

Double Mini Relay DMR



**Features**

- Limiting continuous current 30 A
- Easiest PCB routing among all PCB relays

**Typical Applications**

- Car alarm
- Door control
- Door lock
- Immobilizer
- Seat control
- Sun roof
- Window lifter
- Wiper control

Please contact Tyco Electronics for relay application support.



84C\_3d05

**Design**

- ELV/RoHS/WEEE compliant
- Sealed type washable

**Weight**

Approx. 10 g (0.35 oz.)

**Nominal Voltage**

12 V

**Terminals**

PCB terminals for assembly on printed circuit boards

**Conditions**

All parametric, environmental and endurance tests are performed according to EIA Standard RS-407-A at standard test conditions unless otherwise noted:  
23°C ambient temperature,  
20 - 50% RH, 998.9 ±33.9 hPa.

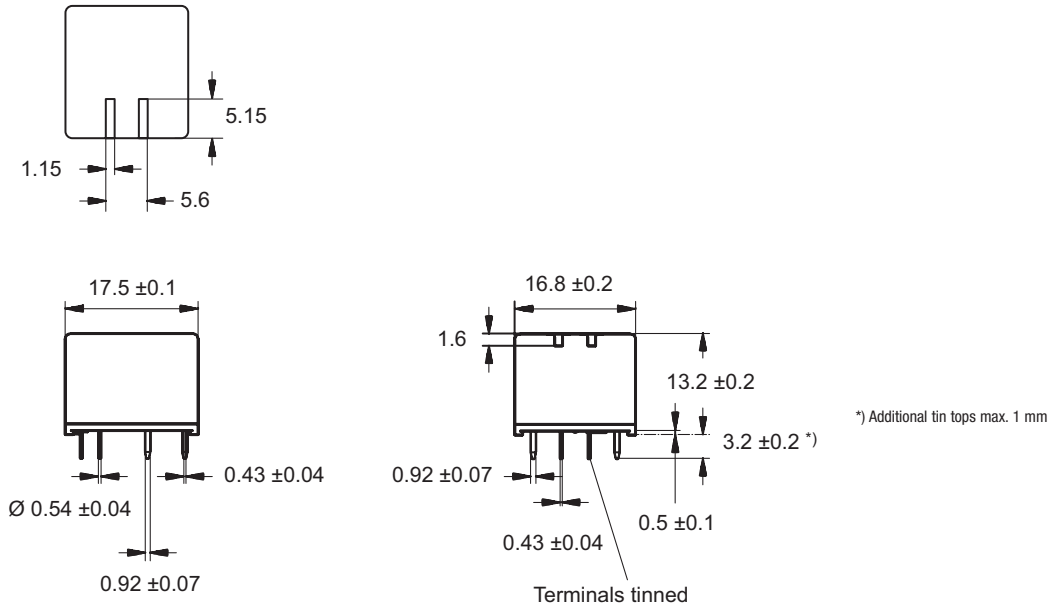
For general storage and processing recommendations please refer to our Application Notes and especially to *Storage* in the "Glossary" page 23 or at <http://relays.tycoelectronics.com/appnotes/>

**Disclaimer**

All technical performance data apply to the relay as such, specific conditions of the individual application are not considered. Please always check the suitability of the relay for your intended purpose. We do not assume any responsibility or liability for not complying herewith. We recommend to complete our questionnaire and to request our technical service. Any responsibility for the application of the product remains with the customer only. All specifications are subject to change without notification. All rights of Tyco Electronics are reserved.

