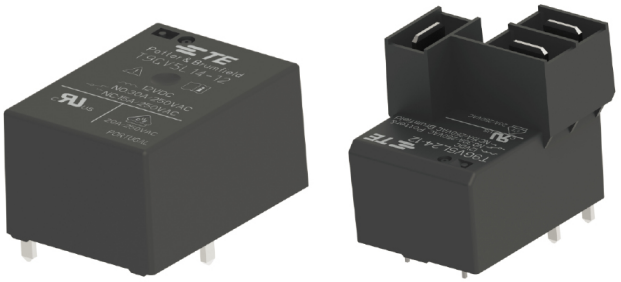
POTTER & BRUMFIELD T9G SERIES

DC COIL 30A PCB RELAY
GENERAL PURPOSE RELAYS | POWER RELAYS

INTRODUCTION

TE Connectivity (TE)'s Potter & Brumfield T9G relay series is a 30A Power PCB relay for HVAC, appliance and industrial control applications. The T9G relay is the smallest relay in its class with a 30% smaller package size and 13% less PCB floor space all while keeping the standard footprint, allowing manufacturers to add more components on PCBs without having to compromise on relay performance. By having both UL and VDE certifications, TE's P&B relay T9G series is a versatile relay that can be used globally and through its PCB and quick connect terminations, it is user-friendly and easy to install.



FEATURES

- 30A switching in NO and 20A in CO
- 40A UL rating available
- Minimum board space (29mm x 21.5mm)
- Meets UL 508 for clearance / creepage
- Meets IEC 61810-1 for reinforced insulation
- Option for load connections via 0.250" (6.35mm) quick connect terminals
- 4kV dielectric withstand / 8kV surge voltage between coil & contacts
- UL approved for 480 VAC switching
- WG versions are in accordance with IEC 60335-1

APPROVALS

- UL 508
- UL Listing #E214025 IEC 61810-1
- VDE Listing #40045012
- CQC 18002196927 (only for standard version; in preparation for WG version)

APPLICATIONS

- HVAC
- Appliances
- Industrial controls
- Energy management

CONTACT DATA

Contact arrangement	1 form A (NO)	1 form B (NC)	1 form C (CO)
Rated voltage	250VAC		
Max. switching voltage	480VAC		
Rated current	30A	20A	20A
Contact material	AgSnO		
Min. recommended contact load	1A, 12VAC/VDC		
Initial contact resistance	300mΩ at 100mA/6VDC		
Frequency of operation, with/without load	360 cycles / hour = with 3600 cycles / hour = without		
Operate/release time max., including bounce	15/22ms		

CONTACT RATINGS [1)]

Type	Load	Cycles
UL 508		
NO	5A, 480VAC, General Purpose	$6x10^3$
NO	15,6A, 480VAC, Resistive	$100x10^3$
NO	30A, 277VAC, General Purpose, 85°C	$100x10^3$
NO	18A, 250VAC, Resistive, 105°C	$100x10^3$
NO	22A, 250VAC, Resistive	$250x10^3$
NO	22A FLA, 98A LRA, 120VAC, Def. Purpose	$100x10^3$
NO	14A FLA, 82A LRA, 250VAC, Def. Purpose, 70°C	$30x10^3$
NO	20A, 277VAC, Standard Ballast	$6x10^3$
NO	1HP, 125VAC	$100x10^3$
NO [2)]	40A, 277VAC, Resistive	$6x10^3$
NO [2)]	TV8, 240VAC	$25x10^3$
NC	15A, 240VAC, General Purpose	$100x10^3$
NC	20A, 250VAC, Resistive (CO type only)	$20x10^3$
NC	30A LRA / 12A FLA, 250VAC, Definite Purpose	$30x10^3$
NC	1HP, 277VAC (CO type only)	$50x10^3$
CO	20A, 250VAC, Resistive	$15x10^3$
CO	20A /10A, 240VAC, Resistive	$100x10^3$
CO	30A / 15A Resistive, 250VAC	$20x10^3$
CO	30A FLA / 80A LRA (N.O.); 12A FLA, 30A LRA (N.C.) 250VAC, Definite Purpose	$30x10^3$
CO	80A LRA / 10A FLA (N.O.); 33A LRA / 10A FLA (N.C.) 250VAC, Definite Purpose	$30x10^3$
IEC 61810-1		
NO	30A, 250VAC, Resistive, 85°C (PCB)	$75x10^3$
NO	20A, 250VAC, Resistive, 70°C (QC), 85°C (PCB)	$100x10^3$
NO	17A, 250VAC, Resistive, 105°C	$100x10^3$
NO	20A, 250VAC, Resistive, 85°C	$100x10^3$
NO	12A (12A), 250VAC, 60°C (per EN60730-1)	$150x10^3$
NC	10A, 250VAC, Resistive, 60°C (C.O. type only)	$50x10^3$
CO	20A, 250VAC, Resistive, 60°C (N.C.)	$10x10^3$
CO	20A/10A, 250VAC, Resistive, 60°C (N.O.)	$50x10^3$
CO	12A , 250VAC, Resistive, 85°C	$100x10^3$
Mechanical endurance		$10x10^6$ ops.

