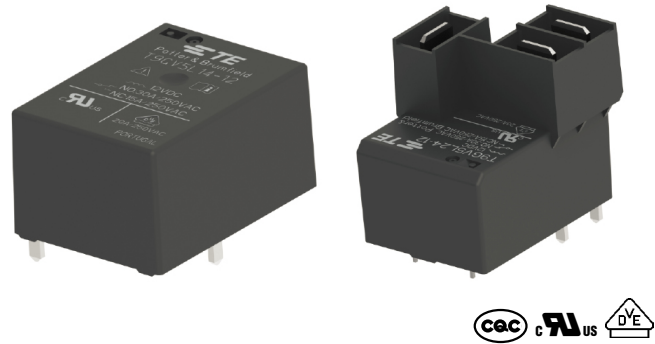


POTTER & BRUMFIELD T9G SERIES

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		

T9G SERIES, DC COIL 30A PCB RELAY

General Purpose Relays | Power Relays

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.

COIL DATA

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

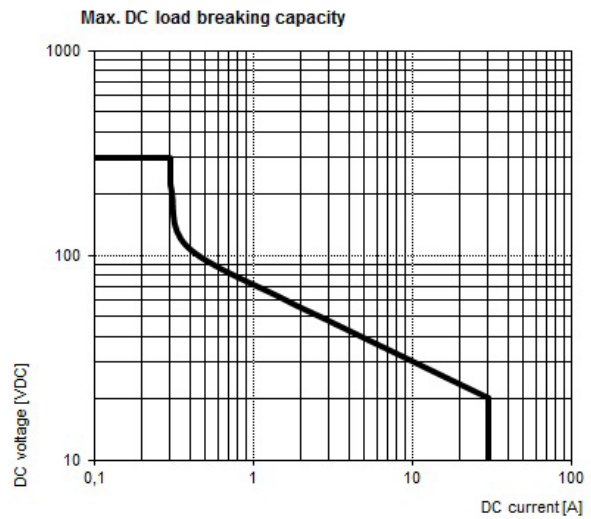
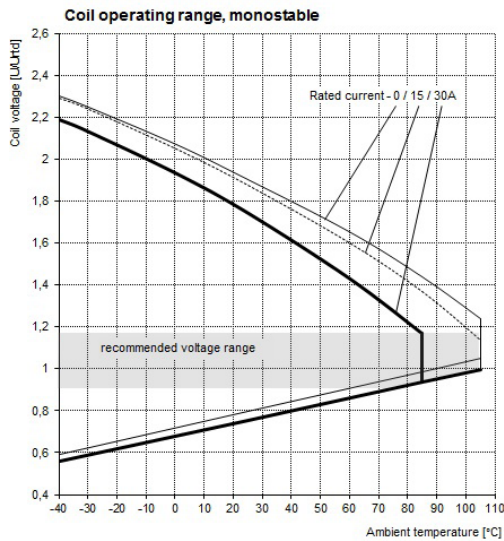
T9G SERIES, DC COIL 30A PCB RELAY

General Purpose Relays | Power Relays

Coil versions, DC coil

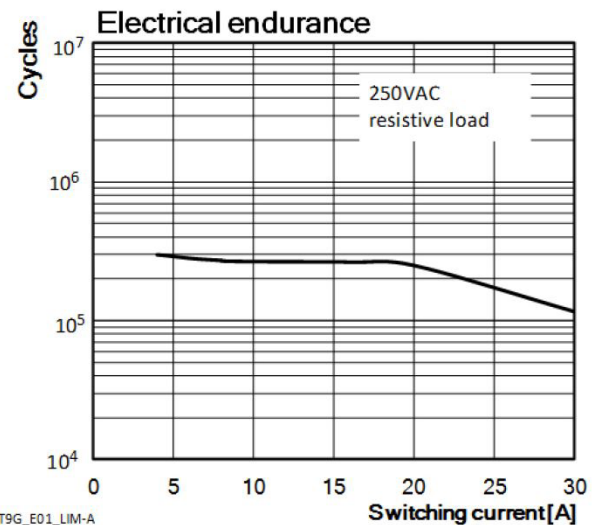
Coil code	Rate voltage VDC	Operate voltage VDC	Release voltage VDC	Coil resistance $\Omega \pm 10\%$	Rated coil power mW
5	5	3.75	0.5	28	900
9	9	6.75	0.9	90	900
12	12	9	1.2	160	900
15	15	11.25	1.5	249	900
18	18	13.5	1.8	360	900
22	22	16.5	2.2	538	900
24	24	18	2.4	640	900
48	48	36	4.8	2,560	900
110	110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

