Double Mini Relay DMR

■ **Limiting continuous current 30 A**

Typical applications
Car alarm, door control, door lock, immobilizer, seat control, sun roof, window lifter, wiper control.
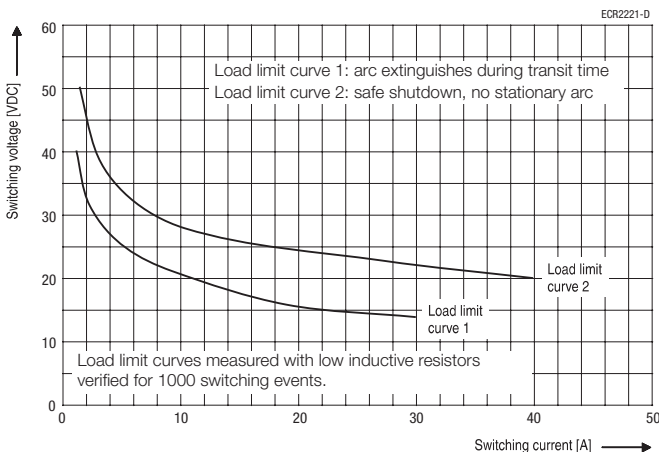
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Contact Data

Contact arrangement	2 form C, 2 CO	
Rated voltage	12VDC	
Rated current	both systems	motor reverse[1)2)]
	20/20A	30/30A
Limiting continuous current		
at 23°C	20/20A	30/30A[2)]
at 85°C	15/15A	30/30A
Limiting making current[1)]	35A	35A
Limiting breaking current[1)]	35A	35A
Contact material	$AgSnO_2$	
Min. recommended contact load	1A at 5VDC[3)]	
Initial voltage drop at 10A, typ./max.	30/300mV	
Operate/release time max. at nominal voltage	typ. 3/1.3ms[4)]	
Electrical endurance		
at cyclic temperature -40/+23/+85°C and 13.5VDC, both systems, motor reverse blocked, 25A, 0.77mH inductive	>10[5] ops.	
$AgSnO_2$, lamp load, 45A (on), 8A (off), 80°C	>2x10^{5} ops.	
$AgSnO_2$, resistive load, 20A, 80°C	>2x10^{7} ops.	
Mechanical endurance	>10[7] operations	

1) The values apply to a resistive or inductive load with suitable spark suppression and at maximum 13.5VDC for 12VDC load voltages.
2) At 50% ON period: max. make time 15s.
3) See chapter Diagnostics of Relays in our Application Notes or consult the internet at http://relays.te.com/appnotes/
4) For unsuppressed relay coil. 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.
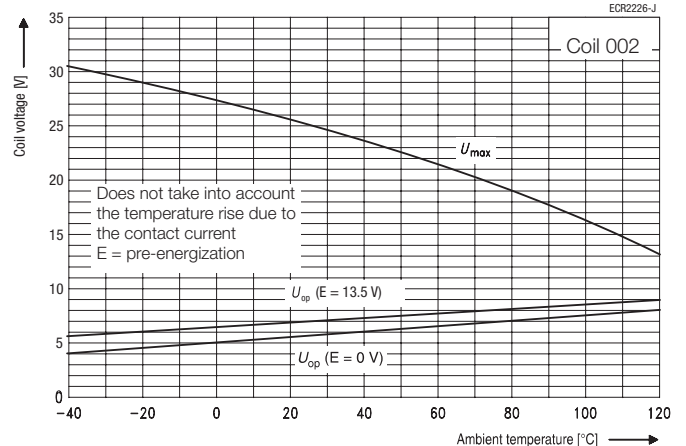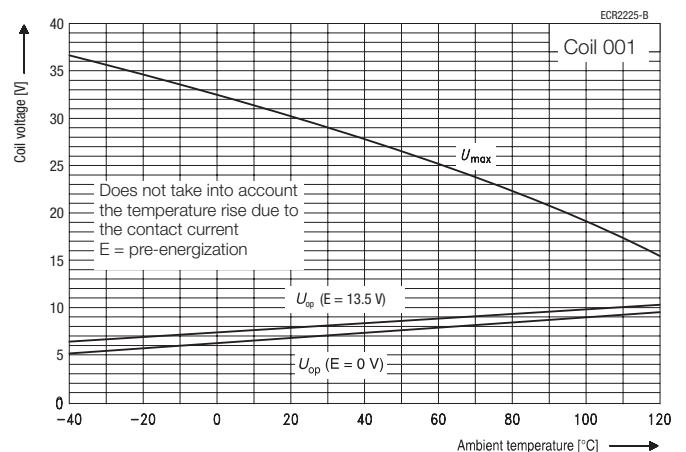
Max. DC load breaking capacity

ECR2221-D

Load limit curve 1: arc extinguishes during transit time
Load limit curve 2: safe shutdown, no stationary arc

Load limit curve 2
Load limit curve 1

Load limit curves measured with low inductive resistors verified for 1000 switching events.

