Double Mini Relay DMR


Powertrain Systems


Chassis Systems


Safety


Security


Body


Driver Information


Convenience

Description

Features

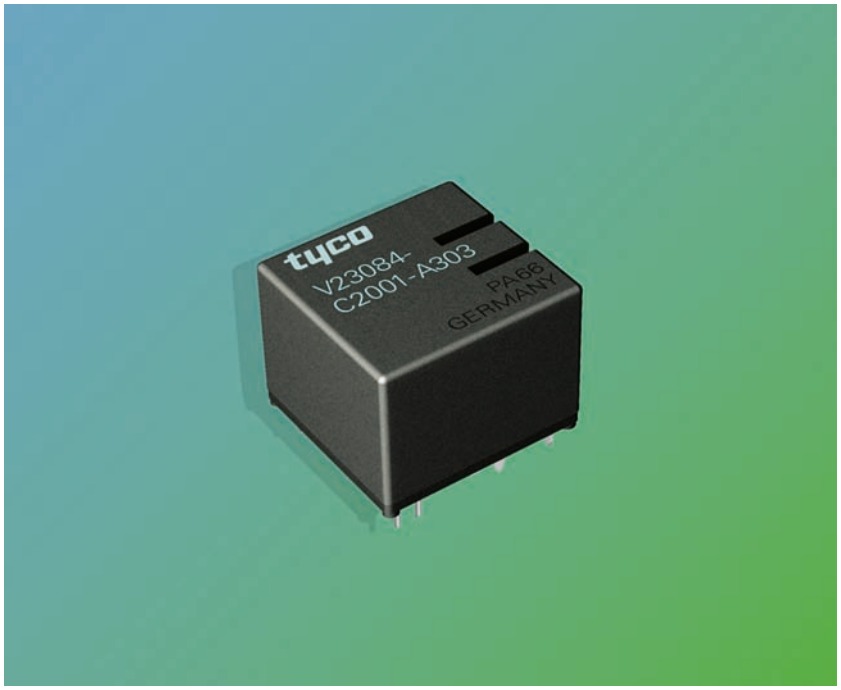
- Two separate systems
- Lamp applications
- Extremely space saving double relay

Typical applications

- Door locking systems
- Immobilizers
- Seat adjustment motors
- Seatbelt pretensioner
- Sunroof and window motors

DMR will also be available as THR soldering version as from July 2006.

Please contact Tyco Electronics for relay application support.



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Car Industry


Truck Industry


Other Industry

Design

- Printed circuit terminals
- Immersion cleanable: protection class IP 67 to IEC 529 (EN 60 529)

Weight

Approx. 10 g - standard version

Nominal voltage

12 V

Terminals

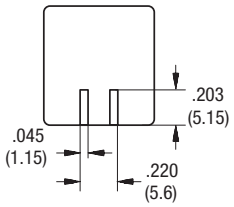
Printed circuit terminals

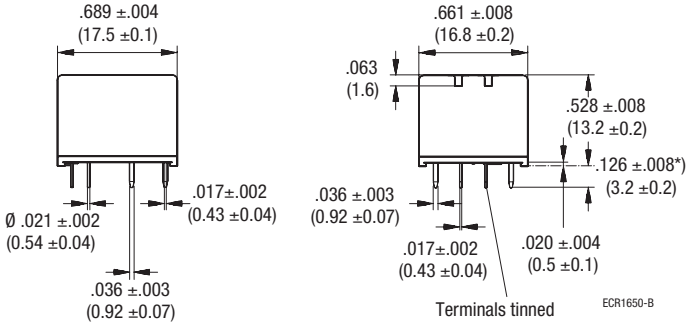
Conditions

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, 29.5 ± 1.0" Hg
(998.9 ±33.9 hPa).
Please also refer to the Application Recommendations in this catalog for general precautions.

Double Mini Relay DMR

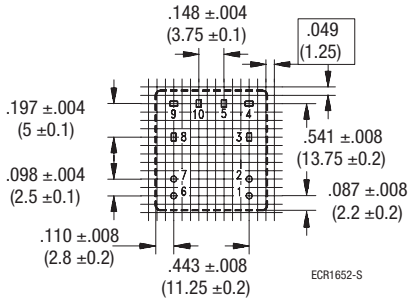
Dimensional drawing





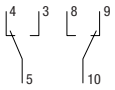
*) additional tin tops
max .039 inch (1 mm)

View of the terminals (Bottom view)



