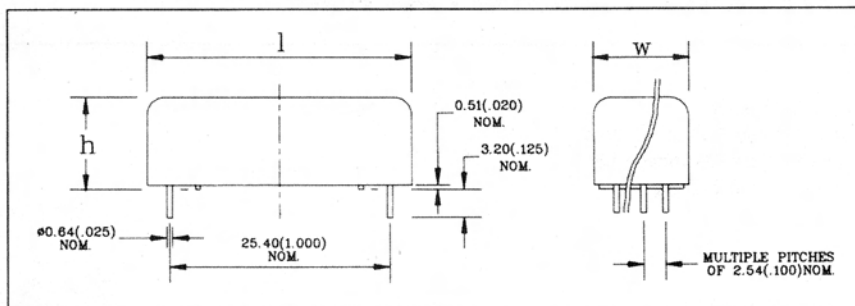


HE 400 SERIES



TABLE 1 – DIMENSIONS NOTE: Max. unless indicated otherwise.



MINIATURE REED RELAYS

10M Grid Pin Spacing

- Fully Encapsulated
- Dry & Mercury-Wetted Contacts
- High Voltage Contacts
- Plastic or Metal Case

Case Size	AM	AM	1	2	3	4	5
Dimension, Max.	h	l	w	w	w	w	w
Metal Case, mm (in)	9.0 (0.354)	30.0 (1.182)	10.0 (0.394)	12.5 (0.493)	15.0 (0.591)	N/A	N/A
Plastic Case, mm (in)	9.0 (0.354)	30.0 (1.182)	10.0 (0.394)	12.5 (0.493)	15.0 (0.591)	17.5 (0.689)	20.0 (0.788)

TABLE 2 – ELECTRICAL AND OPERATING CHARACTERISTICS

Column Number		1	2	3	4
Characteristics	Units	Form A Dry Reed Standard	Form A Dry Reed High Voltage	Form A Hg. Wetted High Voltage	Form C Dry Reed Standard
CONTACT RATINGS					
Power, Switching	Watts, Maximum	10	10	50	5
Voltage, Switching	Vdc, Maximum	200	300	500	175
Current, Switching	Amperes, Maximum	0.5	0.75	2	0.25
Current, Carry	Amperes, Maximum	1.2	1.5	4	1
CONTACT RESISTANCE					
Initial	Ohms, Maximum	0.150	0.150	0.070	0.200
Operating Temperature	Degrees, Celsius	-40 to +85	-20 to +85	-20 to +85	-40 to +85
Storage Temperature	Degrees, Celsius	-40 to +105	-40 to +105	-35 to +105	-40 to +105
Mounting Position	Degrees from Vertical	Any	Any	30	Any
Vibration Resistance	G's, Max., 10-2000 Hz	20	20	Contact Hamlin	20
Shock Resistance	G's, Max., 11ms 1/2 sine	50	50	5	50
INSULATION RESISTANCE					
Across Open Contacts	Ohms, Typical	10 ¹⁰	10 ¹⁰	10 ¹⁰	10 ⁹
Between Isolated Pins		10 ¹⁰	10 ¹⁰	10 ¹⁰	10 ¹⁰
LIFE EXPECTANCY					
TIMING					
Operate Time	ms, Max., Incl. Bounce	1A 1.0 2A 1.0 3A 1.0 4A 1.0	1A 1.0 2A 1.0 3A 1.0 4A 1.0	1A 3.0 2A 3.0 • •	1C 3.0 2C 3.0 3C 3.0 4C 3.0
Release Time	ms, Max. Diode Suppressed	0.5	0.6	2.0	2.0
Drain Time	Seconds, Max.	•	•	30	•
VOLTAGE HOLD-OFF					
Across Open Contacts	Vdc, Minimum	250	600	1500	200
Between Isolated Terminals					
Plastic Case	Vac, Minimum	1500	1500	1500	1500
Metal Case		1000	1000	1000	1000