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



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



T9G SERIES, DC COIL 30A PCB RELAY

General Purpose Relays | Power Relays

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

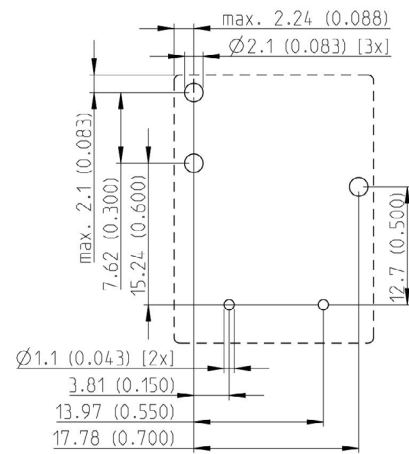
Packaging/unit

10/tube, 420/box (PCB
+ QC), 500/box (PCB)

PCB LAYOUT

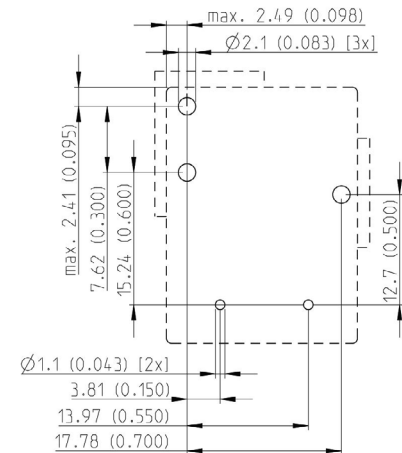
Bottom view on pins

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



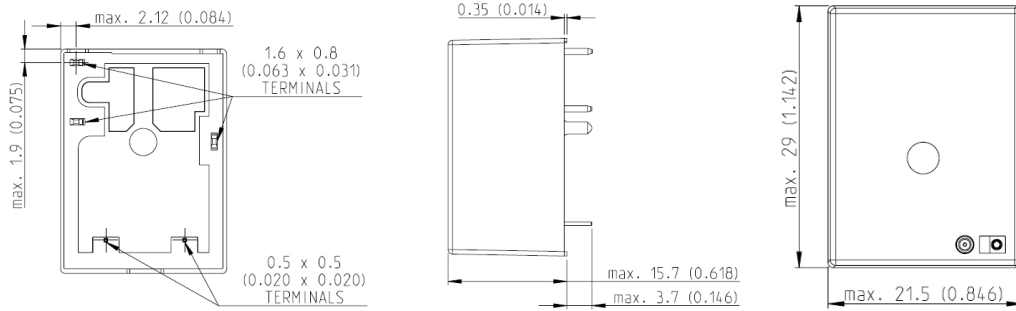
Only necessary terminals are present on single throw models. Consequently, some holes will be unnecessary for single throw models.

