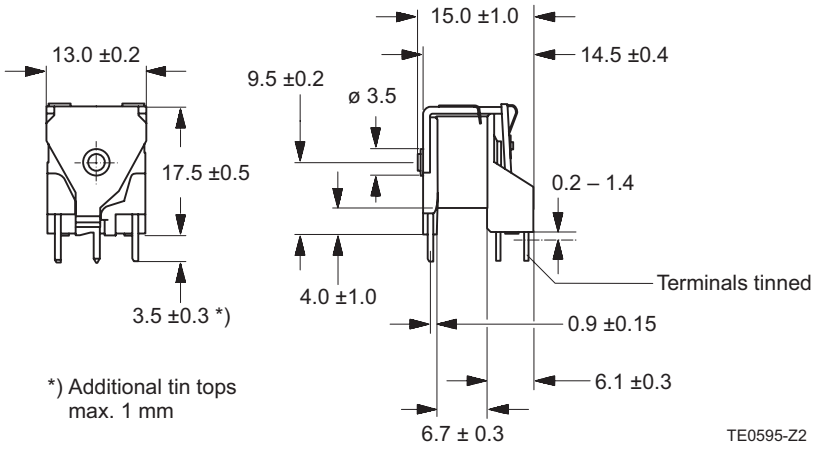
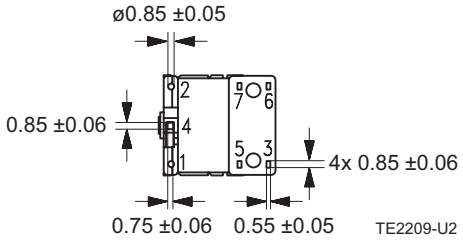
Mini Relay K (Open)

Dimensional Drawing

Mini Relay K Open Version

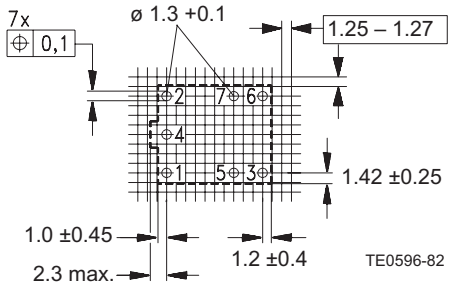


View of the Terminals (bottom view)



Mounting Hole Layout (bottom view)

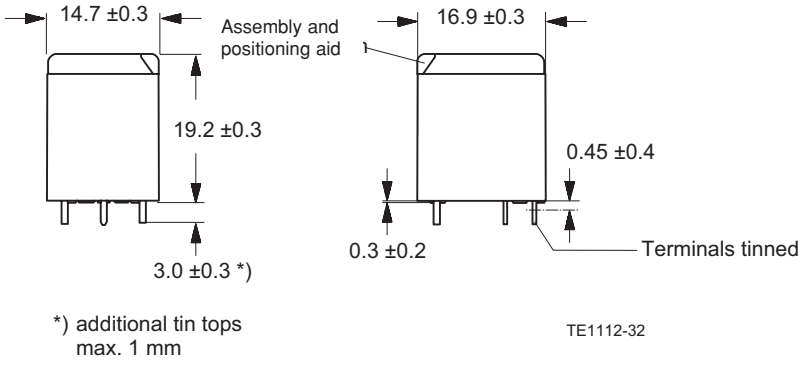
Grid 1.25 … 1.27 mm



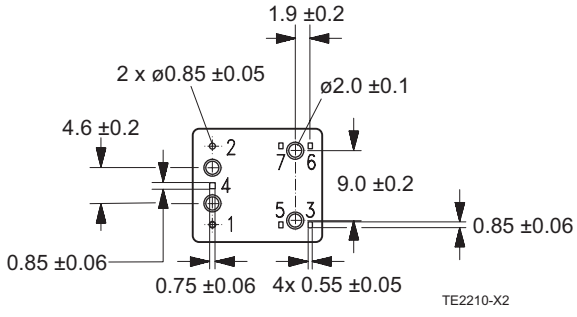
Mini Relay K (Sealed)

Dimensional Drawing

Mini Relay K Sealed Version

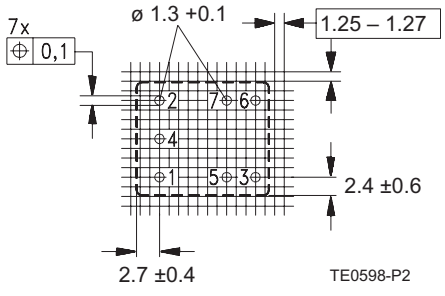


View of the Terminals (bottom view)



Mounting Hole Layout (bottom view)

Grid 1.25 … 1.27 mm



All specifications subject to change. Consult Tyco Electronics for latest specifications.

