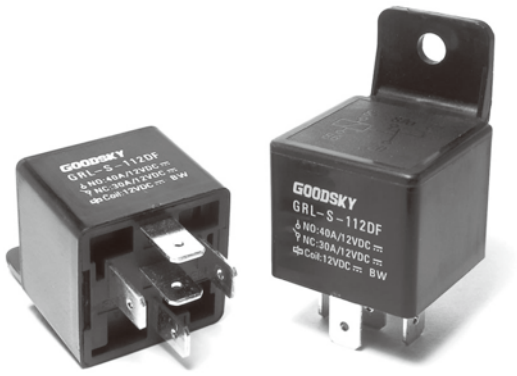


MAIN FEATURE

1. New 54A version with Class F insulation.
2. 40A switching use relay at ambient temperature of 80°C.
3. Compatible plug-in terminal available.
4. Metal or plastic bracket selection.
5. Standard type contact form SPDT and DPST available for customer's selection.
6. Operating ambient temperature range covers from -40°C to +125°C.
7. Comply with RoHS, REACH and ELV regulations.

CONTACT RATING

Load Type	GRL (DM/DB)	GRL (D)	GRL-2P (DM)	GRL (DM1F)
Rated Load (Resistive)	N.O.: 40A 12VDC	N.O.: 40A 12VDC	40A(20A×2) 12VDC	54A 30VDC
	N.C.: 30A 12VDC	N.C.: 30A 12VDC		
Rated Carrying Current	40A	40A	40A(20A×2)	54A
Max. Allowable Voltage	30VDC	30VDC	30VDC	30VDC
Max. Allowable Current	40A	40A	40A(20A×2)	54A
Max. Allowable Power Force	480W	480W	240W	1620W
Contact Material	Ag Alloy	Ag Alloy	Ag Alloy	Ag Alloy
Contact Form	SPST	SPDT	DPST	SPST

APPLICATION

Engine Cooling Fan Control, Air-Conditioning Control, Fuel Pump control, Lighting Control, Electric vehicle, PV energy generation system, IT power storage control.

PERFORMANCE (AT INITIAL VALUE)

- Contact Resistance ..... 100 mΩ Max.@1A,6VDC
- Operate Time..... 10 mSec. Max.
  20 mSec. Max. (DM1F)
- Release Time ..... 10 mSec. Max.
- Dielectric Strength:
  Between Coil & Contact..... 1,000VAC at 50/60 Hz for one minute
  1,600VAC at 50/60 Hz for one minute (DM1F)
  Between Contacts ..... 500VAC at 50/60 Hz for one minute
  2,000VAC at 50/60 Hz for one minute (DM1F)
- Insulation Resistance ..... 100 MegaΩ Min. at 500VDC
- Max. On/Off Switching:
  Electrical..... 6 Cycles per Minute
  Mechanical ..... 300 Cycles per Minute
- Temperature Range ..... -40～+125°C
  -40～+85°C (DM1F)
- Humidity Range ..... 45～80% RH.
- Coil Temperature Rise ..... 60°C Max.
- Vibration:
  Endurance ..... 10 to 55 Hz dual amplitude width 2 mm
  Error Operation ..... 10 to 55 Hz dual amplitude width 2 mm
- Shock:
  Endurance ..... 1,000 m/S^2
  Error Operation ..... 50 m/S^2
- Life Expectancy:
  Mechanical ..... 10^7 Operations at No Load condition
  Electrical ..... 10^5 Operations at Rated Resistive Load
  Electrical (DM1F) ..... $6*10^3$ Operations (UL)
  $1*10^4$ Operations (TUV)
- Weight..... About 36.5g
  About 35g (DM1F)

ACCESSORIES & SOCKETS

- UC3003 ..... See Page 174
- CS3770 ..... See Page 174
- UC3001 ..... See Page 174

SAFETY STANDARD & FILE NUMBER

- UL & C-UL ..... E141060 (only DM1F)
- TUV..... R50406275 (only DM1F)

COIL SPECIFICATION (AT 20°C)

Coil Sensitivity	Nominal Voltage (VDC)	Nominal Current (mA)	Coil Resistance (Ω±10%)	Power Consumption (W)	Pull-In Voltage (VDC)	Drop-Out Voltage (VDC)	Maximum Allowable Voltage (VDC)
GRL	12	150	80	Abt. 1.8	75% Maximum	5% Minimum	150% (for short time carrying current)
	24	75	320				
GRL DM1F	12	100	120	Abt. 1.2	80% Maximum	5% Minimum	150% (for short time carrying current)
	24	50	480				

ORDERING INFORMATION

GRL - S - 1 12 D M H R1

Options:
Nil: Standard
R1: Coil parallel with 1/2W Resistor
680Ω for Coil Voltage 12VDC
2700Ω for Coil Voltage 24VDC
D1: Coil parallel with diode & the Positive pole "+" on #85 Terminal
D2: Coil parallel with diode & the Negative pole "-" on #85 Terminal
1F: 54A/30VDC with Class F insulation (Form A only)

Bracket:
Nil: No Bracket Standard
H: Dust Cover with Metal Bracket
F: Plastic Bracket Cover

