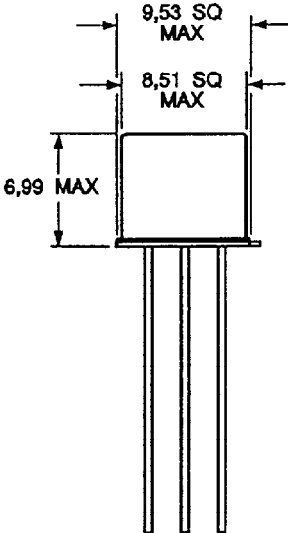
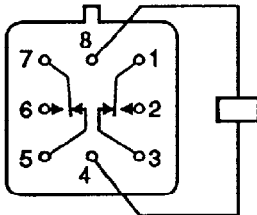
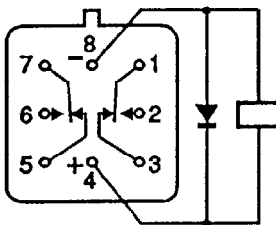


BRITISH STANDARDS INSTITUTION 2 PARK STREET, LONDON W1A 2BS		Page 1 of 14	CECC 16 101-046 ISSUE 1 (JUNE 1994)															
SPECIFICATION AVAILABLE FROM: As shown in PD 9002, CECC 00 200, and TELEDYNE RELAYS - SCOTLAND 9-13 Napier Road, Wardpark North Industrial Estate, Cumbernauld G68 0EF			BS CECC 16 101-046 ISSUE 1															
ELECTRONIC COMPONENTS OF ASSESSED QUALITY DETAIL SPECIFICATION IN ACCORDANCE WITH: CECC 16 000 Issue 2 CECC 16 100 Issue 1			MANUFACTURER'S TYPE: C114. For ordering information see clause 10															
OUTLINE AND DIMENSIONS:  Basic relay  With coil transient suppression diode 			TYPES: Electromechanical, all-or-nothing relay, mono-stable, polarized by diode or non-polarized, two pole change-over, break-before-make contact arrangement (2 form C), low level to 1 A, 28 V d.c., with optional diode for coil transient suppression. CONSTRUCTION: All welded metal enclosure, hermetically sealed, 2,54 mm grid pattern. APPLICATION: Relays according to this standard are provided for the operation in equipment and/or installations with increased mechanical and environmental requirements. The applicable load is from low level to 1 A. TEST SCHEDULE: Test schedule 3 with additions															
COIL DATA:			<table><tr><th>Rated voltage (V d.c.)</th><th>Coil variant code</th></tr><tr><td>5,0</td><td>A</td></tr><tr><td>6,0</td><td>B</td></tr><tr><td>9,0</td><td>C</td></tr><tr><td>12,0</td><td>D</td></tr><tr><td>18,0</td><td>E</td></tr><tr><td>26,5</td><td>F</td></tr></table>		Rated voltage (V d.c.)	Coil variant code	5,0	A	6,0	B	9,0	C	12,0	D	18,0	E	26,5	F
Rated voltage (V d.c.)	Coil variant code																	
5,0	A																	
6,0	B																	
9,0	C																	
12,0	D																	
18,0	E																	
26,5	F																	
CONTACTS: Contact arrangement: 2 change-over, break-before-make Low-level load: 10 mA max. / 30 mV max. High-level load: rated contact voltage: 28 V d.c. contact current: I ₁ = 1 A, resistive load I ₂ = 0,1 A, L = 320 mH																		
TEMPERATURE RANGE: Ambient temperature: -65 °C to +125 °C																		
Refer to Qualified Products List CECC 00 200 for details of manufacturers approved to this specification.																		

1. Related documents

CECC 16 000 Issue 2	(1990)	Generic Specification: Electromechanical All-or-Nothing Relays, Part I: General
CECC 16 100 Issue 1	(1979)	Sectional Specification: Electromechanical All-or-Nothing Relays
CECC 00 114/II Issue 2	(1991)	Quality Assessment Procedures, Part II: Qualification Approval of Electronic Components
IEC 68-1	(1988)	Environmental testing, Part 1: General and guidance
IEC 68-2-47	(1982)	Basic environmental testing procedures, Part 2: Tests—Mounting of components, equipment and other articles for dynamic tests including shock (Ea), bump (Eb), vibration (Fc and Fd) and steady-state acceleration (Ga) and guidance
ISO 2859-1	(1989)	Part 1: Specification for sampling plans indexed by acceptable quality level (AQL) for lot-by-lot inspection

2. Characteristic values of the relay

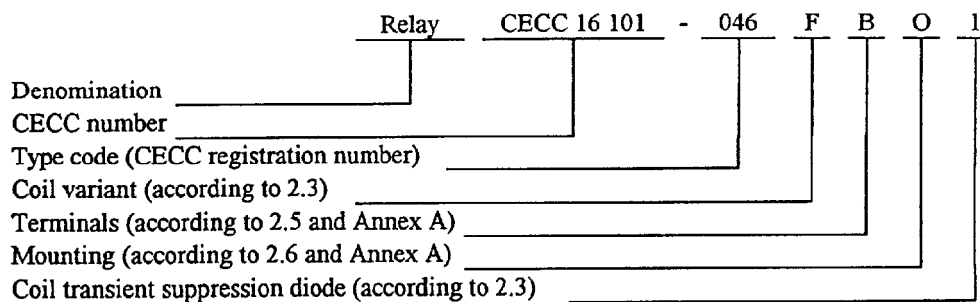
2.1. General data:

- Contact application categories: 0, 1 and 2
- Contact arrangement: 2 change-over, break-before-make
- Mass (weight): 2,55 g max.
- Finish of the terminals: gold plated or tinned
- Insulation resistance: 10 000 MΩ min. at 500 V d.c. unless otherwise stated in Table 6
- Dielectric withstanding voltage: see Table 1
- Nominal internal free volume: 0,21 cm³

Table 1 Dielectric test voltages

Test point	V a.c. min.
Open contacts	500
Between adjacent contacts	500
Contacts to case	500
Coil to contacts	500
Coil to case	500

2.2. Construction of designation (ordering information):



2.3. Coil and energization data (see Table 2)

Table 2 Coil and energization data for relays with and without a coil transient suppression diode

Coil variant Code	Voltage V d.c.		Coil resistance at 25 °C Ω ± 10 %	Operate voltage V d.c. max. at		Release voltage				Coil transient suppression code number *
	rated	max.				V d.c. non-release at		V d.c. must release at		
				25 °C	125 °C	25 °C	125 °C	25 °C	-65 °C	
A	5	5,8	50	2,7	3,5	1,4	2,3	0,22	0,14	1
B	6	8,0	98	3,5	4,5	2,0	3,2	0,28	0,18	1
C	9	12,0	220	5,3	6,8	3,0	4,9	0,54	0,35	1
D	12	16,0	390	7,0	9,0	4,0	6,5	0,63	0,41	1
E	18	24,0	880	10,5	13,5	6,0	10,0	0,91	0,59	1
F	26,5	32,0	1560	14,2	18,0	8,0	13,0	1,37	0,89	1

* Without the coil transient suppression diode the code number is 0

2.4. Contact data

2.4.1. Static contact resistance (at approximately 3,18 mm from the emergence of the lead from the seating plane of the relay)

Initial: 100 m Ω max.After electrical life: 200 m Ω max.

2.4.2. Dynamic contact resistance

33 Ω max.

Table 3 Data for endurance and overload

Description	Load voltage and current	Switching cycles	Switching frequencies
Low level	30 mV max. / 10 mA max.	100 000	5 $\pm$ 0,5 per s
Resistive I ₁	28 V d.c. / 1 A	100 000	20 $\pm$ 2 per min
Inductive *	28 V d.c. / 0,1 A (L = 320 mH)	100 000	10 $\pm$ 1 per min
Resistive overload *	28 V d.c. / 2 A	100	20 $\pm$ 2 per min

* Values are for information only and not for inspection purposes

2.4.3. Timing (Over the whole temperature range):

- Operate time: 2,0 ms max.
- Release time: 1,5 ms max.
- Release time with diode: 4,0 ms max.
- Bounce time: 1,5 ms max.

2.5. Terminals (see Table 4 and Annex A)

Table 4 Types of terminals

Code	Length of terminals	Finish
O	4,75 ^{+1,02} _{-0,25} mm	Gold plated or tinned
P	19,05 mm min.	Gold plated or tinned
B	4,75 ^{+1,02} _{-0,25} mm	Tinned
C	4,75 ^{+1,02} _{-0,25} mm	Gold plated
D	19,05 mm min.	Tinned
E	19,05 mm min.	Gold plated

Relays with terminal codes O, B, or C have exposed base metal at the free end.

2.6. Mounting (see Table 5 and Annex A)

Table 5 Types of mounting

Code	Type of mounting
O	Without mounting hardware accessories

2.7. Environmental data

The relays shall withstand at least the following environmental stresses:

- shock: 735 m/s² (75 G), half-sine acceleration, 6 ms duration
- bump: 392 m/s² (40 G), peak acceleration, 6 ms duration
- vibration (sinusoidal): the lesser of 2,47 mm peak displacement, or 294 m/s² (30 G) peak acceleration, 10 Hz to 2000 Hz
- robustness of terminals:
 - Test U_{a1} tensile: 5 N
 - Test U_b bending: 2,5 N
 - Test U_c torsion: 45° in both directions, long leads only

3. Formation of inspection lots

According to 3.1 of CECC 00 114/II.

4. Intervals between tests

- Intervals between Test Group C, Sub-Groups C2, C3, and C4 shall be one year
- Intervals between Test Group C, Sub-Group C5 shall be two years

5. Qualification approval

- as stated in 1.4 of CECC 00 114/II “fixed sampling”
- sampling and test schedule are specified in Table 7
- the tests specified and their order are mandatory

6. Quality conformance inspection

Quality conformance inspection contains the tests stated in Table 6

- Group A and B tests for inspection lots acceptance
- Group C tests for periodic inspection

All tests of Table 6 are mandatory.

Where a Sub-Group contains cumulative tests, the order of the tests is mandatory.

Specimens subjected to tests denoted as destructive (D) shall not be released for delivery.

6.1. Delayed delivery

Relays supplied with tinned leads which have been held by the manufacturer for a period exceeding 12 months following acceptance inspection and have not been resubmitted to the Group A and B tests (see following paragraph) shall be resubmitted to Test No. 22, Soldering test of Table 6. No further retesting before delivery is needed for another period of 12 months.

Relays which have been held by the manufacturer for a period exceeding 5 years following acceptance inspection shall be resubmitted to the Group A and B tests. If this has been done for the complete lot, no further retesting before delivery is needed for another period of 5 years.

7. Marking of relays and package

Relays and their package supplied in accordance with this detail specification shall be marked as follows, as a minimum:

7.1. Marking of the relay:

The marking shall be durable and easily legible. The following items shall be present:

- Manufacturer's name or trade mark
- CECC number, relay type and variants code
- Date of manufacture, year/week coded according to IEC 62
- Wiring diagram