1) Contact ratings at 40°C (unless otherwise noted) with relay properly vented.
Remove vent nib after soldering and cleaning.

2) Valid only for mounting and termination code 1.

CONTACT DATA

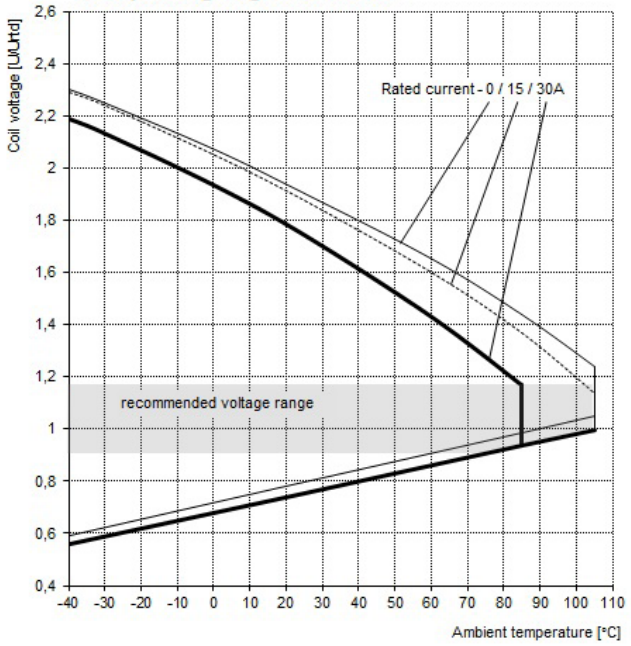
Coil voltage range	5 to 110VDC
Operative range, IEC 61810	2
Coil insulation system according UL	Class F

Coil versions, DC coil

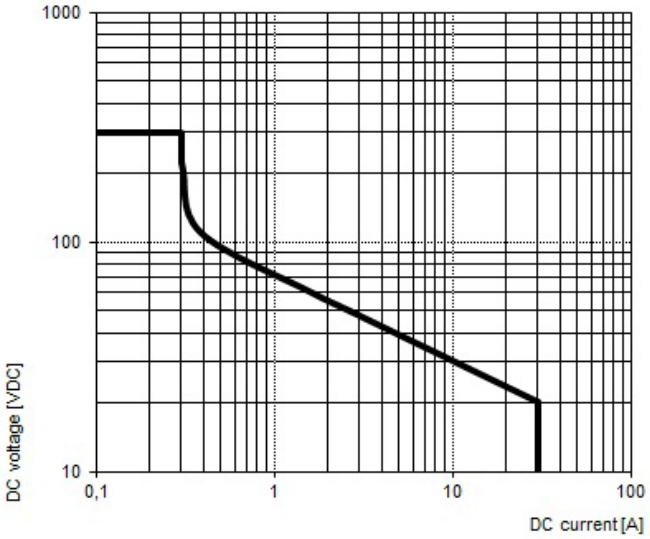
Coil code	Rate voltage VDC	Operate voltage VDC	Release voltage VDC	Coil resistance Ω±10%	Rated coil power mW
5	5	3.75	0.5	28	900
9	9	6.75	0.9	90	900
12	12	9	1.2	160	900
15	15	11.25	1.5	249	900
18	18	13.5	1.8	360	900
22	22	16.5	2.2	538	900
24	24	18	2.4	640	900
48	48	36	4.8	2,560	900
110	110	82.5	11	13,444	900

All figures are given for coil without preenergization, at ambient temperature +23°C.