Switching voltage [VDC]
Switching current [A]

Coil Data

Coil voltage range	-40 to +85°C
Rated coil voltage	12VDC

Coil versions, DC coil

Coil code	Rated voltage VDC	Operate voltage VDC	Release voltage VDC	Coil resistance Ω±10%	Rated coil power mW
001	12	6.9	1.0	255	565
002	12	5.8	0.8	178	809

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

Coil operating range

ECR2225-B

Coil 001

U_{max}

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

U_{op} (E = 13.5 V)
U_{op} (E = 0 V)

Coil voltage [V]
Ambient temperature [°C]

ECR2226-J

Coil 002

U_{max}

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

U_{op} (E = 13.5 V)
U_{op} (E = 0 V)

Coil voltage [V]
Ambient temperature [°C]

Double Mini Relay DMR (Continued)

Insulation Data

Initial dielectric strength

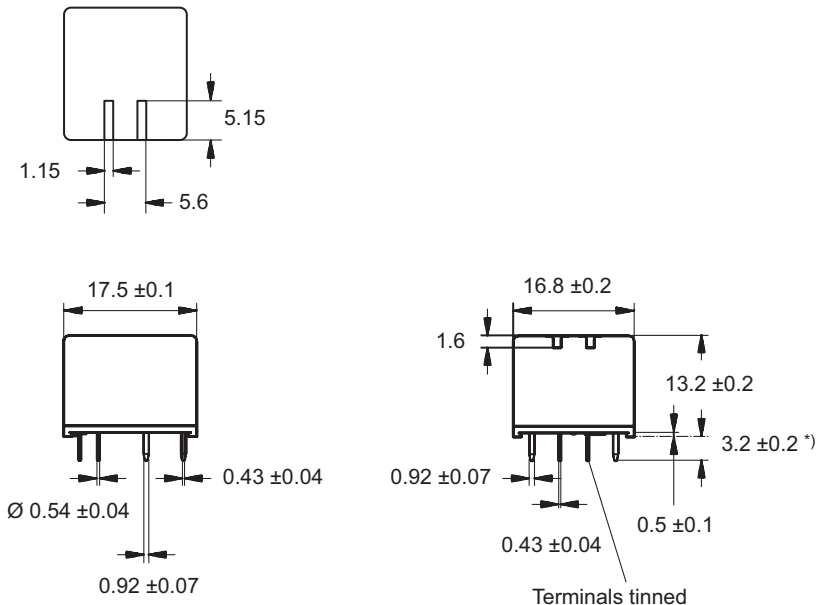|	
between open contacts	$500VAC_{rms}$
between contact and coil	$500VAC_{rms}$

Other Data

EU RoHS/ELV compliance	compliant
Ambient temperature	-40 to 85°C
Cold storage, IEC 60068-2-1	1000h; -40°C
Dry heat. IEC 60068-2-2	1000h; +125°C
Temperature cycling (shock) IEC 60068-2-14, Na	1000 cycles; -40/+125°C
Temperature cycling IEC 60068-2-14, Nb	35 cycles; -40/+125°C
Damp heat cyclic IEC 60068-2-30, Db, Variant 1	6 cycles 25°C/55°C/93%RH
Damp heat constant IEC 60068-2-3, Ca	56 days 40°C/95%RH[5]
Category of environmental protection, IEC 61810	RT III - immersion cleanable
Sealing test IEC 60068-2-17	Qc, method 2, 1min, 70°C
Vibration resistance (functional) IEC 60068-2-6 (sine sweep)	10 to 200Hz; 6to 30g[6]
Shock resistance (functional) IEC 60068-2-27 (half sine)	6ms; 30g[6]
Shock resistance (destructive) IEC 60068-2-29 (half sine)	30g: 6ms, 105 shocks 100g: 2ms, 10 shocks
Terminal type	PCB
Weight	approx. 10g (0.35oz)
Solderability (aging 3: 4h/155°C) IEC 60068-2-20	Ta, method 1, hot dip 5s, 215°C
Resistance to soldering heat THT IEC 60068-2-20	Tb, method 1A, hot dip 10s, 260°C with thermal screen
Packaging unit	600 pcs.

5) Relays have to be dried at 85°C for 24 hours after test.
6) depending on mounting position: no change in the switching state >10μs.

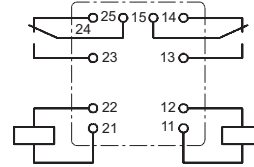### Terminal Assignment

Bottom view on solder pins

2 form C contacts, 2 CO

TE1651-J2

PCB Layout

Bottom view on solder pins

TE1652-S3

Dimensions

5.15
1.15
5.6

17.5 ±0.1
0.43 ±0.04
Ø 0.54 ±0.04
0.92 ±0.07

16.8 ±0.2
1.6
13.2 ±0.2
3.2 ±0.2 *)
0.92 ±0.07
0.5 ±0.1
0.43 ±0.04
Terminals tinned

*) Additional tin tops max. 1mm
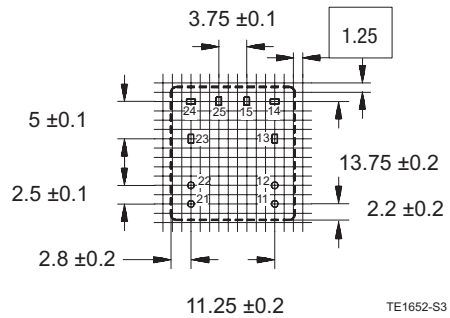
TE1650-B3

Double Mini Relay DMR (Continued)

Product code structure

| | | | | | Typical product code | **V23084** | **-C** | **2** | **001** | **-A** | **4** | **03** |

Type						
V23084	Double Mini Relay DMR					
Terminal and enclosure						
C	PCB version, sealed					
Design						
2	Double relay					
Coil						
001	Standard (THT)		**002**	Sensitive (THT)		
Contact type						
A	Single contact					
Contact material						
4	AgSnO$_2$					
Contact arrangement						
03	1 form C, 1 CO					

Product code	Terminal/Encl.	Design	Coil	Contact	Cont. material	Arrangement	Part number
V23084-C2001-A403	PCB, immersion	Double	Standard (THT)	Single	AgSnO$_2$	2 form C, 2 CO	0-1393267-6
V23084-C2002-A403	cleanable		Sensitive (THT)				1-1393267-2