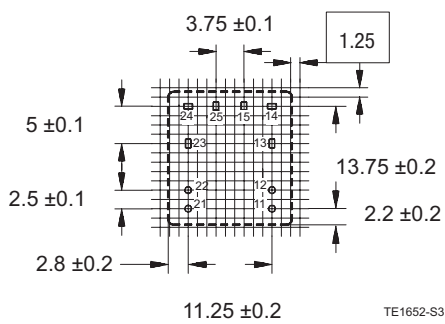
Double Mini Relay DMR

**Dimensional Drawing**



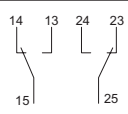
TE1650-B3

**View of the Terminals (bottom view)**



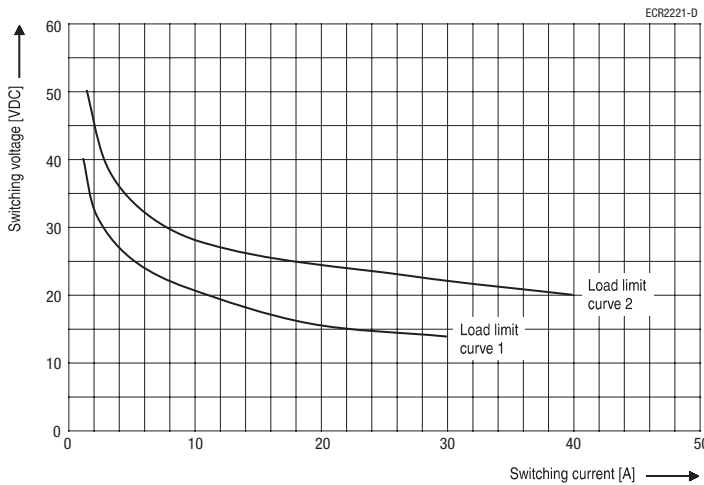
TE1652-S3

**Double Mini Relay DMR**

Contact Data					
Contact configuration	2 Changeover contacts/ 2 Form C				
Circuit symbol (see also Pin assignment)					
Rated voltage	12 V (standard)				
Rated current	Both systems 15 A/15 A	Motor reverse <sup>1)3)</sup> 30 A/30 A	Both systems 12 A/12 A	Motor reverse <sup>1)3)</sup> 30 A/30 A	
Limiting continuous current	23°C	20 A/20 A	30 A/30 A <sup>3)</sup>	18 A/18 A	30 A/30 A <sup>3)</sup>
	85°C	15 A/15 A	30 A/30 A	12 A/12 A	30 A/30 A
	105°C	0 A	0 A	0 A	0 A
Contact material	AgNi 0,15		AgSnO <sub>2</sub>		
Max. switching voltage/power	See load limit curve				
Max. switching current <sup>1)</sup>	NC/NO 35 A/35 A				
Off	35 A/35 A				
Min. recommended load <sup>2)</sup>	1 A at 5 V				
Voltage drop at 10 A (initial) for NC/NO contacts	Typ. 30 mV, 300 mV max.				
Mechanical endurance (without load)	> 10 <sup>7</sup> operations				
Electrical endurance at cyclic temperature -40/+23/+85°C and 13.5 V	Motor reverse blocked: > 10 <sup>5</sup> operations at 25 A 0.77 mH inductive load		Lamp load: > 2 x 10 <sup>5</sup> operations at 45 A (on), 8 A (off), 13.5 V, 80°C  Resistive load: > 2 x 10 <sup>5</sup> operations at 20 A, 13.5 V, 80°C		

<sup>1)</sup> The values apply to a resistive or inductive load with suitable spark suppression and at maximum 13.5 V for 12 V load voltages.  
<sup>2)</sup> See chapter Diagnostics of Relays in our Application Notes page 31 or consult the internet at <http://relays.tycoelectronics.com/appnotes/>  
<sup>3)</sup> At 50% ON period: max. make time 15 s.

**Load Limit Curve**

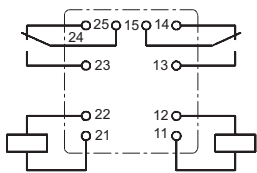


Load limit curve 1 ≙ arc extinguishes during transit time  
 Load limit curve 2 ≙ safe shutdown, no stationary arc

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**Circuit Diagram**

2 Changeover contacts/2 Form C  
PCB terminals



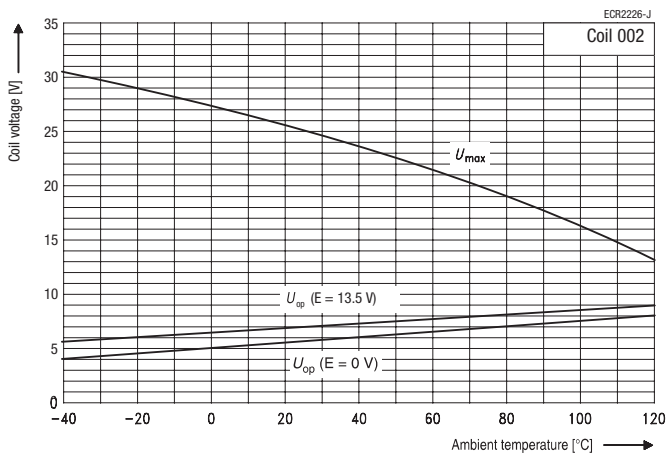
Coil Data	Standard Coil 001	Sensitive Coil 002
Available for nominal voltages		12 V
Nominal power consumption of the unsuppressed coil at nominal voltage	0.56 W	0.81 W
Test voltage winding/contact		500 VAC <sub>rms</sub>
Maximum ambient temperature range		-40 to +85°C
Operate time at nominal voltage		Typ. 3 ms
Release time at nominal voltage <sup>1)</sup>		Typ. 1.3 ms