Coil operating range, monostable



Max. DC load breaking capacity

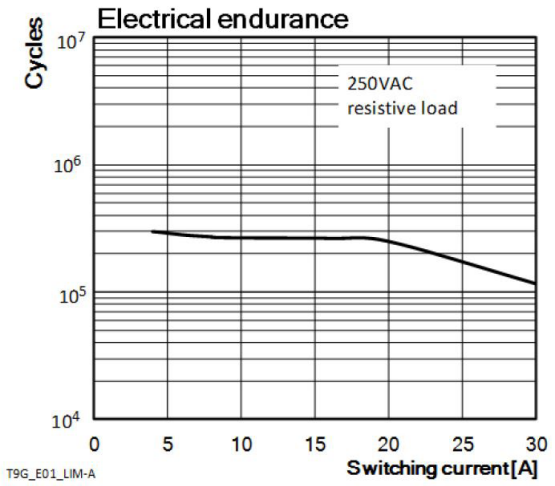


INSULATION DATA

Initial dielectric strength	
between open contacts	1500Vrms
between contact and coil	4000Vrms
Initial surge withstand voltage	
between contact and coil	8kV
Initial insulation resistance	
between insulated elements	$1x10^9\Omega$, 500VDC
Clearance/creepage	
between contact and coil	>6.4mm / >8mm

INSULATION DATA

Initial dielectric strength	
between open contacts	1500Vrms
between contact and coil	4000Vrms
Initial surge withstand voltage	
between contact and coil	8kV
Initial insulation resistance	
between insulated elements	1x109Ω, 500VDC
Clearance/creepage	
between contact and coil	>6.4mm / >8mm



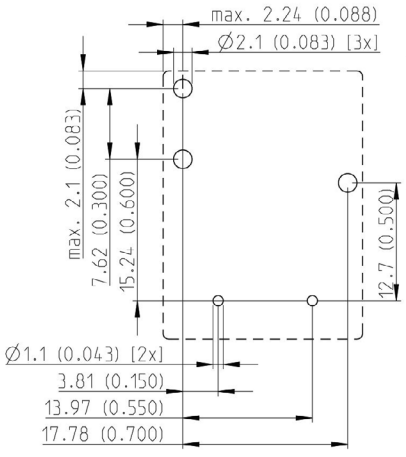
OTHER DATA

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	
DC coil	Operating -40 to + 105°C at reduced current
Category of environmental protection	
IEC 61810	RTII - flux proof
	RTIII - wash tight
Vibration resistance (functional)	Opening NO contact >10g Opening NC contact >7g
Shock resistance (functional)	10g for 11msec
Shock resistance (destructive)	100g
Terminal type	pcb-tht and pcb-tht + quick connect
Weight	18g mounting code 1 23g mounting code 2
Resistance to soldering heat THT	
IEC 60068-2-20	260°C/5s
Packaging/unit	10/tube, 420/box (PCB + QC), 500/box (PCB)

PCB LAYOUT

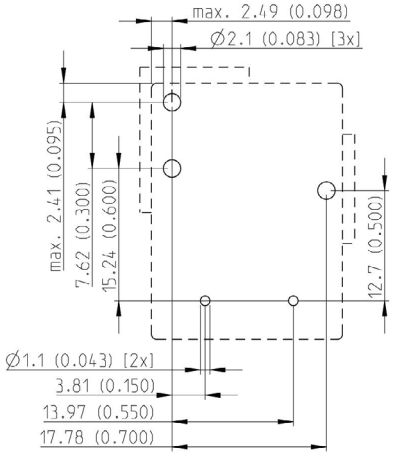
Bottom view on pins

T9G - Mounting and termination code 1



Only necessary terminals are present on single throw models. Consequently, some holes will be unnecessary for single throw models.

