

T9G series, DC coil 30A PCB Relay

- n 30A switching in NO and 20A in CO
- n Minimum Board space (29mm x 21.5mm)
- n Meets UL 508 for clearance / creepage
- n Meets IEC 61810-1 for reinforced insulation
- n Option for load connections via 0.250" (6.3mm) quick connect terminals
- n 4kV dielectric withstand and 8kV surge voltage between coil & contacts
- n UL approved for 480 VAC switching



Typical applications
HVAC, Appliances, Industrial Controls, Energy Management

Approvals

UL 508; UL Listing #E214025
IEC 61810-1; VDE Listing #40045012
Technical data of approved types on request



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⁾

UL 508

Type	Load	Cycles
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, Definite Purpose	100x10 ³
NO	14A FLA, 82A LRA, 250VAC, Definite Purpose, 70°C	30x10 ³
NO	20A, 277VAC, Standard Ballast	6x10 ³
NO	1HP, 125VAC	100x10 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

Contact ratings ¹⁾ (continued)

Type	Load	Cycles
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

Type	Load	Cycles
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

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

Mechanical endurance	10x10 ⁶ ops.
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Coil Data

Coil voltage range	5 to 110VDC
Max. coil power	110% of nominal
Max. coil temperature	155°C
Coil insulation system according UL	Class F

Coil versions, DC coil

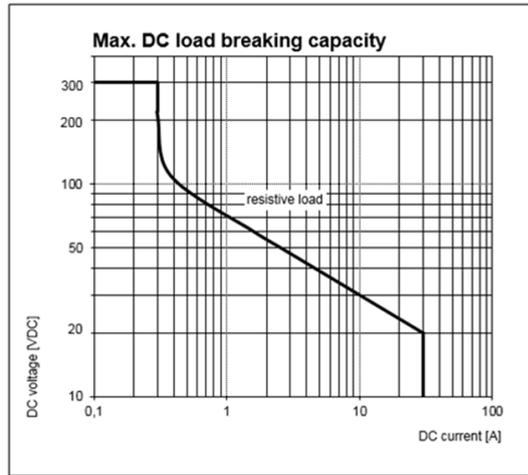
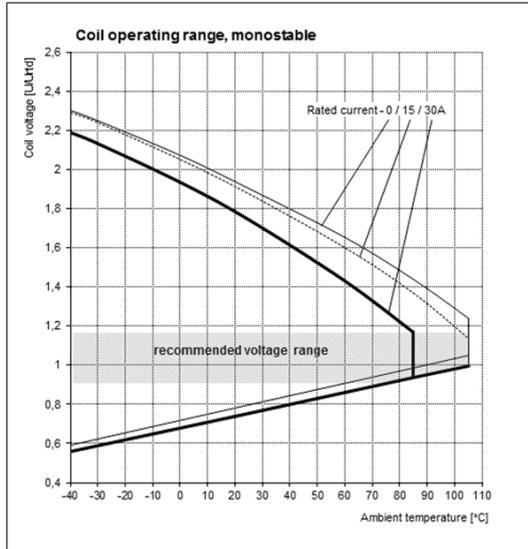
Coil code	Rated voltage VDC	Operate voltage VDC	Release voltage VDC	Coil resistance Ω±10%	Rated coil power mW
5	5	3.75	0.5	28	900
9	9	6.75	0.9	90	900
12	12	9	1.2	160	900
15	15	11.25	1.5	249	900
18	18	13.5	1.8	360	900
22	22	16.5	2.2	538	900
24	24	18	2.4	640	900
48	48	36	4.8	2,560	900
110	110	82.5	11	13,444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

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

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

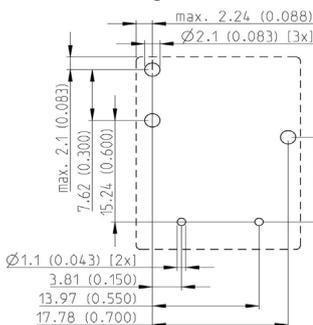
T9G series, DC coil 30A PCB Relay (Continued)

Coil Data (continued)



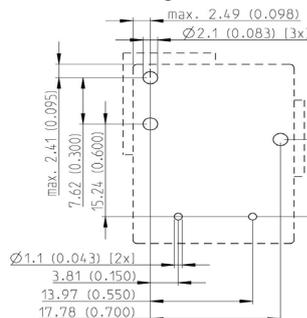
PCB layout

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.