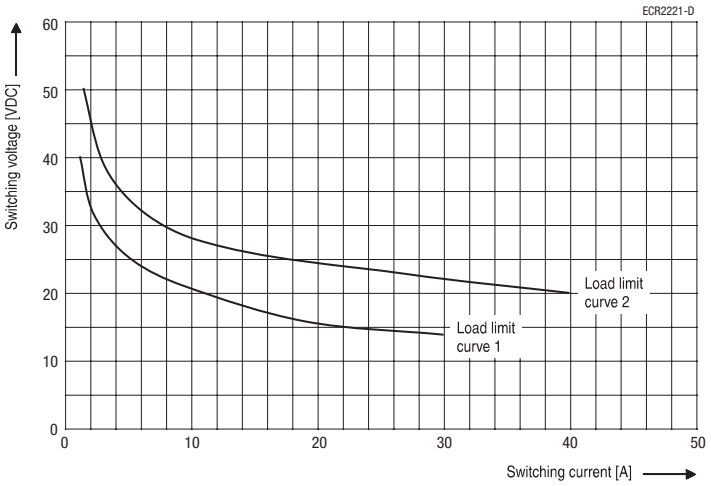
Double Mini Relay DMR

Contact data

Contact configuration	2 Changeover contacts/ 2 Form C			
Circuit symbol (see also Pin assignment)				
Rated voltage	12 V		12 V	
Rated current at 85 °C	Both systems 15 A/15 A	Motor reverse[1] 30 A/30 A	Both systems 12 A/12 A	Motor reverse[1] 30 A/30 A
Contact material	AgNi 0,15		$AgSnO_2$	
Max. switching voltage/power	See load limit curve			
Max. switching current[2] Off	NC/NO 35 A/35 A			
Min. recommended load[3]	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)	> 10^7 operations			
Electrical endurance	Motor reverse blocked: >10^5 operations at 25 A, 13.5 V, 0.77 mH inductive load[1] -40 °C/23 °C/85 °C cyclic		Lamp load: >2 x 10^5 operations at 45 A (on), 8 A (off), 13.5 V, 80 °C Resistive load: >2 x 10^5 operations at 20 A, 13.5 V, 80 °C	

[1] At 50 % ON period: max. make time 15 s
[2] The values apply to a resistive or inductive load with suitable spark suppression and at maximum 13.5 V for 12 V or 27 V for 24 V load voltages.
For a load current duration of maximum 3 s for a make/break ratio of 1:10.
[3] See chapter Diagnostics in our Application Recommendations on page 18 of this catalog or consult the internet at http://relays.tycoelectronics.com/application.asp

Load limit curve



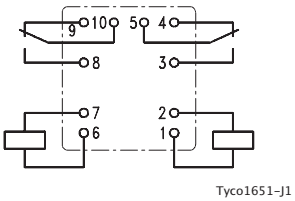
Load limit curve 1 ≙ arc extinguishes during transit time

Load limit curve 2 ≙ safe shutdown, no stationary arc

Pin assignment

2 changeover contacts/
2 form C

PCB terminals



Double Mini Relay DMR

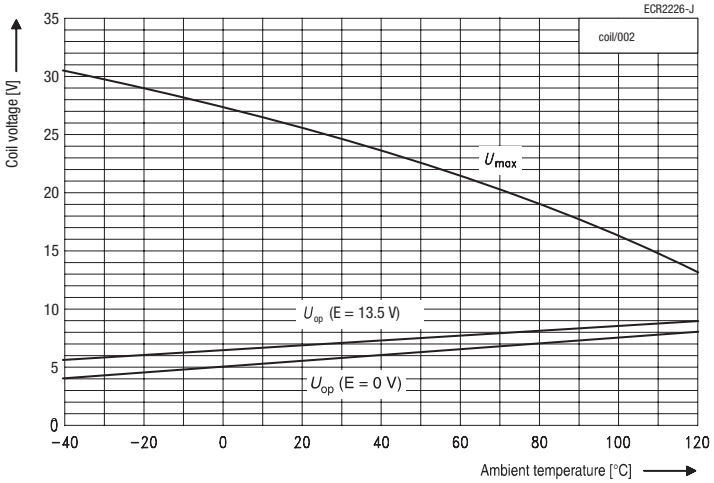
Coil data	Coil 1	Coil 2
Available for nominal voltages	12 V	
Nominal power consumption of the unsuppressed coil at nominal voltage	0.56 W	0.81 W
Test voltage winding/contact	500 VAC_{rms}	
Maximum ambient temperature range	-40 to + 85 °C	
Operate time at nominal voltage	Typ. 3 ms	
Release time at nominal voltage[1)]	Typ.1.3 ms	

[1)] For unsuppressed relay coil

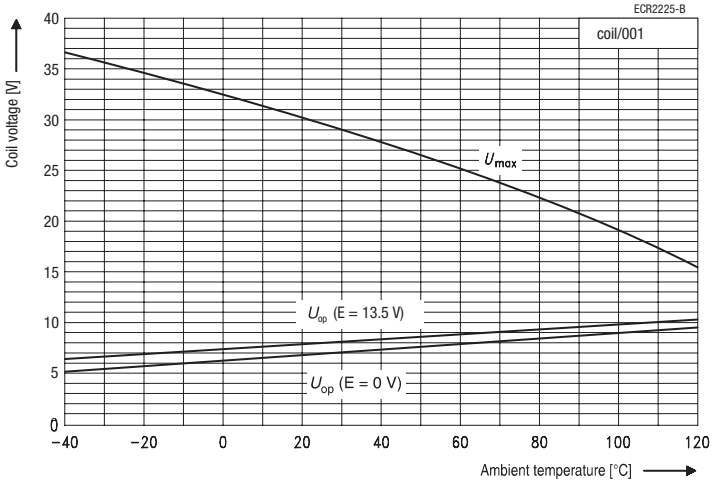
N.B.

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



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

Double Mini Relay DMR

Operating conditions				
Temperature range, storage	Refer to *Storage* in the "Glossary"			
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[1)]				
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[1)]
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		Aging 3 (4 h/155 °C) Dewetting
Resistance to soldering heat	IEC 68-2-20	Tb, method 1A	260 °C, 10 s	10 s ± 1 s 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

[1)] 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 part number	Tyco order 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	AgSnO2	Immersion cleanable	Printed circuit
V23084-C2002-A403	1-1393267-2	2 Form C	AgSnO2	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 [1)] 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

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

Standard delivery pack (orders in multiples of delivery pack)

Double Mini Relay DMR: 600 pieces