

# 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

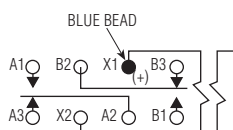
**FEATURES**

- 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

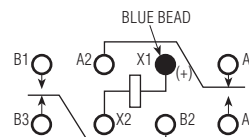
**FEATURES**

- 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.
<b>HFW,HMB,HMS</b>	2 A @ 28 Vdc	Resistive	100,000
	<b>HFW4A</b> 4 A @ 28 Vdc	Resistive	100,000
<b>HFW5A</b>	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

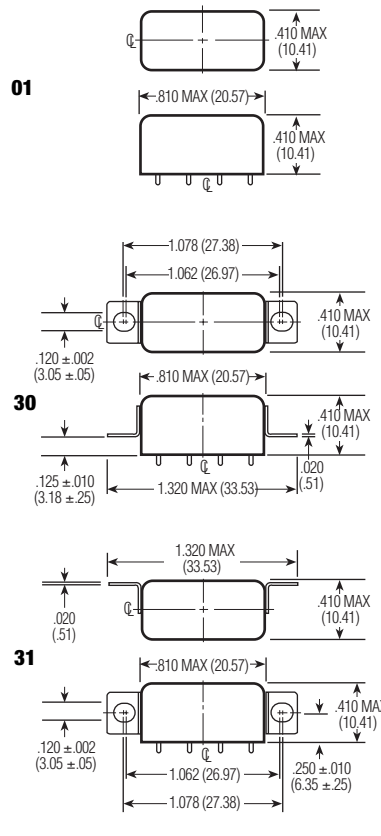
MIL-R-39016/6 (HFW)

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.
<b>HFW/HFW4A/HFW5A</b>	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
<b>HMB</b>	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
<b>HMS</b>	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
<b>OTHER</b>	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)