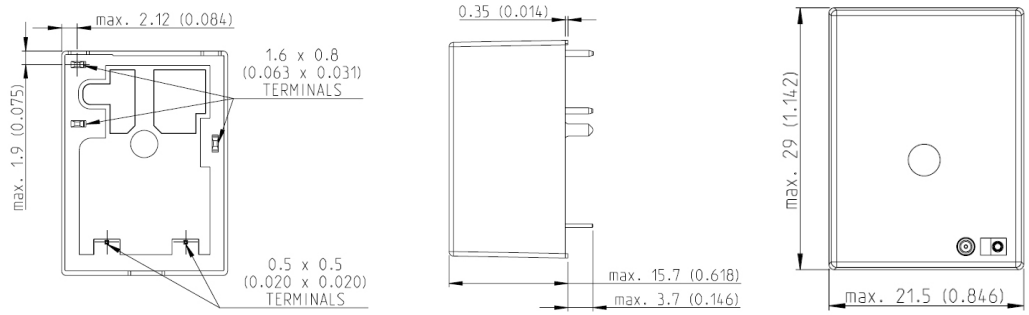
T9G - Mounting and termination code 2



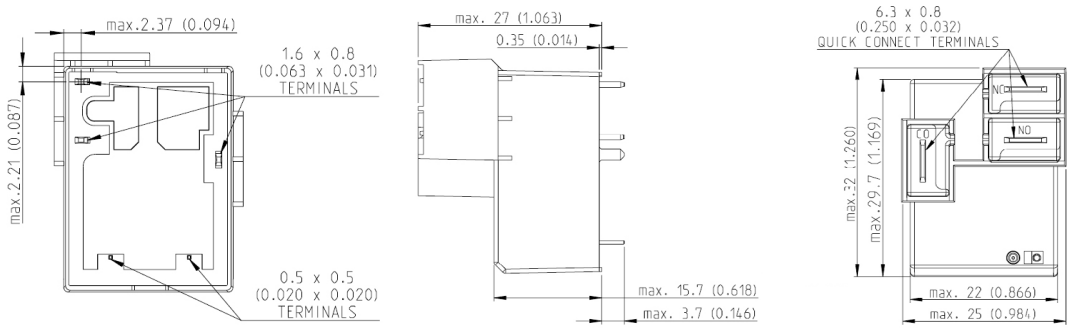
Only necessary terminals are present on single throw models. Consequently, some holes will be unnecessary for single throw models.

DIMENSIONS

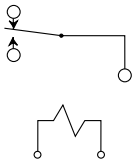
Mounting and termination code 1



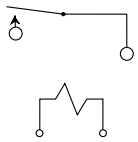
Mounting and termination code 2



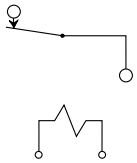
1 Form C (CO)



1 Form A (NO)



1 Form B (NC)



ORDERING INFORMATION

Typical product code

T9G S 5 L 2 4 -12

Type

T9G	Power PCB or panel mount relay T9G

Enclosure

S	Wash-tight plastic case with knock off nib (requires mounting code 1 or 2)
V	Flux-proof plastic case (requires mounting code 1 or 2)

Contact arrangement

1	1 form A (1 NO)
2	1 form B (1 NC)
5	1 form C (1 CO)

Coil Input

L	DC voltage, 900mW

Version

WG	Product in accordance with IEC 60335-1 (domestic appliances)
Blank	Standard Version

Coil voltage

Coil code: please refer to coil versions table

Contact material

4	AgSnO (RoHS compliant)

Mounting and termination

1	PCB mounting; PCB terminals for coil and contacts
2	PCB mounting; PCB term. for coil and contacts; 6.35mm (.250in) quick connect for contacts

PRODUCT DETAILS

Product Code	Enclosure	Contacts	Mounting	Contact Material	Coil	Part Number
T9GV5L14-5	Flux-proof plastic case (requires mounting code 1 or 2)	1 CO	pcb terminals	AgSnO	5VDC	1558660-1
T9GV5L14-9					9VDC	1558660-2
T9GV5L14-12					12VDC	1558660-3
T9GV5L14-12WG					12VDC	1-1558660-3
T9GV5L14-15					15VDC	1558660-4
T9GV5L14-18					18VDC	1558660-5
T9GV5L14-22					22VDC	1558660-6
T9GV5L14-24					24VDC	1558660-7
T9GV5L14-24WG					24VDC	1-1558660-7
T9GV5L14-48					48VDC	1558660-8
T9GV5L14-110					110VDC	1558660-9
T9GV1L14-5		1 NO			5VDC	1558661-1
T9GV1L14-9					9VDC	1558661-2
T9GV1L14-12					12VDC	1558661-3
T9GV1L14-12WG					12VDC	1-1558661-3
T9GV1L14-15					15VDC	1558661-4
T9GV1L14-18					18VDC	1558661-5
T9GV1L14-22					22VDC	1558661-6
T9GV1L14-24					24VDC	1558661-7
T9GV1L14-24WG					24VDC	1-1558661-7
T9GV1L14-48					48VDC	1558661-8
T9GV1L14-110					110VDC	1558661-9
T9GV1L24-12WG					12VDC	1-1558671-3
T9GV1L24-24WG					24VDC	1-1558671-7
T9GV2L14-5		1 NC			5VDC	1558662-1
T9GV2L14-9					9VDC	1558662-2
T9GV2L14-12					12VDC	1558662-3
T9GV2L14-12WG					12VDC	1-1558662-3
T9GV2L14-15					15VDC	1558662-4
T9GV2L14-18					18VDC	1558662-5
T9GV2L14-22					22VDC	1558662-6
T9GV2L14-24					24VDC	1558662-7
T9GV2L14-24WG					24VDC	1-1558662-7
T9GV2L14-48					48VDC	1558662-8
T9GV2L14-110					110VDC	1558662-9
T9GV2L24-12WG					12VDC	1-1558672-3
T9GV2L24-24WG					24VDC	1-1558672-7