T9G SERIES, DC COIL 30A PCB RELAY

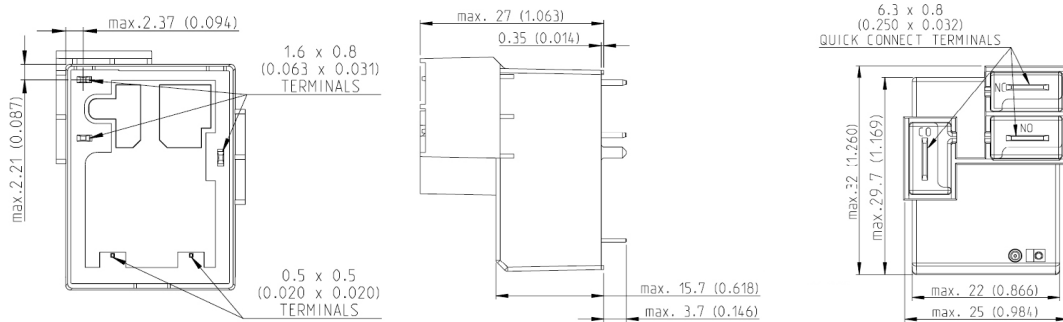
General Purpose Relays | Power Relays

DIMENSIONS

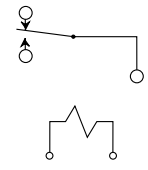
Mounting and termination code 1



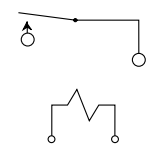
Mounting and termination code 2



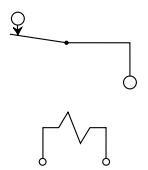
1 Form C (CO)



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
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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
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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

T9G SERIES, DC COIL 30A PCB RELAY

General Purpose Relays | Power Relays

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	
T9GV5L14-15					15VDC	1558660-4	
T9GV5L14-18					18VDC	1558660-5	
T9GV5L14-22					22VDC	1558660-6	
T9GV5L14-24					24VDC	1558660-7	
T9GV5L14-48					48VDC	1558660-8	
T9GV5L14-110					110VDC	1558660-9	
T9GV1L14-5					1 NO	pcb terminals	5VDC
T9GV1L14-9		9VDC					1558661-2
T9GV1L14-12		12VDC					1558661-3
T9GV1L14-15		15VDC					1558661-4
T9GV1L14-18		18VDC					1558661-5
T9GV1L14-22		22VDC					1558661-6
T9GV1L14-24		24VDC					1558661-7
T9GV1L14-48		48VDC					1558661-8
T9GV1L14-110		110VDC					1558661-9
T9GV2L14-5		1 NC					pcb terminals
T9GV2L14-9					9VDC	1558662-2	
T9GV2L14-12			12VDC		1558662-3		
T9GV2L14-15			15VDC		1558662-4		
T9GV2L14-18			18VDC		1558662-5		
T9GV2L14-22			22VDC		1558662-6		
T9GV2L14-24			24VDC		1558662-7		
T9GV2L14-48			48VDC		1558662-8		
T9GV2L14-110			110VDC		1558662-9		
T9GV5L24-5			1 CO		pcb + QC	5VDC	
T9GV5L24-9		9VDC				1558670-2	
T9GV5L24-12		12VDC				1558670-3	
T9GV5L24-15	15VDC	1558670-4					
T9GV5L24-18	18VDC	1558670-5					
T9GV5L24-22	22VDC	1558670-6					
T9GV2L24-24	24VDC	1558672-7					
T9GV2L24-48	48VDC	1558672-8					
T9GV2L24-110	110VDC	1558672-9					
T9GV2L24-110	1 NC	pcb + QC		110VDC		1558672-9	

T9G SERIES, DC COIL 30A PCB RELAY

General Purpose Relays | Power Relays

Product Code	Enclosure	Contacts	Mounting	Contact Material	Coil	Part Number	
T9GS5L14-5	Wash-tight plastic case with knock off nib (requires mounting code 1 or 2)	1 CO	pcb terminals	AgSnO	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	pcb terminals	5VDC
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					pcb terminals
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		
T9GS5L24-5			1 CO		pcb + QC	5VDC	
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					

Product Code	Enclosure	Contacts	Mounting	Contact Material	Coil	Part Number
T9GS1L24-5	Wash-tight plastic case with knock off nib (requires mounting code 1 or 2)	1 NO	pcb + QC	AgSnO	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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