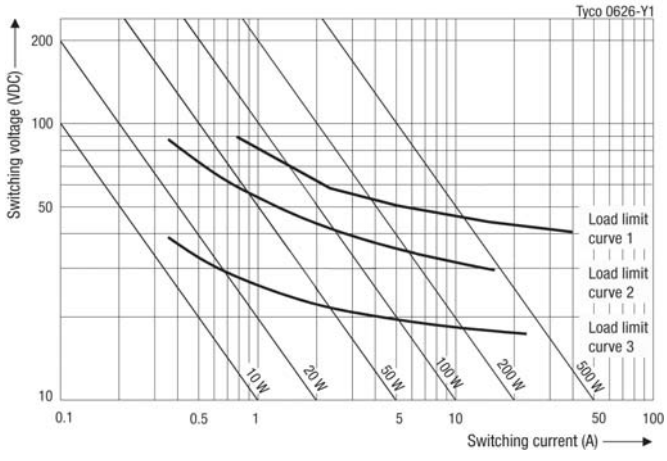
Mini Relay K (Open – Sealed)

Contact Data

Typical areas of application	Resistive/inductive loads			Head/indicator lamps	
Contact configuration	1 Make contact/ 1 Form A	1 Changeover contact/ 1 Form C	1 Double make contact/ 1 Form U	1 Make contact/ Form A	1 Double make contact/ 1 Form U
Circuit symbol (see also Pin assignment)					
Rated voltage	12 V				
Rated current	10 A	5 A/10 A	2 x 6 A	5 A	2 x 5 A
Limiting continuous current					
23°C	15 A	10 A/15 A	2 x 10 A	6 A	2 x 6 A
85°C	10 A	5 A/10 A	2 x 6 A	5 A	2 x 5 A
Contact material	AgNi0.15			$AgSnO_2$	
Max. switching voltage/power	See load limit curve				
Max. switching current [1]		NC/NO			
On [2]	60 A	12 A/60 A	2 x 40 A	60 A [3]	120 A [3]
Off	20 A	10 A/20 A	2 x 20 A	6 A	12 A
Min. recommended load [4]	1 A at 5 V				
Voltage drop at 10 A (initial) for NC/NO contacts	Typ. 50 mV, 300 mV max.		Typ. 2 x 50 mV, 300 mV max.	Typ. 150 mV, 300 mV max.	
Mechanical endurance (without load)	> 10^7 operations				
Electrical endurance	> 2 x 10^5 operations 10 A, 13.5 V			> 1 x 10^6 operations up to 6 x 21 W	> 1.5 x 10^6 operations up to 6 x 21 W
				> 1.5 x 10^5 operations 100 A on/10 A off High beam	> 7.5 x 10^5 operations 100 A on/10 A off High beam

[1] The values apply to a resistive load or inductive load with suitable spark suppression and at maximum 13.5 V for 12 V and 27 V for 24 V load voltages.
[2] For a load current duration of maximum 3 s for a make/break ratio of 1:10.
[3] Corresponds to the peak inrush current on initial actuation (cold filament).
[4] See chapter Diagnostics of Relays in our Application Notes page 31 or consult the internet at http://relays.tycoelectronics.com/appnotes/

Load Limit Curve

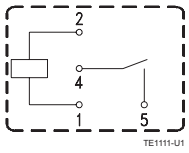


Load limit curve 1 ≙ safe shutdown, connected as Form X, load on pin 5 and 7
Load limit curve 2 ≙ safe shutdown,no stationary arc/make contact
Load limit curve 3 ≙ arc extinguishes during transit time (changeover contact)

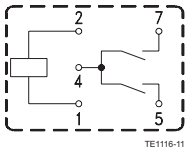
Mini Relay K (Open – Sealed)

Circuit Diagram (Open and Sealed)

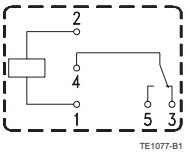
1 Make contact/1 Form A



1 Double make contact/1 Form U



1 Changeover contact/1 Form C



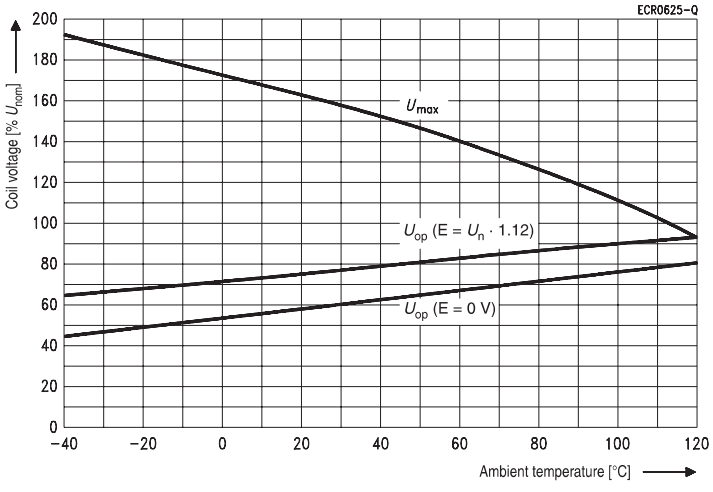
Coil Data

Available for nominal voltages	12 V / 24 V (other coils on request)
Nominal power consumption of the unsuppressed coil at nominal voltage	1.1 W
Test voltage winding/contact	500 VAC_{rms}
Maximum ambient temperature range [1)]	–40 to +85°C
Operate time at nominal voltage	Typ. 3 ms
Release time at nominal voltage [2)]	Typ. 1.5 ms

1) See also operating voltage range diagram.
2) For unsuppressed relay coil.