TABLE 3 – RELAY DESCRIPTION AND COIL CHARACTERISTICS

Contact Form & Type	Operating Data See Table 2 (Column)	Dimensions See Table 1 (Case Size)	Part Number		Nominal Coil Voltage Vdc	Coil Resistance $\pm 10\%$ @ 25°C Ohms	Must Operate Vdc @ 25°C	Must Release Vdc @ 25°C	Maximum Coil Voltage Vdc @ 25°C	Top View 2.54 mm, 0.1 in. Grid (Numbers Do Not Appear On Relay)
			Plastic Case	Metal Case						
1A SPST-NO Dry Reed	1	1	HE421A0550 HE421A1250 HE421A2450	HE421A0590 HE421A1290 HE421A2490	5 12 24	240 960 3840	3.75 8.5 18.0	0.4 1.0 2.0	11 27 54	
2A DPST-NO Dry Reed	1	2	HE422A0550 HE422A1250 HE422A2450	HE422A0590 HE422A1290 HE422A2490	5 12 24	145 575 2300	3.75 8.5 18.0	0.4 1.0 2.0	9 22 43	
3A 3PST-NO Dry Reed	1	3	HE423A0550 HE423A1250 HE423A2450	HE423A0590 HE423A1290 HE423A2490	5 12 24	105 415 1660	3.75 8.5 18.0	0.4 1.0 2.0	8 22 42	
4A 4PST-NO Dry Reed	1	4	HE424A0550 HE424A1250 HE424A2450	N/A N/A N/A	5 12 24	80 320 1280	3.75 8.5 18.0	0.4 1.0 2.0	7 18 35	
1A SPST-NO Hg. Wetted High Voltage	3	1	HE431A0550 HE431A1250 HE431A2450	HE431A0590 HE431A1290 HE431A2490	5 12 24	140 800 3000	3.75 8.5 18.0	0.4 1.0 2.0	10 20 37	
2A DPST-NO Hg. Wetted High Voltage	3	2	HE432A0550 HE432A1250 HE432A2450	HE432A0590 HE432A1290 HE432A2490	5 12 24	100 560 2300	3.75 8.5 18.0	0.4 1.0 2.0	8 18 35	
1A SPST-NO Dry Reed High Voltage	2	1	HE451A0550 HE451A1250 HE451A2450	HE451A0590 HE451A1290 HE451A2490	5 12 24	240 960 3840	3.75 8.5 18.0	0.4 1.0 2.0	11 27 54	
2A DPST-NO Dry Reed High Voltage	2	2	HE452A0550 HE452A1250 HE452A2450	HE452A0590 HE452A1290 HE452A2490	5 12 24	145 575 2300	3.75 8.5 18.0	0.4 1.0 2.0	9 22 43	
3A 3PST-NO Dry Reed High Voltage	2	3	HE453A0550 HE453A1250 HE453A2450	HE453A0590 HE453A1290 HE453A2490	5 12 24	105 415 1660	3.75 8.5 18.0	0.4 1.0 2.0	8 22 42	
1C SPDT-CO Dry Reed	4	1	HE421C0550 HE421C1250 HE421C2450	HE421C0590 HE421C1290 HE421C2490	5 12 24	240 960 3840	3.75 8.5 18.0	0.4 1.0 2.0	11 27 54	
2C DPDT-CO Dry Reed	4	3	HE422C0550 HE422C1250 HE422C2450	HE422C0590 HE422C1290 HE422C2490	5 12 24	105 415 1660	3.75 8.5 18.0	0.4 1.0 2.0	8 22 42	
4C 4PDT-CO Dry Reed	4	5	HE424C0553 HE424C1253 HE424C2453	N/A N/A N/A	5 12 24	65 260 1050	3.75 8.5 18.0	0.4 1.0 2.0	7 18 35	

Notes HE400: 1) The additional relays shown below as (+) are available.