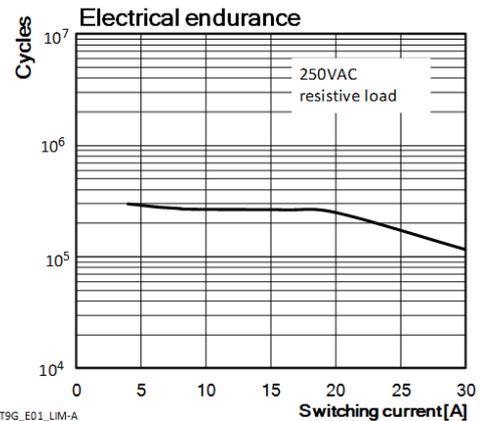
Insulation Data

Initial dielectric strength	
between open contacts	1500V _{rms}
between contact and coil	4000V _{rms}
Initial surge withstand voltage	8kV
between contact and coil	
Initial insulation resistance	1x10 ⁹ Ω, 500VDC
between insulated elements	
Clearance/creepage	6.4mm / 9.5mm (UL), 8mm / 8mm (IEC)
between contact and coil	

Other Data

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

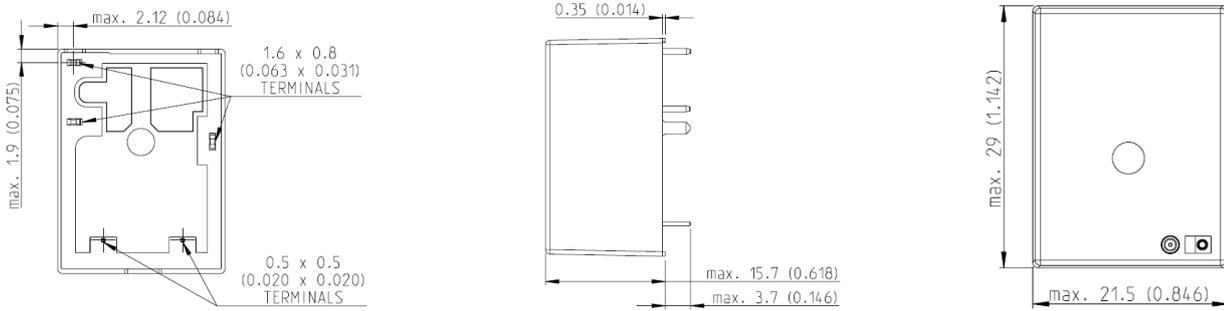
Ambient temperature	
DC coil	Storage -55°C to +130°C Operating -40 to +105°C at reduced current
Category of environmental protection	IEC 61810
IEC 61810	RTII - flux proof RTIII - wash tight
Vibration resistance (functional)	Opening NO contact >10g Opening NC contact >7g
Shock resistance (functional)	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
IEC 60068-2-20	250°C
Packaging/unit	10/tube, 420/box (PCB + QC), 500/box (PCB)



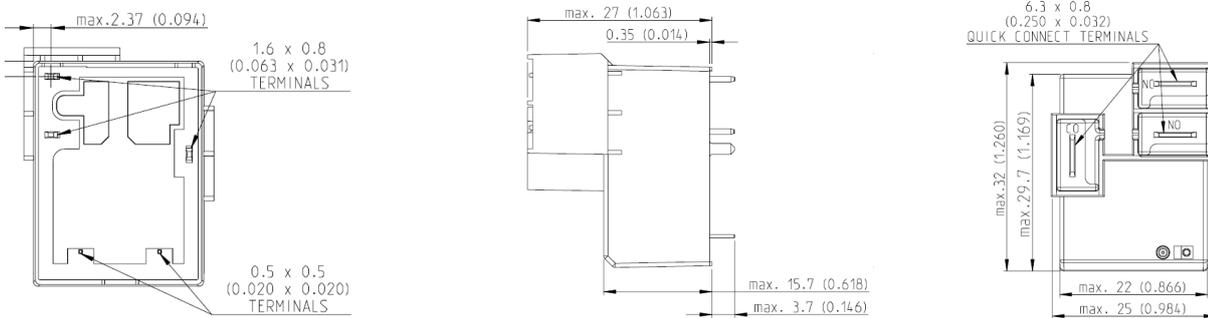
T9G series, DC coil 30A PCB Relay (Continued)

Dimensions

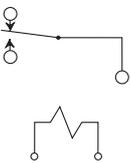
Mounting and termination code 1



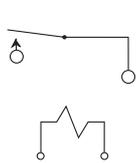
Mounting and termination code 2



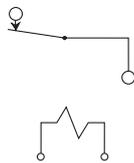
1 Form C (CO)



