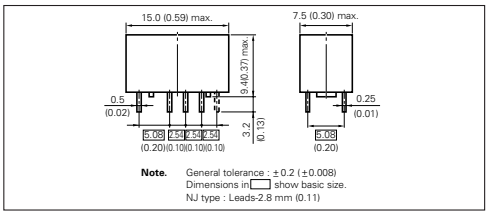
ED2 Series

The ED2 series has reduced coil power consumption but sustained high-performance of NECTOKIN SIGNAL RELAYS. Furthermore, it complies with 2500 V surge-voltage requirement of Telcordia specifications.

■ FEATURES

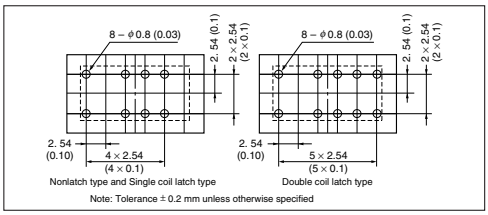
- Low power consumption (30 to 70 mW)
- Compact and light weight
- 2 form c contact arrangement
- Reduced mounting space: 15 mm × 7.5 mm
- High-breakdown voltage of coil to contacts: 1500 Vac, 2500 V (2 × 10 μs*3)
- UL recognized (E73266), CSA certified (LR46266)

■ DIMENSIONS mm(inch)

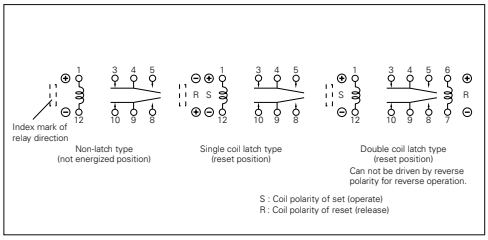


■ RECOMMENDED PAD LAYOUT

(bottom view)mm(inch)



■ SCHEMATICS (bottom view)



■ SPECIFICATIONS

Contact Form		2 Form c
Contact Material		Silver alloy with gold alloy overlay
Contact Ratings	Maximum Switching Power	30 W, 62.5VA
	Maximum Switching Voltage	220 Vdc, 250 Vac
	Maximum Switching Current	1 A
	Maximum Carrying Current	2 A
Minimum Contact Ratings		10 mVdc, 10 μA*1
Initial Contact Resistance		75 mΩ max.(Initial)
Nominal Operating Power	Nonlatch type	50 mW (1.5 to 9 V), 55 mW (9 V), 60 mW (12 V), 70 mW (24 V)
	Single coil latch type	30 mW
	Double coil latch type	50 mW
Operate Time (Excluding bounce)		Approx. 3 ms
Release Time (Excluding bounce)		Approx. 2 ms without diode
Insulation Resistance		1000 MΩ at 500 Vdc
Withstand Voltage	Between open contacts	1000 Vac (for one minute) 1500 V surge (10 × 160 μs*2)
	Between adjacent contacts	
	Between coil to contacts	1500 Vac (for one minute) Double Coil 1000 Vac (for one miniute) 2500 V surge (2 × 10 μs*3) Latch type 1500 V surge (10 × 160 μs*2)
Shock Resistance		735 m/s² (misoperating), 980 m/s² (destructive failure)
Vibration Resistance		10 to 55 Hz, double amplitude 3 mm (misoperating) 10 to 55 Hz, double amplitude 5 mm (destructive failure)
Ambient Temperature		-40 to + 70°C*4
Coil Temperature Rise		7 degrees at nominal coil voltage (50 mW)
Running Specifications	Nonload	1 × 10⁸ *5 operations(Non-latch type) 1 × 10⁷ operations(latch type)
	Load	50 Vdc, 0.1 A (resistive) 1 × 10⁶ operations at 70°C, 5 Hz 10 Vdc, 10 mA (resistive) 1 × 10⁶ operations at 70°C, 2 Hz
Weight		Approx. 2.2 g

* 1 This value is a reference value in the resistance load.
  Minimum capacity changes depending on switching frequency and environment temperature and the load.
* 2 rise time : 10 μs, decay time to half crest : 160 μs
* 3 rise time : 2 μs, decay time to half crest : 10 μs
* 4 Up to 85℃ (75% operation of rated voltage at Nonlatch type only),it is possible to respond to a customer's requirement individually.
* 5 This shows a number of operation where it can be running by which a fatal defect is not caused, and a number of operation by which a steady characteristic is maintained is 1×10⁷ operations.