Type	1A	2A	3A	4A	5A	6A	1C	2C	3C	4C
HE42	Shown	Shown	Shown	Shown	•	•	Shown	Shown	•	Shown
HE43	Shown	Shown	•	•	•	•	•	•	•	•
HE45	Shown	Shown	Shown	•	•	•	•	•	•	•

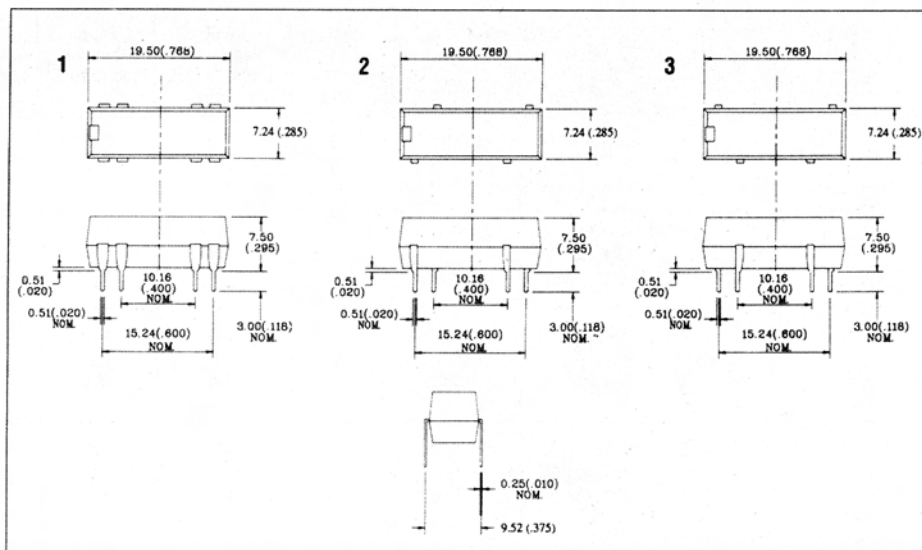
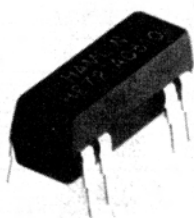
2) Other options available for most types: lengthwise coil wiring from pin 1, electrostatic shielding, 48 Vdc coil.



7 RELAYS

HE 700 SERIES

TABLE 1 – DIMENSIONS NOTE: Max. unless indicated otherwise.



DUAL IN-LINE REED RELAYS

- Transfer Molded Body
- Dry & Mercury-Wetted Contacts
- High Voltage Contacts
- Data Isolation Option

TABLE 2 – ELECTRICAL AND OPERATING CHARACTERISTICS

Column Number		1	2	3	4	5
Characteristics	Units	Form A Dry Reed Standard	Form A Dry Reed High Voltage	Form A Hg. Wetted High Voltage	Form C Dry Reed Standard	Form A Dry Reed Data Isolation
CONTACT RATINGS						
Power, Switching	Watts, Maximum	10	10	50	5	10
Voltage, Switching	Vdc, Maximum	200	300	500	175	200
Current, Switching	Amperes, Maximum	0.5	0.5	2	0.25	0.5
Current, Carry	Amperes, Maximum	1.2	1.2	4	1	1.2
CONTACT RESISTANCE						
Initial	Ohms, Maximum	0.200	0.200	0.070	0.200	0.200
Operating Temperature	Degrees, Celsius	-40 to +85	-20 to +85	-20 to +85	-40 to +85	-40 to +85
Storage Temperature	Degrees, Celsius	-40 to +105	-40 to +105	-38 to +105	-40 to +105	-40 to +105
Mounting Position	Degrees from Vertical	Any	Any	30	Any	Any
Vibration Resistance	G's, Max., 10-2000 Hz	20	20	Contact Hamlin	20	20
Shock Resistance	G's, Max., 11ms 1/2 sine	50	50	5	50	50
INSULATION RESISTANCE						
Across Open Contacts	Ohms, Typical	10 ¹⁰	10 ¹⁰	10 ¹⁰	10 ⁹	10 ¹⁰
Between Isolated Pins		10 ¹⁰	10 ¹⁰	10 ¹⁰	10 ¹⁰	10 ¹⁰
LIFE EXPECTANCY						
TIMING						
Operate Time	ms, Max., Incl. Bounce	1A 1.0 2A 1.0	1A 1.0	1A 3.0 2A 3.0	1C 3.0	1A 0.5
Release Time	ms, Max. Diode Suppressed	0.5	0.6	3.0	3.0	0.5
Drain Time	Seconds, Max.	•	•	30	•	•
VOLTAGE HOLD-OFF						
Across Open Contacts	Vdc, Minimum	250	450	1500	200	250
Coil to E. Shield	Vac, Minimum	150	•	•	150	•
Coil to Contacts	Vac, Minimum	500	2500	500	500	4000
Between Isolated Terminals	Vac, Minimum	500	500	500	500	•