1 Form A (NO)



1 Form B (NC)



Notes:

1) General tolerance

Diagram Dimensions	Tolerance
<1mm	±0.1
1-3mm	±0.2 mm
>3mm	±0.3

2) Dimensions of the pins after tin soldering for PCB type

- a) +0.2 for the width and thickness
- b) +0.5 mm for the length

Product code structure

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

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 (only available with enclosure code N, S or V)

Contact material

4 AgSnO (RoHS compliant)

Coil voltage

Coil code: please refer to coil versions table

T9G series, DC coil 30A PCB Relay (Continued)

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

T9G series, DC coil 30A PCB Relay (Continued)

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				AgSnO	9VDC	1558665-2		
T9GS5L14-12				AgSnO	12VDC	1558665-3		
T9GS5L14-15				AgSnO	15VDC	1558665-4		
T9GS5L14-18				AgSnO	18VDC	1558665-5		
T9GS5L14-22				AgSnO	22VDC	1558665-6		
T9GS5L14-24				AgSnO	24VDC	1558665-7		
T9GS5L14-48				AgSnO	48VDC	1558665-8		
T9GS5L14-110				AgSnO	110VDC	1558665-9		
T9GS1L14-5				1 NO		AgSnO	5VDC	1558666-1
T9GS1L14-9						AgSnO	9VDC	1558666-2
T9GS1L14-12	AgSnO	12VDC	1558666-3					
T9GS1L14-15	AgSnO	15VDC	1558666-4					
T9GS1L14-18	AgSnO	18VDC	1558666-5					
T9GS1L14-22	AgSnO	22VDC	1558666-6					
T9GS1L14-24	AgSnO	24VDC	1558666-7					
T9GS1L14-48	AgSnO	48VDC	1558666-8					
T9GS1L14-110	AgSnO	110VDC	1558666-9					
T9GS2L14-5	1 NC		AgSnO			5VDC	1558667-1	
T9GS2L14-9			AgSnO			9VDC	1558667-2	
T9GS2L14-12			AgSnO	12VDC	1558667-3			
T9GS2L14-15			AgSnO	15VDC	1558667-4			
T9GS2L14-18			AgSnO	18VDC	1558667-5			
T9GS2L14-22			AgSnO	22VDC	1558667-6			
T9GS2L14-24			AgSnO	24VDC	1558667-7			
T9GS2L14-48			AgSnO	48VDC	1558667-8			
T9GS2L14-110			AgSnO	110VDC	1558667-9			
T9GS5L24-5			1 CO	pcb + QC	AgSnO	5VDC	1558675-1	
T9GS5L24-9					AgSnO	9VDC	1558675-2	
T9GS5L24-12	AgSnO	12VDC			1558675-3			
T9GS5L24-15	AgSnO	15VDC			1558675-4			
T9GS5L24-18	AgSnO	18VDC			1558675-5			
T9GS5L24-22	AgSnO	22VDC			1558675-6			
T9GS5L24-24	AgSnO	24VDC			1558675-7			
T9GS5L24-48	AgSnO	48VDC			1558675-8			
T9GS5L24-110	AgSnO	110VDC			1558675-9			
T9GS1L24-5	1 NO				AgSnO	5VDC	1558676-1	
T9GS1L24-9					AgSnO	9VDC	1558676-2	
T9GS1L24-12			AgSnO	12VDC	1558676-3			
T9GS1L24-15			AgSnO	15VDC	1558676-4			
T9GS1L24-18			AgSnO	18VDC	1558676-5			
T9GS1L24-22			AgSnO	22VDC	1558676-6			
T9GS1L24-24			AgSnO	24VDC	1558676-7			
T9GS1L24-48			AgSnO	48VDC	1558676-8			
T9GS1L24-110			AgSnO	110VDC	1558676-9			
T9GS2L24-5			1 NC		AgSnO	5VDC	1558677-1	
T9GS2L24-9					AgSnO	9VDC	1558677-2	
T9GS2L24-12	AgSnO	12VDC			1558677-3			
T9GS2L24-15	AgSnO	15VDC			1558677-4			
T9GS2L24-18	AgSnO	18VDC			1558677-5			
T9GS2L24-22	AgSnO	22VDC			1558677-6			
T9GS2L24-24	AgSnO	24VDC			1558677-7			
T9GS2L24-48	AgSnO	48VDC			1558677-8			
T9GS2L24-110	AgSnO	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.