

HFW · HFW4A · HFW5A · HMB · HMS

HALF SIZE HIGH PERFORMANCE RELAYS

HFW·HFW4A·HFW5A

**STANDARD HALF SIZE
HIGH-PERFORMANCE RELAY**

QUALIFIED TO MIL-R-39016/6



TERMINAL VIEW

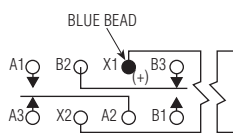
FEATURES

- Hermetically sealed
- Up to 5 amps switching
- High shock & vibration ratings
- Optional terminals & mounting styles
- Excellent RF switching

HMB

**BIFILAR HALF SIZE
HIGH-PERFORMANCE RELAY**

QUALIFIED TO MIL-R-39016/22



TERMINAL VIEW

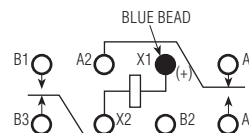
FEATURES

- Hermetically sealed
- Up to 2 amps switching
- High shock & vibration ratings
- Optional terminals & mounting styles
- Excellent RF switching

HMS

**SENSITIVE HALF SIZE
HIGH-PERFORMANCE RELAY**

QUALIFIED TO MIL-R-39016/44



TERMINAL VIEW

FEATURES

- Hermetically sealed
- Up to 2 amps switching
- High shock & vibration ratings
- Optional terminals & mounting styles
- Excellent RF switching

ELECTRICAL CHARACTERISTICS

CONTACT ARRANGEMENT

2 Form C (DPDT)

CONTACT MATERIAL

Stationary:
Hardened silver alloy

Moveable:

Gold plated hardened silver alloy

CONTACT RESISTANCE

Before Life: 50 milliohms max.
(measured at 10 mA @ 6 Vdc)

After Life: 100 milliohms max.
(measured @ 2 A @ 28 Vdc)

MECHANICAL LIFE EXPECTANCY

50 million operations

COIL VOLTAGE

5 to 48 Vdc

COIL POWER

1.4 watts max. @ 25°C

DUTY CYCLE

Continuous

PICK-UP VOLTAGE

Approximately 50% of
nominal coil voltage

PICK-UP SENSITIVITY@25°C

145 to 260 mW (HFW)
325 mW (HMB)
100 to 125 mW (HMS)

CONTACT RATINGS

| | CONTACT LOAD | TYPE | OPERATIONS MIN. |
|--------------------|---------------------------------|-------------------|-----------------|
| HFW,HMB,HMS | 2 A @ 28 Vdc | Resistive | 100,000 |
| | HFW4A 4 A @ 28 Vdc | Resistive | 100,000 |
| HFW5A | 5 A @ 28 Vdc | Resistive | 100,000 |
| | 0.75 A @ 28 Vdc | Inductive (200mH) | 100,000 |
| | 0.1 A @ 115 Vac, 60 Hz & 400 Hz | Resistive | 100,000 |
| | 0.3 A @ 115 Vac, 60 Hz & 400 Hz | Resistive | 100,000 |
| | 0.1 A @ 28 Vdc | Intermediate | 50,000 |
| | 0.160 A @ 28 Vdc | Lamp | 100,000 |
| | 30 µA @ 50 mVdc | Low Level | 1,000,000 |

RF PERFORMANCE

| FREQUENCY (MHz) | RF LOSSES (dB) | VSWR | ISOLATION (dB) |
|-----------------|----------------|--------|----------------|
| 100 | 0.1 | 1.17:1 | 40 |
| 500 | 0.3 | 1.19:1 | 28 |
| 1000 | 0.4 | 1.19:1 | 23 |

HFW · HFW4A · HFW5A · HMB · HMS

OPERATING CHARACTERISTICS

TIMING

Operate Time: 4.0 ms max. (HFW)
 5.0 ms max. (HMB)
 6.0 ms max. (HMS)
 Release Time: 4.0 ms max. (HFW)
 5.0 ms max. (HMB/HMS)

CONTACT BOUNCE

2.0 ms max.

DIELECTRIC WITHSTANDING VOLTAGE

Between Open Contacts:
 500 Vrms 60 Hz

Between Adjacent Contacts:
 1000 Vrms 60 Hz

Between Contacts & Coil:
 1000 Vrms 60 Hz

INSULATION RESISTANCE

10,000 megohms min. @ 500 Vdc

ENVIRONMENTAL CHARACTERISTICS

TEMPERATURE RANGE

-65°C to +125°C

WEIGHT

0.46 oz. (13 gms max.)