Contact Form:
Nil: One Form C
M: One Form A
B: One Form B

Coil Type:
D: Standard DC

Coil Voltage:
12: 12V, **24:** 24V

Number of Pole:
1: One Pole
2: Two Poles (Form A only)

Type of Sealing:
S: RT I Dust Protected
SS: RT II Fluxed Proofed (only DM1F)
SH: RT III Wash Tight (only DM1F)

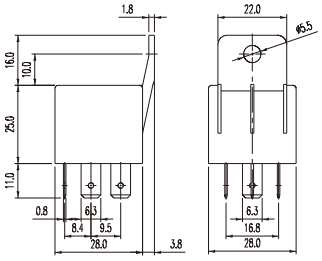
Type:
GRL

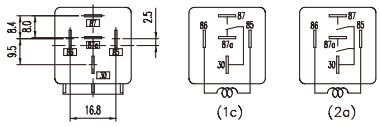
CLASSIFICATION

Model	GRL				
Number of Pole	1 Pole			2 Poles	1 Pole
Contact Form	1C	1A	1B	2A	1A
No Bracket Standard	GRL-S-1□□D	GRL-S-1□□DM	GRL-S-1□□DB	GRL-S-2□□DM	GRL-S/SS/SH-1□□DM1F
Dust Cover Metal Bracket	GRL-S-1□□DH	GRL-S-1□□DMH	GRL-S-1□□DBH	GRL-S-2□□DMH	GRL-S/SS/SH-1□□DMH1F
Plastic Bracket Cover	GRL-S-1□□DF	GRL-S-1□□DMF	GRL-S-1□□DBF	GRL-S-2□□DMF	GRL-S/SS/SH-1□□DMF1F
Coil Additional Parts	Please add your choice Coil Parallel "R1"," D1"," D2" at the back of all above-mentioned part number.				N/A

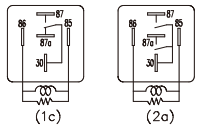
DIMENSION (≤ 5mm ± 0.2mm, > 5mm ± 0.3mm, the tolerance of PCB thru hole: +0.1mm)

GRL-S-F

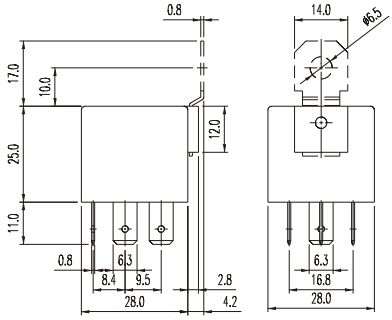




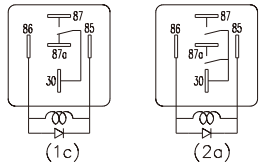
″R1″ Type



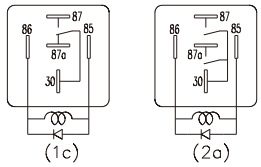
GRL-S
GRL-S-H



″D1″ Type

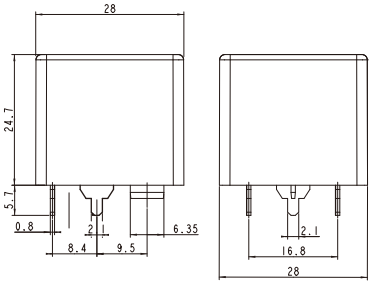


″D2″ Type

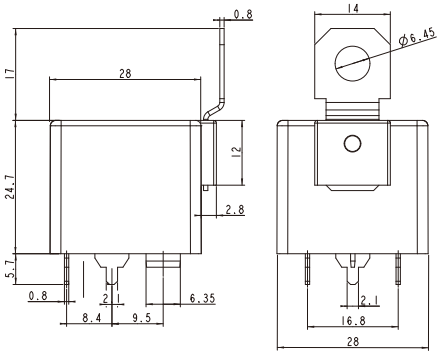


GRL-DM1F

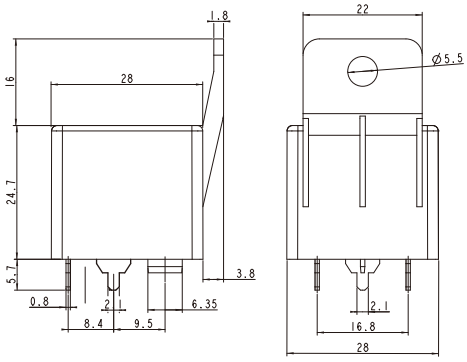
No Bracket Standard



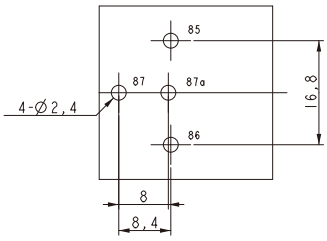
Dust Cover with Metal Bracket



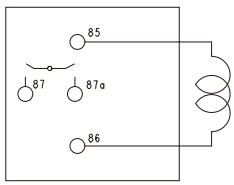
Plastic Bracket Cover



P.C.B Layout (Bottom View)



Wiring Diagram (Bottom View)



*For RT III, there shall not be the slot hole of the plastic support on PCB layout.