TABLE 3 – RELAY DESCRIPTION AND COIL CHARACTERISTICS

Contact Form & Type	Operating Data See Table 2 (Column)	Dimensions See Table 1 (Figure)	Part Number	Nominal Coil Voltage Vdc	Coil Resistance $\pm 10\%$ @ 25°C Ohms	Must Operate Vdc @ 25°C	Must Release Vdc @ 25°C	Maximum Coil Voltage Vdc @ 25°C	Special Features	Top View 2.54 mm, 0.1 in. Grid (Numbers Do Not Appear On Relay)
1A (1) SPST-NO Dry Reed	1	1	HE721A0500	5	500	3.75	0.5	22	• Diode E. Shield	
			HE721A0510							
			HE721A0520							
			HE721A1200	12	1000	8.0	1.0	31	• Diode E. Shield	
			HE721A1210							
1A (1) SPST-NO Dry Reed	1	1	HE721A1220	24	2150	16.0	2.0	46	• Diode E. Shield	
			HE721A2400							
			HE721A2410							
			HE721A2420							
1A SPST-NO Dry Reed Data Isolating	5	2	HE721A0509	5	380	3.75	0.5	19	N/A	
			HE721A1209	12	1000	8.0	1.0	31	N/A	
			HE721A2409	24	2150	16.0	2.0	46	N/A	
1C (1) SPDT-CO Dry Reed Standard Footprint (C)	4	1	HE721C0500	5	200	3.75	0.5	14	• Diode E. Shield	
			HE721C0510							
			HE721C0520							
			HE721C1200	12	500	8.0	1.0	22	• Diode E. Shield	
			HE721C1210							
1C (1) SPDT-CO Dry Reed Alternative Footprint (E)	4	1	HE721C1220	24	2000	16	2.0	44	• Diode E. Shield	
			HE721C2400							
			HE721C2410							
			HE721C2420							
1C (1) SPDT-CO Dry Reed Alternative Footprint (R)	4	1	HE721R0500	5	200	3.75	0.5	14	• Diode E. Shield	
			HE721R0510							
			HE721R0520							
			HE721R1200	12	500	8.0	1.0	22	• Diode E. Shield	
			HE721R1210							
2A (1) DPST-NO Dry Reed	1	1	HE722A0600	5	150	3.75	0.5	12	• Diode	
			HE722A0610							
			HE722A1200	12	500	8.0	1.0	22	• Diode	
			HE722A1210							
			HE722A2400	24	2150	16.0	2.0	46	• Diode	
1A (1) SPST-NO Hg. Wetted High Voltage	3	1	HE722A2410							
			HE731A0500	5	55	3.75	0.5	7	• Diode E. Shield	
			HE731A0510							
			HE731A0520							
			HE731A1200	12	300	9.0	1.0	17	• Diode E. Shield	
1A SPST-NO Dry Reed High Voltage	2	3	HE731A1210							
			HE731A1220							
			HE731A2400	24	1100	18.0	2.0	34	• Diode E. Shield	
			HE731A2410							
			HE731A2420							

Notes HE700: 1) For diode and electrostatic shield, replace last two digits of the part number with 30. 2) External magnetic shield available.
3) Low profile Form A available .225 (5.72mm) high. 4) Form B. SPST-NC available.

7

RELAYS

HE 3300 SERIES



MINIATURE REED RELAYS Single In-Line

- Transfer Molded Body
- Dry & Mercury-Wetted Contacts
- High Voltage Contacts
- File# E 47258