VIBRATION RESISTANCE

HFW/HMB/HMS:
 Standard: 20 G's, 10 to 2,000 Hz

HFW/HMB:
 QPL: 30 G's, 10 to 3,000 Hz

HMS:
 QPL: 20 G's, 10 to 2,500 Hz

SHOCK RESISTANCE

100 G's, 6 ± 1 ms
 50 G's, 11 ± 1 ms (HMS)

QPL APPROVAL

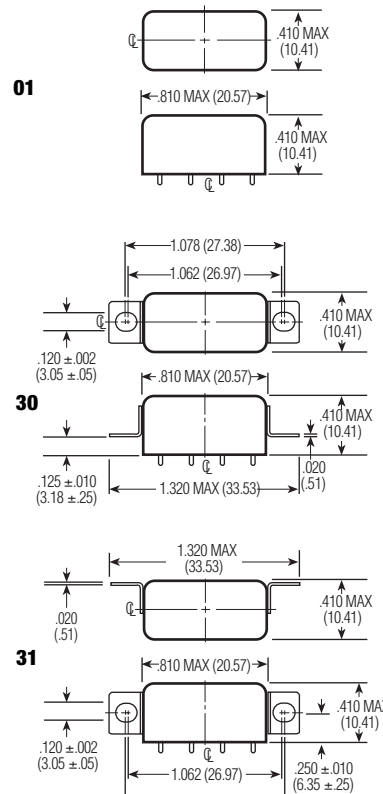
MIL-R-39016/6 (HFW)

MIL-R-39016/22 (HMB)

MIL-R-39016/44 (HMS)



TERMINALS



MOUNTING STYLES

STANDARD COIL DATA

| | NOM. COIL VOLTAGE (Vdc) | COIL RESISTANCE IN OHMS ±10% @ 25°C | PICKUP VOLTAGE Vdc (MAX.) @ 25°C | PICKUP VOLTAGE Vdc (MIN.) @ 125°C | DROP-OUT VOLTAGE Vdc (MIN.) @ 25°C | DROP-OUT VOLTAGE Vdc (MIN.) @ -65°C | NOM. COIL POWER (mW) @ 25°C | MAX. COIL VOLTAGE | COIL DESIG. |
|------------------------|-------------------------|-------------------------------------|----------------------------------|-----------------------------------|------------------------------------|-------------------------------------|-----------------------------|-------------------|-------------|
| HFW/HFW4A/HFW5A | 5.0 | 27 | 2.7 | 3.8 | 0.29 | 0.21 | 926 | 6.0 | L |
| | 6.0 | 40 | 3.2 | 4.5 | 0.35 | 0.25 | 900 | 7.5 | F |
| | 12.0 | 160 | 6.4 | 9.0 | 0.7 | 0.5 | 900 | 15.0 | G |
| | 26.5 | 700 | 13.5 | 18.0 | 1.5 | 1.0 | 1003 | 32.0 | K |
| HMB | 6.0 | 40 | 3.6 | 4.8 | 0.35 | 0.25 | 900 | 7.5 | F |
| | 12.0 | 160 | 7.2 | 9.6 | 0.7 | 0.5 | 900 | 15.0 | G |
| | 26.5 | 700 | 15.0 | 20.0 | 1.5 | 1.0 | 1003 | 32.0 | K |
| HMS | 5.0 | 47 | 2.2 | 3.2 | 0.21 | 0.12 | 532 | 7.0 | S001 |
| | 6.0 | 75 | 2.75 | 4.0 | 0.27 | 0.17 | 480 | 9.0 | S002 |
| | 12.0 | 310 | 5.6 | 8.0 | 0.55 | 0.35 | 465 | 20.0 | S003 |
| | 26.5 | 1,030 | 11.4 | 16.5 | 1.1 | 0.7 | 682 | 35.0 | S004 |
| | 30.0 | 1,620 | 14.3 | 21.0 | 1.4 | 0.9 | 556 | 44.0 | S005 |
| | 36.0 | 2,640 | 18.0 | 26.0 | 1.8 | 1.1 | 491 | 56.0 | S006 |
| OTHER | 6-8 | 60 | 3.5 | 4.85 | 0.35 | 0.22 | 817 | 9.0 | A |
| | (avail. for 12-15 | 320 | 6.8 | 9.42 | 0.68 | 0.44 | 570 | 21.0 | B |
| HFW/HFW4A relays only) | 18.0 | 520 | 9.5 | 13.16 | 0.95 | 0.62 | 623 | 27.0 | J |
| | 26.5-32 | 1,250 | 14.0 | 19.4 | 1.5 | 0.98 | 684 | 42.0 | D |
| | 40.0 | 2,700 | 21.3 | 29.5 | 2.1 | 1.37 | 593 | 61.0 | H |
| | 48.0 | 3,500 | 25.5 | 35.3 | 2.5 | 1.63 | 658 | 70.0 | E |

SPECIFYING A PART NUMBER EXAMPLE:

TYPE HFW TERMINALS 12 MOUNTINGS 30 COILS K FEATURES 00 (n/a HMS)