



AUTOMOTIVE RELAY ETR GRL SERIES

■ FEATURES

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

■ SAFETY STANDARD

UL&CUL E141060 UL 508 (only DM1F)

Model	Load (AgSnO2In contact)	Cycles
GRL	NO:	
DM1F	54A, 30Vdc, 85°C, L/R=0	6K

TUV R02057813 IEC61810-1 (only DM1F)

Model	Load (AgSnO2In contact)	Cycles
GRL	NO:	
DM1F	54A, 30Vdc, 85°C, L/R=0	10K

NIL

Model	Load(AgSnO2 contact)	Cycles
GRL-1P	NO: 40A, 12Vdc, 40°C, L/R=0 NC: 30A, 12Vdc, 40°C, L/R=0	100K 100K
GRL-2P (DM)	NO: 40A(20Ax2), 12Vdc, 40°C, L/R=0	100K

■ SPECIFICATIONS(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 50/60Hz for one minute Between Coil & Contact: 1,600VAC at 50/60Hz for one minute (DM1F) Between Contacts: 500VAC at 50/60Hz for one minute Between Contacts: 2,000VAC at 50/60Hz for one minute (DM1F)
Insulation Resistance	100MΩ Min. at 500VDC
Max. On/OFF Switching	Electrical: 6 cycles per Minute Mechanical: 300 cycles per Minute
Temperature Range	-40°C~+125°C -40°C~+85°C (DM1F)
Humidity Range	45~85%RH
Coil Temperature Range	60°C Max.
Vibration	Destruction: 10 to 55 to 10 Hz, 1 mm single amplitude(2 mm double amplitude) Malfunction: 10 to 55 to 10 Hz, 1 mm single amplitude(2 mm double amplitude)
Shock	Destruction: 1,000 m/s ² Malfunction: 50 m/s ²
Mechanical Life	10 ⁷ operations at no load condition.
Weight	About 36.5g About 35g (DM1F)



■ COIL SPECIFICATION AT 20°C

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

■ PART NUMBER SYSTEM

ETR - GRL - S - 1 12 D M H R1 Z

Z: RoHS Compliant

Options

Nil: Standard

R1: Coil parallel with 1/2W resistor

680 Ω for Coil Voltage 12VDC

2700 Ω 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

Coil Voltage

12: 12V, 24: 24V

Number of Pole

1: One Pole

2: Two Poles (Form A only)

Type of Sealing

S: Dust Cover Type

SS: Flux Proofed Type (Only DM1F)

SH: Plastic Sealed Type (Only DM1F)

Model Name: GRL

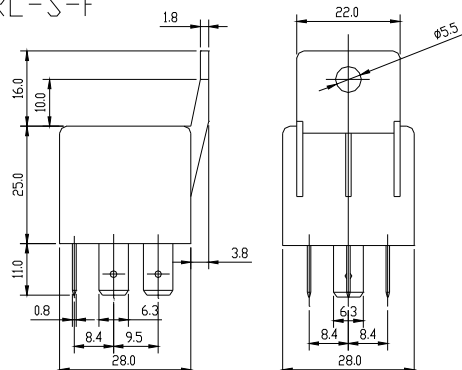
Series Name: ETR



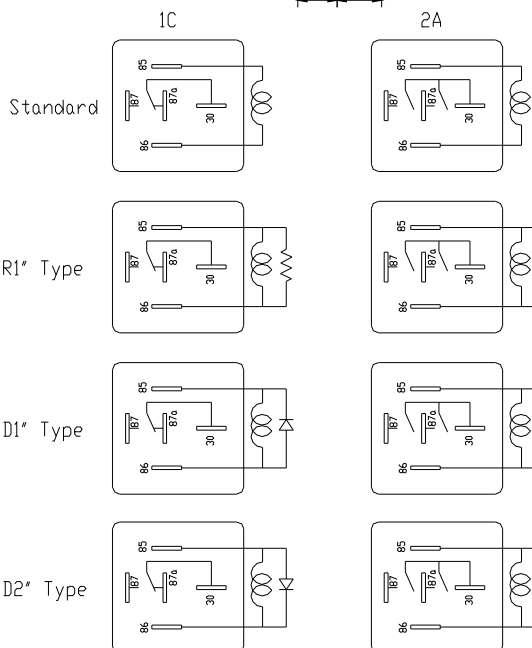
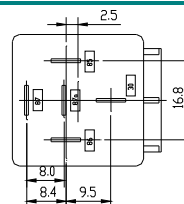
*Marking without: "ETR" & "Z".

DIMENSIONS ($\leq 5\text{mm} \pm 0.2\text{mm}$, $> 5\text{mm} \pm 0.3\text{mm}$, the tolerance of PCB thru hole: $+0.1\text{mm}$)

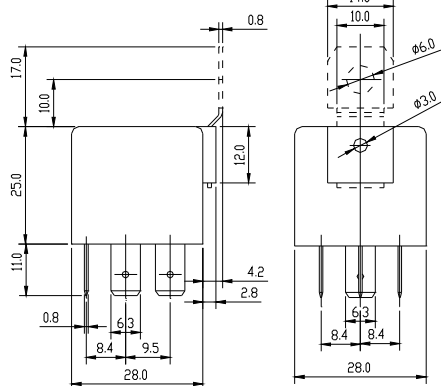
GRL-S-F



P.C.B LAYOUT
Bottom View



GRL-S / GRL-S-H

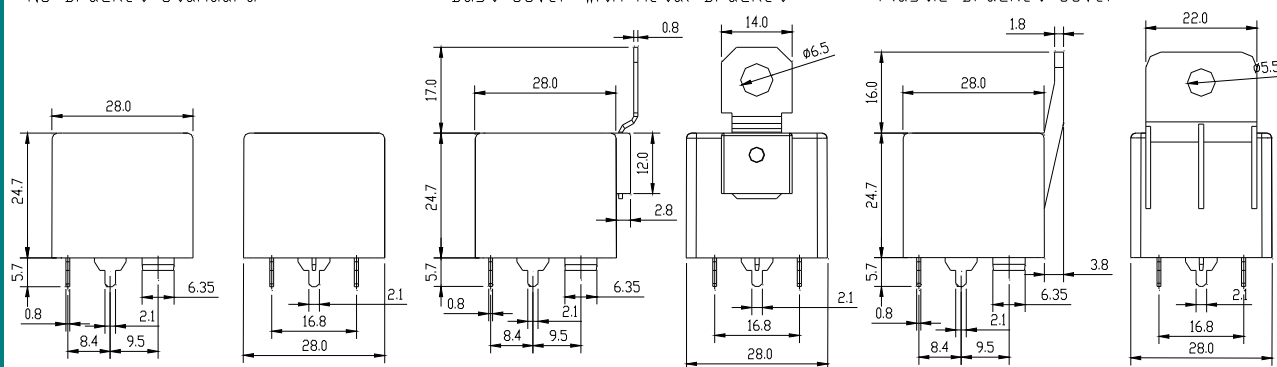


GRL-DM1F

No Bracket Standard

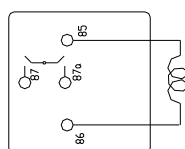
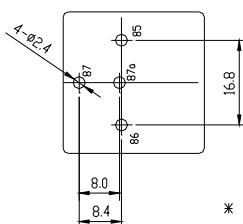
Dust Cover with Metal Bracket

Plastic Bracket Cover



P.C.B Layout (Bottom View)

Wiring Diagram (Bottom View)



* For RT III, There shall not be the slot holt of the plastic support on PCB layout