TABLE 1 – DIMENSIONS NOTE: Max. unless indicated otherwise

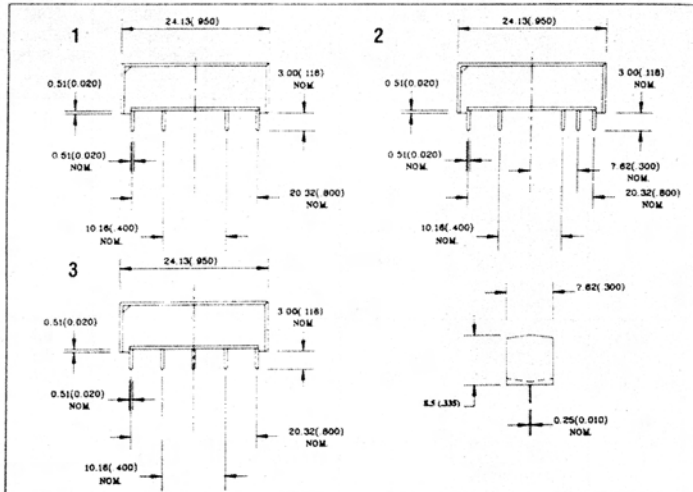


TABLE 2 – ELECTRICAL AND OPERATING CHARACTERISTICS

Column Number		1	2	3	4
		Form A Dry Reed Standard	Form A Dry Reed High Voltage	Form A Hg. Wetted High Voltage	Form C Dry Reed Standard
CONTACT RATINGS					
Power, Switching	Watts, Maximum	10	10	50	5
Voltage, Switching	Vdc, Maximum	200	300	500	175
Current, Switching	Amperes, Maximum	0.5	0.5	2	0.25
Current Carry	Amperes, Maximum	1.2	1.2	4	1
CONTACT RESISTANCE					
Initial	Ohms, Maximum	0.200	0.200	0.070	0.200
Operating Temperature	Degrees, Celsius	-40 to +85	-20 to +85	-20 to +85	-40 to +85
Storage Temperature	Degrees, Celsius	-40 to +105	-40 to +105	-35 to +105	-40 to +105
Mounting Position	Degrees from Vertical	Any	Any	30	Any
Vibration Resistance	G's, Max., 10-2000 Hz	20	20	Contact Hamlin	20
Shock Resistance	G's, Max., 11ms 1/2 sine	50	50	5	50
INSULATION RESISTANCE					
Across Open Contacts	Ohms, Typical	10 ¹⁰	10 ¹⁰	10 ¹⁰	10 ⁹
Between Isolated Pins		10 ¹⁰	10 ¹⁰	10 ¹⁰	10 ¹⁰
LIFE EXPECTANCY					
TIMING					
Operate Time	ms, Max., Incl. Bounce	1A 1.0	1A 1.0	1A 3.0	1C 3.0
Release Time	ms, Max., Diode Suppressed	0.5	0.6	3.0	3.0
Drain Time	Seconds, Max.	*	*	30	*
VOLTAGE HOLD-OFF					
Across Open Contacts	Vdc, Minimum	250	450	1500	200
Coil to Contacts	Vac, Minimum	2500	2500	2500	1000

TABLE 3 – RELAY DESCRIPTION AND COIL CHARACTERISTICS

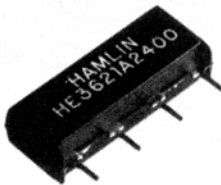
Contact Form & Type	Operating Data See Table 2 (Column)	Dimensions See Table 1 (Figure)	Part Number	Nominal Coil Voltage Vdc	Coil Resistance ± 10% @ 25°C Ohms	Must Operate Vdc @ 25°C	Must Release Vdc @ 25°C	Maximum Coil Voltage Vdc @ 25°C	Top View 2.54 mm, 0.10 in. Grid (Numbers Do Not Appear On Relay)
1A SPST-NO Dry Reed	1	1	HE3321A0400 HE3321A1200 HE3321A2400	5 12 24	500 500 2000	3.75 9.0 18.0	0.5 1.0 2.0	22 22 44	
1C SPDT-CO Dry Reed Standard Footprint	4	2	HE3321C0500 HE3321C1200 HE3321C2400	5 12 24	125 500 2000	3.75 9.0 18.0	0.5 1.0 2.0	11 22 44	
1C SPDT-CO Dry Reed Type (E) Footprint	4	3	HE3321E0500 HE3321E1200 HE3321E2400	5 12 24	125 500 2000	3.75 9.0 18.0	0.5 1.0 2.0	11 22 33	
1A SPST-NO Hg. Wetted High Voltage	3	1	HE3331A0500 HE3331A1200 HE3331A2400	5 12 24	125 500 2000	3.75 9.0 18.0	0.5 1.0 2.0	11 22 44	
1A SPST-NO Dry Reed High Voltage	2	1	HE3351A0500 HE3351A1200 HE3351A2400	5 12 24	125 500 2000	3.75 9.0 18.0	0.5 1.0 2.0	11 22 44	

Note HE3300:

1: Optional external magnetic shield available. Replace last two digits of part number with 40.

