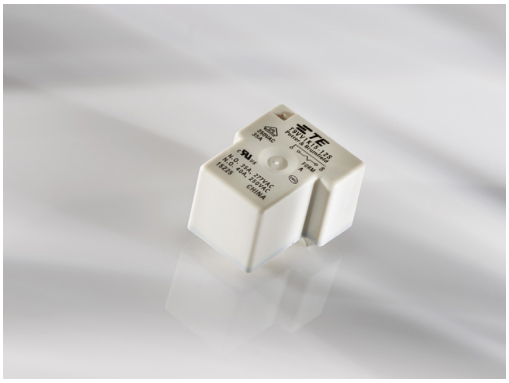
Power PCB Relay T9V OBC

- **1 pole 40A, 1 form A (NO) contact**
- **Contact gap >1.5mm/1.8mm**
- **350mW hold power[1)]**
- **Ambient temperature up to 85°C at 35A, 105°C at 32A**
- **The appliance is able to meet VDE V 0126-1-1**
- **Product in accordance to IEC 60335-1**
- **EN61095: AC7a at 85°C**
- **160A inrush current version available**



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Typical applications
On board charger
Electrical vehicle loading stations
Electrical vehicle
Photovoltaic inverter

Approvals

VDE 40030974, UL E58304, CQC16002145203, TUV R50369970
Technical data of approved types on request

Contact Data

Contact arrangement	1 form A (NO)
Contact gap	1.5mm/1.8mm
Rated voltage	250VCA/30VDC
Rated current	40A[2)]
Breaking capacity max.	10 000 VA
Contact material	Ag Alloy
Initial contact resistance	75mΩ max. at 1A 6VDC or 3mΩ max. at 40A
Frequency of operation, with/without load	6/300min^{-1}
Operate/release time max., incl bounce time	18/15ms

Contact ratings[3)]

Type	Contact	Load	Cycles
IEC 61810			
T9VV1K15-12S	A (NO)	35A, 250VAC, cosφ=1, 85°C	20x10^3
UL 508			
T9VV1K15-12S	A (NO)	35A, 250VAC, resistive, 85°C	20x10^3
T9VV1K15-12S	A (NO)	40A, 30VDC, resistive, 70°C	60x10^3
T9VV1K15-12S	A (NO)	40A, 85°C, carry only	
CQC			
T9VV1K15-12S	A (NO)	40A, 250VAC, resistive, 60°C	20x10^3
TUV			
T9VV1K15-12S	A (NO)	40A, 30VDC, resistive, 70°C	60x10^3
Internal Test			
T9VV1K15-12S	A (NO)	32A, 250VAC, cosφ=1, 105°C	30x10^3
T9VV1K19-12	A (NO)	35A, 250VAC (160A inrush 50µs make), 65°C	10x10^3
T9VV1K15-12S	A (NO)	35A, 250VAC, resistive, 85°C	50x10^3

Mechanical endurance, DC coil 5x10^5 operations

Coil Data

Rated coil voltage	12VDC
Coil insulation system according UL	class F

Coil versions, DC coil

Coil code	Rated voltage VDC	Operate voltage VDC	Release voltage VDC	Coil resistance Ω±10%	Rated coil power W
12	see note [1)]	9.6	0.8	64+10%	2.25 / min. 0.35 hold

All figures are given for coil without pre-energization, at ambient temperature +23°C.
Other coil voltages on request.

Insulation Data

Initial dielectric strength	
between open contacts	2500V$_{rms}$
between contact and coil	4000V$_{rms}$
Initial surge withstand voltage	
between contact and coil	6kV
Clearance/creepage	
between contact and coil	3/4mm
Initial insulation resistance	
between open contacts	1×10^{9}Ω
between contact and coil	1×10^{9}Ω
Material group of insulation parts	III
Tracking index of relay base	PTI 325