T9G SERIES, DC COIL 30A PCB RELAY

General Purpose Relays | Power Relays

Product Code	Enclosure	Contacts	Mounting	Contact Material	Coil	Part Number
T9GV5L24-5	Flux-proof plastic case (requires mounting code 1 or 2)	1 CO	pcb + QC	AgSnO	5VDC	1558670-1
T9GV5L24-9					9VDC	1558670-2
T9GV5L24-12					12VDC	1558670-3
T9GV5L24-12WG					12VDC	1-1558670-3
T9GV5L24-15					15VDC	1558670-4
T9GV5L24-18					18VDC	1558670-5
T9GV5L24-22					22VDC	1558670-6
T9GV5L24-24WG					24VDC	1-1558670-7
T9GV2L24-24		1 NC			24VDC	1558672-7
T9GV2L24-48					48VDC	1558672-8
T9GV2L24-110					110VDC	1558672-9
T9GS5L14-5	Wash-tight plastic case with knock off nib (requires mounting code 1 or 2)	1 CO	pcb terminals		5VDC	1558665-1
T9GS5L14-9					9VDC	1558665-2
T9GS5L14-12					12VDC	1558665-3
T9GS5L14-15					15VDC	1558665-4
T9GS5L14-18					18VDC	1558665-5
T9GS5L14-22					22VDC	1558665-6
T9GS5L14-24					24VDC	1558665-7
T9GS5L14-48					48VDC	1558665-8
T9GS5L14-110					110VDC	1558665-9
T9GS1L14-5		1 NO			5VDC	1558666-1
T9GS1L14-9					9VDC	1558666-2
T9GS1L14-12					12VDC	1558666-3
T9GS1L14-15					15VDC	1558666-4
T9GS1L14-18					18VDC	1558666-5
T9GS1L14-22					22VDC	1558666-6
T9GS1L14-24					24VDC	1558666-7
T9GS1L14-48					48VDC	1558666-8
T9GS1L14-110					110VDC	1558666-9
T9GS2L14-5		1 NC			5VDC	1558667-1
T9GS2L14-9					9VDC	1558667-2
T9GS2L14-12					12VDC	1558667-3
T9GS2L14-15					15VDC	1558667-4
T9GS2L14-18					18VDC	1558667-5
T9GS2L14-22					22VDC	1558667-6
T9GS2L14-24					24VDC	1558667-7
T9GS2L14-48					48VDC	1558667-8
T9GS2L14-110					110VDC	1558667-9

Product Code	Enclosure	Contacts	Mounting	Contact Material	Coil	Part Number
T9GS5L24-5	Wash-tight plastic case with knock off nib (requires mounting code 1 or 2)	1 CO	pcb + QC	AgSnO	5VDC	1558675-1
T9GS5L24-9					9VDC	1558675-2
T9GS5L24-12					12VDC	1558675-3
T9GS5L24-15					15VDC	1558675-4
T9GS5L24-18					18VDC	1558675-5
T9GS5L24-22					22VDC	1558675-6
T9GS5L24-24					24VDC	1558675-7
T9GS5L24-48					48VDC	1558675-8
T9GS5L24-110					110VDC	1558675-9
T9GS1L24-5		1 NO			5VDC	1558676-1
T9GS1L24-9					9VDC	1558676-2
T9GS1L24-12					12VDC	1558676-3
T9GS1L24-15					15VDC	1558676-4
T9GS1L24-18					18VDC	1558676-5
T9GS1L24-22					22VDC	1558676-6
T9GS1L24-24					24VDC	1558676-7
T9GS1L24-48					48VDC	1558676-8
T9GS1L24-110					110VDC	1558676-9
T9GS2L24-5		1 NC			5VDC	1558677-1
T9GS2L24-9					9VDC	1558677-2
T9GS2L24-12					12VDC	1558677-3
T9GS2L24-15					15VDC	1558677-4
T9GS2L24-18					18VDC	1558677-5
T9GS2L24-22					22VDC	1558677-6
T9GS2L24-24					24VDC	1558677-7
T9GS2L24-48					48VDC	1558677-8
T9GS2L24-110					110VDC	1558677-9

Note:

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

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12/23 ED