HE 3600 SERIES

7
RELAYS



ULTRA MINIATURE
REED RELAYS
Single In-Line

- Transfer Molded Body
- Maximum Space Utilization
- Coaxial Screen Option

TABLE 1 – DIMENSIONS
NOTE: Max. unless indicated otherwise.

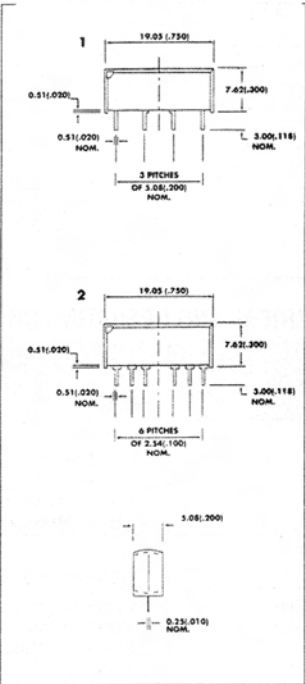


TABLE 2 – ELECTRICAL & OPERATING CHARACTERISTICS

Characteristics	Units	Form A Dry Reed Standard
CONTACT RATINGS		
Power, Switching	Watts, Maximum	10
Voltage, Switching	Vdc, Maximum	200
Current, Switching	Amperes, Maximum	0.5
Current, Carry	Amperes, Maximum	1.25
CONTACT RESISTANCE		
Initial	Ohms, Maximum	0.200
Operating Temperature	Degrees, Celsius	-40 to +85
Storage Temperature	Degrees, Celsius	-40 to +105
Mounting Position	Degrees from Vertical	Any
Vibration Resistance	G's, Max., 10-2000 Hz	20
Shock Resistance	G's, Max., 11ms 1/2 sin	50
INSULATION RESISTANCE		
Across Open Contacts	Ohms, Typical	10 ¹⁰
Between Isolated Pins		10 ¹⁰
LIFE EXPECTANCY		
TIMING		
Operate Time	ms, Max., Incl. Bounce	1.0
Release Time	ms, Max. Diode Suppressed	0.5
VOLTAGE HOLD-OFF		
1.1 Across Open Contacts		
Coil to Contacts	Vdc, Minimum	250
	Vac, Minimum	1500
1.2 With Coaxial Screen		
Coil to Contacts	Vac, Minimum	500
Screen to Coil/Contacts	Vac, Minimum	500

TABLE 3 – RELAY DESCRIPTION AND COIL CHARACTERISTICS

Contact Form & Type	Dimensions See Table 1 (Figure)	Part Number	Nominal Coil Voltage Vdc	Coil Resistance ± 10% @ 25°C Ohms	Must Operate Vdc @ 25°C	Must Release Vdc @ 25°C	Maximum Coil Voltage Vdc @ 25°C	Special Features	Top View 2.54 mm, 0.1 in. Grid (Numbers Do Not Appear On Relay)
1A SPST-NO Dry Reed	1	HE3621A0500	5	500	3.75	0.5	14	• Diode • Diode • Diode	
		HE3621A0510	12	1000	8.0	1.0	22		
		HE3621A1210	24	2150	16.0	2.0	31		
		HE3621A2400							
		HE3621A2410							
	2	HE3621A0520	5	200	3.75	0.5	14	Coaxial Screen	
		HE3621A1220	12	500	8.0	1.0	22		
		HE3621A2420	24	1000	16.0	2.0	31		

HE 3800 SERIES



GULLWING

MINIATURE REED RELAYS

- Maximum soldering temperature 340°C
- Low profile
- Form A 10 Watt dry contact
- All standard coil voltages



MOUNTING

Vapor Phase, 225°C
Infra Red, 340°C element temperature
Wave Soldering, 260°C,
single wave, broadside only
Zone Convection re-flow, 260°C

20 min.
Preheat at 150°C

TABLE 1 – DIMENSIONS NOTE: Max. unless indicated otherwise.