Note:
A low resistive suppression device in parallel to the relay coil increases the release time and reduces the lifetime caused by increased erosion and/or higher risk of contact tack welding.

Operating Voltage Range



Does not take into account the temperature rise due to the contact current
E = pre-energization

All specifications subject to change. Consult Tyco Electronics for latest specifications.

Mini Relay K (Open – Sealed)

Environmental Conditions				
Temperature range, storage	Refer to *Storage* in the "Glossary" catalog page 23 or http://relays.tycoelectronics.com/appnotes/			
Test	Relevant standard	Testing as per	Dimension	Comments
Climatic cycling with condensation [1)]	EN ISO 6988		20 cycles	Storage 8/16 h
Temperature cycling [1)]	IEC 68-2-14	Na	720 cycles	–40/+85°C (dwell time 1 h)
Damp heat [1)] constant	IEC 68-2-3	Method Ca	56 days	Upper air temperature 55°C
Corrosive gas [1)]	IEC 68-2-42 IEC 68-2-43		10 days 10 days	
Vibration resistance	IEC 68-2-6 (sine pulse form) acceleration, acc. to position		10 - 200 Hz 23 - 35 g	No change in the switching state > 10 µs
Shock resistance	IEC 68-2-27 (half sine form single pulses) acceleration		4 - 6 ms 23 - 280 g	No change in the switching state > 10 µs
Solderability	IEC 68-2-20	Ta, Method 1	Hot dip 5 s 215°C	Aging 3 (4 h/155°C) for leaded process (Tm = 183°C) for Pb-free process (Tm = 217°C)
Resistance to soldering heat	IEC 68-2-20	Tb, Method 1A	Hot dip 10 s 260°C	with thermal screen
Sealing [1)]	IEC 68-2-17	Qc, Method 2		1 min/70°C
Flammability	UL94-HB			

[1)] Only sealed version

Ordering Information

Part Numbers (see table below for coil data)		**Contact Arrangement**	**Contact Material**	**Enclosure**	**Terminals**
Relay Description	**Part Number**				
V23072-A1061-A303	3-1393272-2	1 Form C	AgNi0.15	Open	Printed circuit
V23072-A1062-A303	5-1393272-2	1 Form C	AgNi0.15	Open	Printed circuit
V23072-A1061-A308	3-1393272-6	1 Form U, X	AgNi0.15	Open	Printed circuit
V23072-A1062-A308	5-1393272-3	1 Form U, X	AgNi0.15	Open	Printed circuit
V23072-C1061-A302	4-1393273-9	1 Form A	AgNi0.15	Sealed	Printed circuit
V23072-C1062-A302	7-1393273-6	1 Form A	AgNi0.15	Sealed	Printed circuit
V23072-C1061-A303	5-1393273-6	1 Form C	AgNi0.15	Sealed	Printed circuit
V23072-C1062-A303	7-1393273-8	1 Form C	AgNi0.15	Sealed	Printed circuit
V23072-C1061-A308	6-1393273-0	1 Form U, X	AgNi0.15	Sealed	Printed circuit
V23072-C1062-A308	8-1393273-2	1 Form U, X	AgNi0.15	Sealed	Printed circuit
V23072-C1061-A402	2-1416001-0	1 Form A (Lamp load)	$AgSnO_2$	Sealed	Printed circuit
V23072-C1061-A408	1-1416001-4	1 Form U, X (Lamp/Flasher load)	$AgSnO_2$	Sealed	Printed circuit

Coil Versions

Coil Data for Mini K		**Rated Coil Voltage (V)**	**Coil Resistance ±10% (Ω)**	**Must Operate Voltage (V)**	**Must Release Voltage (V)**	**Allowable Overdrive [1)] Voltage (V)**	
						at 23°C	**at 85°C**
Open and sealed	V23072-**061-****	12	130	6.9	1.2	19.2	14.9
	V23072-**062-****	24	520	14.1	2.4	38.4	29.8

[1)] Allowable overdrive is stated with no load applied and minimum coil resistance.

Standard Delivery Packs (orders in multiples of delivery pack)

Mini K – Open: 600 pieces
Mini K – Sealed: 504 pieces