ED2 Series

■ PART NUMBER SYSTEM

ED2-3SNU

- Nil: Standard type
- NU: UL recognized CSA certified type
- NJ: Trimmed leads type (UL recognized CSA certified type)

Latch type
- Nil: Nonlatch type (standard)
- S: Single coil latch type
- T: Double coil latch type

Nominal coil voltage (See part numbers)

■ SAFETY STANDARD AND RATING

UL Recognized (UL508)* File No. E73266	CSA Certificated (CSA C22.2 No14) File No. LR46266
30 Vdc, 1 A (Resistive) 110 Vdc, 0.3 A (Resistive) 125 Vac, 0.5 A (Resistive)	

* Spacing : UL114, UL478

TUV Certified (EN61810 / IEC61810)
No. R9950557
Nonlatch and Single-coil-latch
Creepage and clearance of coil to contact is over than 2 mm (According EN60950)
Basic insulation class

■ PART NUMBERS

• Nonlatch Type

at 20 °C

Part Number (Standard)	Nominal Coil Voltage (Vdc)	Coil Resistance (Ω) ±10%	Must Operate Voltage** (Vdc)	Must Release Voltage* (Vdc)
ED2-1.5	1.5	45	1.2	0.15
ED2-3	3	180	2.4	0.3
ED2-4.5	4.5	405	3.6	0.45
ED2-5	5	500	4.0	0.5
ED2-6	6	720	4.8	0.6
ED2-9	9	1473	7.2	0.9
ED2-12	12	2400	9.6	1.2
ED2-24	24	8229	19.2	2.4

• Single Coil Latch Type

at 20 °C

Part Number (Standard)	Nominal Coil Voltage (Vdc)	Coil Resistance (Ω) ±10%	Must Operate Voltage* (Vdc)	Must Release Voltage* (Vdc)
ED2-1.5S	1.5	75	1.2	1.2
ED2-3S	3	300	2.4	2.4
ED2-4.5S	4.5	675	3.6	3.6
ED2-5S	5	833	4.0	4
ED2-6S	6	1200	4.8	4.8
ED2-9S	9	2700	7.2	7.2
ED2-12S	12	4800	9.6	9.6

• Double Coil Latch Type** (Can not be driven by reverse polarity for reverse operation)

at 20 °C

Part Number (Standard)	Nominal Coil Voltage (Vdc)	Coil Resistance (Ω) ±10%	Must Operate Voltage* (Vdc)	Must Release Voltage* (Vdc)
ED2-1.5T	1.5	S 45 R 45	1.2 –	– 1.2
ED2-3T	3	S 180 R 180	2.4 –	– 2.4
ED2-4.5T	4.5	S 405 R 405	3.6 –	– 3.6
ED2-5T	5	S 500 R 500	4.0 –	– 4
ED2-6T	6	S 720 R 720	4.8 –	– 4.8
ED2-9T	9	S 1620 R 1620	7.2 –	– 7.2
ED2-12T	12	S 2880 R 2880	9.6 –	– 9.6

Note * Test by pulse voltage

** S : Set coil (pin No.1⋯⊕ , pin No.12⋯⊖) R : Reset coil (pin No.6⋯⊕ , pin No.7⋯⊖)

The latch type relays should be initialized at appointed position before using, and should be enegized to specific polarity by above polarity to avoid wrong operation. Any special coil requirement, Please contact NEC TOKIN for availability.

★75%operation of rated voltage (at +70℃ to +85℃) is possible individually. Please contact NEC TOKIN for availability.

■ Recommended relay drive conditions

Drive under conditions. If it is impossible, please inquire to NEC TOKIN.

Nonlatch type	Voltage:within ±5% at nominal voltage	Ambient temperature -40~+70˚C(80% operate type) Ambient temperature -40~+85˚C(75% operate type)
Single coil latch type Double coil latch type	Square pulse (rise and fall time is rapidly) Pulse height: within ±5% at nominal voltage Pulse width: more than 10 ms	Ambient temperature -40~+70˚C

■ Technical document

Please confirm technical document before use.
It is able to receive a document at NEC TOKIN's World-wide-web site.
(http://www.nec-tokin.com)

ITEM	TITLE
Data sheet	ED2/EF2 series
Information	ED2/EF22 series technical data
User's manual	Function and note on correct use
Application note	Application circuit of miniature signal relay

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