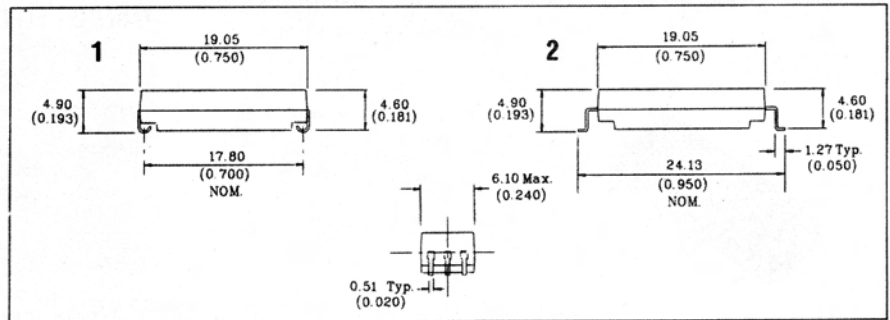


TABLE 2 – ELECTRICAL AND OPERATING CHARACTERISTICS

Characteristics	Units	Form A Dry Reed Standard
CONTACT RATINGS		
Power, Switching	Watts, Maximum	10
Voltage, Switching	Vdc, Maximum	200
Current, Switching	Amperes, Maximum	0.5
Current, Carry	Amperes, Maximum	1.0
CONTACT RESISTANCE		
Initial	Ohms, Maximum	0.200
Operating Temperature	Degrees, Celsius	-40 to +85
Storage Temperature	Degrees, Celsius	-40 to +105
Mounting Position	Degrees from Vertical	Any
Vibration Resistance	G's, Max., 10-2000 Hz	20
Shock Resistance	G's, Max., 11ms 1/2 sin	50
INSULATION RESISTANCE		
Across Open Contacts	Ohms, Typical	10 ¹⁰
Isolated Terminals		10 ¹⁰
LIFE EXPECTANCY		
TIMING		
Operate Time	ms, Max., Incl. Bounce	1.0
Release Time	ms, Max. Diode Suppressed	1.0
VOLTAGE HOLD-OFF		
Across Open Contacts	Vdc, Minimum	250
Coil to Contacts	Vac, Minimum	500
With Coaxial Screen:		
Coil to Contacts	Vac, Minimum	500
Screen to Coil/Contacts	Vac, Minimum	500

TABLE 3 – RELAY DESCRIPTION AND COIL CHARACTERISTICS

Contact Form & Type	Operating Data See Table 2 (Column)	Dimensions See Table 1		Nominal Coil Voltage Vdc	Coil Resistance ± 10% @ 25°C Ohms	Must Operate Vdc @ 25°C	Must Release Vdc @ 25°C	Maximum Coil Voltage Vdc @ 25°C	Special Features	Top View 1,27 mm, 0.05 in. Grid (Numbers Do Not Appear On Relay)
1A SPST-NO J-Mount	1	1	HE3821A0500 HE3821A1200 HE3821A2400	5 12 24	150 750 1500	3.75 8.0 16.0	0.5 1.0 2.0	12 27 38		
1A SPST-NO Gull Wing	1	2	HE3821A0501 HE3821A1201 HE3821A2401	5 12 24	150 750 1500	3.75 8.0 16.0	0.5 1.0 2.0	12 27 38		
1A SPST-NO J-Mount	1	1	HE3821A0520 HE3821A1220 HE3821A2420	5 12 24	150 750 1500	3.75 8.0 16.0	0.5 1.0 2.0	12 27 38	COAXIAL	
1A SPST-NO Gull Wing	1	2	HE3821A0521 HE3821A1221 HE3821A2421	5 12 24	150 750 1500	3.75 8.0 16.0	0.5 1.0 2.0	12 27 38	COAXIAL	

Notes HE3800: 1) Optional mounting types, radial, axial. 2) Standard packaging tape and reel minimum. 8" piece tube. 1200 piece tape & reel. 3) Pin 1 & 3 spacing is typical for both versions.

4) To identify Pack Type add suffix (T) for Tube, or (R) for Reel.