<sup>1)</sup> For unsuppressed relay coil

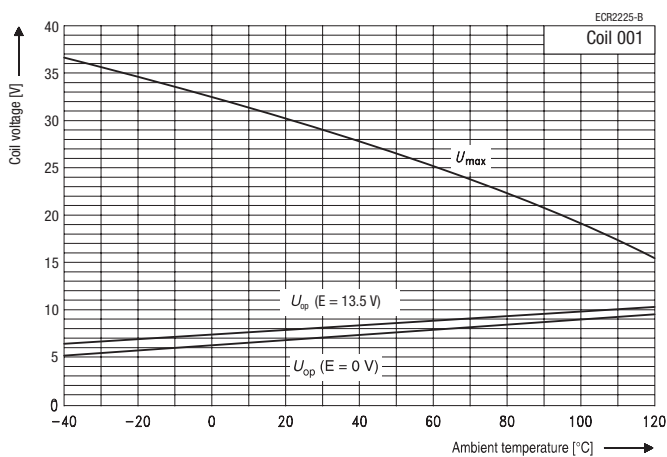
**Note:**

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



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**Environmental Conditions**

Temperature range, storage	Refer to <i>Storage</i> in the "Glossary" catalog page 23 or <a href="http://relays.tycoelectronics.com/appnotes/">http://relays.tycoelectronics.com/appnotes/</a>			
Test	Relevant standard	Testing as per	Dimension	Comments
Cold storage	IEC 68-2-1		1000 h	-40°C
Dry heat	IEC 68-2-2	Ba	1000 h	125°C
Temperature cycling	IEC 68-2-14	Nb	35 cycles	-40/+125°C
Thermal shock	IEC 68-2-14	Na	1000 cycles	-40/+125°C
Damp heat <sup>1)</sup>				
cyclic	IEC 68-2-30	Db, variant 2	6 cycles	25°C/55°C/93% rh
constant	IEC 68-2-3	Method Ca	56 days	40°C/95% rh <sup>1)</sup>
Resistance to aggressive liquids	VDA-test-conditions 621	Liquid 1-11		48 h/50°C drying
Vibration resistance	IEC 68-2-6 (vibration, sinusoidal) acceleration, depending on position		10 - 200Hz 6 - 30 g	No change in the switching state > 10 µs
Shock resistance	IEC 68 - 2 - 29 (half sine)		6 ms 30 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	IEC 68-2-17	Qc, method 2		1 min/70°C
Wipe resistance	IEC 68-2-45	Propanol-2-ol or dest. water	5 min	Room temperature

<sup>1)</sup> Relays have to be dried at 85°C for 24 hours after test.

**Ordering Information**

Part Numbers (see table below for coil data)		Contact Arrangement	Contact Material	Enclosure	Terminals
Relay Description	Part Number				
V23084-C2001-A303	1393267-2	2 Form C	AgNi0.15	Immersion cleanable	Printed circuit
V23084-C2002-A303	1-1393267-0	2 Form C	AgNi0.15	Immersion cleanable	Printed circuit
V23084-C2001-A403	1393267-6	2 Form C	AgSnO <sub>2</sub>	Immersion cleanable	Printed circuit
V23084-C2002-A403	1-1393267-2	2 Form C	AgSnO <sub>2</sub>	Immersion cleanable	Printed circuit

**Coil Versions**

Coil Data for DMR	Rated Coil Voltage (V)	Coil Resistance ±10% (Ω)	Must Operate Voltage (V)	Must Release Voltage (V)	Allowable Overdrive <sup>1)</sup> Voltage (V)	
					at 23°C	at 85°C
V23084-**001-****	12	255	6.9	1	31	24
V23084-**002-****	12	178	5.8	0.8	25.8	19.5

<sup>1)</sup> Allowable overdrive is stated with no load applied and minimum coil resistance.

**Standard Delivery Packs** (orders in multiples of delivery pack)

DMR: 600 pieces