Other Data

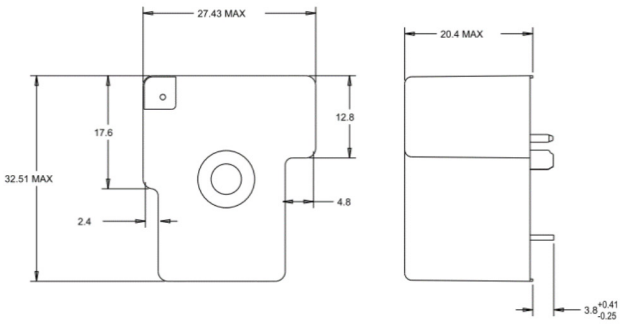
Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at www.te.com/customersupport/rohssupportcenter

Ambient temperature	-40 ~ 85°C/105°C
Cold storage[4)]	240h, -40°C
Dry heat[4)]	240h, +105°C
Temperature cycling (Shock)[4)]	1000cycles, -40/+105°C
Operational Life[4)]	1000hrs, 32A, +105°C
Category of environmental protection	
IEC 61810	RTII – flux proof
Vibration resistance (functional)[4)]	10-40Hz 1.27mm 40-70Hz 5g 70-100Hz 0.5mm 100-500Hz 10g
Shock resistance (functional)[4)]	11ms, up to 30g
Shock resistance (destructive)	
IEC 60068-2-27	100g
Terminal Strength (Leaded)[4)]	1.13Kg
Terminal type	PCB-THT
Mounting	see note[2)]
Mounting distance	≥10mm
Weight	appr. 30g
Resistance to soldering heat THT[4)]	Tb, method 1A, hot dip 10s, 260°C with thermal screen
Packaging unit	box/500 pcs.

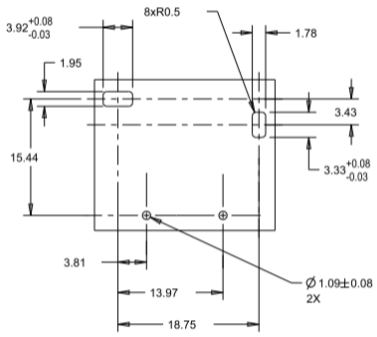
1) Rated voltage: 12VDC. After the energization time of 100ms with 12 VDC the coil requires a reduction of the coil voltage to 4.7...6.0 VDC.
2) The relay connections and wiring have to be designed with an adequate cross sections to ensure the current flow and heat dissipation.
3) Contact ratings with relay properly vented.
4) Refer to AEC-Q200.

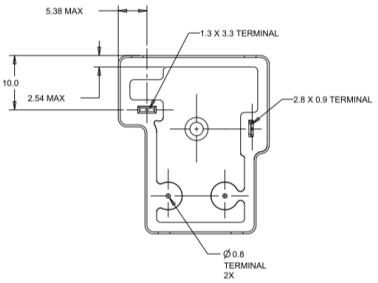
Power PCB Relay T9V OBC (Continued)

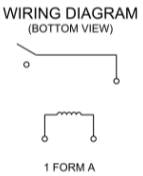
Dimensions



PCB layout / terminal assignment
Bottom view on solder pins







Notes

1) General tolerance

Diagram Dimension	Tolerance
< 1 mm	±0.1
1 ~ 3 mm	±0.2
> 3 mm	±0.3

2) Dimensions of the pins after tin soldering
a) +0.4 for the width and the thickness
b) +1.0 for the length

Product code structure

Typical product code: **T9V V 1 K 1 5 -12 S**

Type
T9V Power Relay T9V Series

Enclosure
V Flux-proof plastic case
S Wash tight

Contact arrangement
1 1 Form A (1NO)

Coil input
K DC coil, 2.25W

Mounting and termination
1 PCB mounting; PCB terminals for coil and contacts

Contact material
5 AgNi
9 AgSnOInO

Coil voltage
Coil code: Please refer to coil version table

Contact gap
blank 1.5mm contact gap
S 1.8mm contact gap

Product code	Version	Contact arrangement	Contact material	Contact gap	Coil	Part Number
T9VV1K15-12S	PCB, flux tight	1 form A (NO) contact	AgNi	>1.8mm	12VDC	2027395-5
T9VV1K19-12	PCB, flux tight	1 form A (NO) contact	AgSnOInO	>1.5mm	12VDC	2027395-9

Note. This list represents the most common types and does not show all variants covered by this datasheet, other types on request.