



MAIN FEATURE

1. European and American footprints offer different market selections.
2. Washable type, flux-proofed type, unclosed type available for different customer's requirement.
3. FE130 material applied to strengthen the contact in order to carry the high current load.
4. Comply with RoHS, REACH and ELV regulations.

CONTACT RATING

Item no.	2331540	2331541
Load Type	CAR-SH-112DE	CAR-SH-124DE
Relay type (category)	Automotive relay	Automotive relay
Additional product specs	SPDT	SPDT
Coil nominal Voltage	12 V DC	24 V DC
Contact material	Ag-alloy	Ag-alloy
Contact type	1 change-over	1 change-over
Durability	1 x 10 ⁷ switching operations	1 x 10 ⁷ switching operations
Electrical lifespan	1 x 10 ⁵ cycles	1 x 10 ⁵ cycles
Max. pick-up voltage	1.2 VDC	16.8 VDC
Max. temperature	85 °C	85 °C
Min. pick-up voltage	0.6 VDC	8.4 VDC
Min. temperature	-40°C	-40°C
NC switching current (max.)	30 A	30 A
NO switching current (max.)	40 A	40 A
Packaging type (components)	Tray	Tray
Product size (height)	20.5mm	20.5mm
Product size (length)	26.2mm	26.2mm
Product size (width)	21.1mm	21.1mm
Product type	PCB relay	PCB relay
Relay features	Washable	Washable
Resistance (coil)	90 Ω	362 Ω
RoHS-compliant	Yes	Yes
Switching capacity (max.)	NO:480W	NO:480W
	NC:360W	NC:360W
Switching current (max.)	NO:40A	NO:40A
	NC:30A	NC:30A
Switching voltage (max.)	60 V DC	60 V DC

APPLICATION

Seat Adjustment, Audio System, Air Conditioning Control, Fuel Pump Control, Lighting Control, Central Door Lock Control, Power Window Control, Sunroof Control

PERFORMANCE (AT INITIAL VALUE)

- Contact Resistance 100mΩ Max.@1A,6VDC
- Operate Time 10 mSec. Max.
- Release Time 10 mSec. Max.
- Insulation Resistance 100 MegaΩ Min. at 500VDC
- Dielectric Strength:
 - Between Coil & Contact 1,200VAC at 50 Hz for one minute
 - Between Contacts 750VAC at 50 Hz for one minute
- Max. On/Off Switching:
 - Electrical 6 Cycles per Minute
 - Mechanical 300 Cycles per Minute

- Humidity Range 95% at 20°C
- Temperature Range -40~+85°C
- Vibration:
 - Destruction 10 to 55 to 10 Hz,0.75 mm single amplitude (1.5mm double amplitude)
 - Malfunction 10 to 55 to 10 Hz,0.75 mm single amplitude (1.5mm double amplitude)
- Shock:
 - Destruction 1,000 m/S²
 - Malfunction 100 m/S²
- Life Expectancy:
 - Mechanical 10⁷ Operations at No Load condition
 - Electrical 10⁵ Operations at Rated Resistive Load
- Weight About 20.2g

SAFETY STANDARD & FILE NUMBER

- NIL

COIL SPECIFICATION (AT 20°C)

Coil Sensitivity (Europe)	Nominal Voltage (VDC)	Nominal Current (mA)	Coil Resistance ($\Omega \pm 10\%$)	Power Consumption (W)	Pull-In Voltage (VDC)	Drop-Out Voltage (VDC)	Maximum Allowable Voltage (VDC)
CAR-SH-112DE	12	133.3	90	Abt. 1.59	70% Maximum	5% Minimum	160%
CAR-SH-124DE	24	66.2	362				

FURTHER COILS FOR MOTOR VEHICLE APPLICATIONS ON REQUEST.

The operating voltage limits U_{min} and U_{max} depend on temperature in accordance with the following formula:

$U_{min\ tu} = K_I \times U_{min\ 20^\circ C}$ and $U_{max\ tu} = K_U \times U_{max\ 20^\circ C}$

t_u = ambient temperature

$U_{min\ tu}$ = minimum voltage at ambient temperature t_u

$U_{max\ tu}$ = maximum voltage at ambient temperature t_u

K_I and K_U = factors

t_u	-40°C	-30°C	-20°C	-10°C	0°C	10°C	20°C	30°C	40°C	50°C	60°C	70°C	80°C	85°C
K_I	0.764	0.804	0.843	0.882	0.921	0.961	1.000	1.039	1.079	1.118	1.157	1.197	1.236	1.255
K_U	1.081	1.069	1.056	1.043	1.029	1.014	1.000	0.985	0.969	0.953	0.935	0.917	0.897	0.887

CONTACT RATING

CAR - SS - 1 12 D E

Terminal Size: E: Europe Version

Contact Form: Nil: One Form C

Coil Sensitivity: D: Standard DC

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

Number of Pole: 1: One Pole

Type of Sealing: SH: RT III Wash Tight

Type: CAR

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

EUROPE

