

# M81716FP

GENERAL PURPOSE DRIVER

## DESCRIPTION

M81716FP is a dual buffer type general purpose driver by 24V rating voltage.

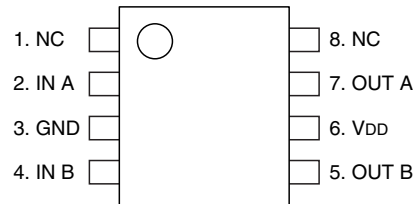
## FEATURES

- RATING VOLTAGE ..... 24V
- OUTPUT CURRENT ..... +0.8A, -0.6A
- POWER-SUPPLY RANGE OF OPERATION ... 4.5V ~ 24V  
(RECOMMENDATION POWER SUPPLY RANGE : 4.5V ~ 17 V)
- HIGH-SPEED SWITCHING TIME  
(22ns typ, CL = 1000pF)
- DUAL BUFFER
- SOP-8 PACKAGE

## APPLICATIONS

Motor drive, switching power supply, DC/DC converter and general purpose.

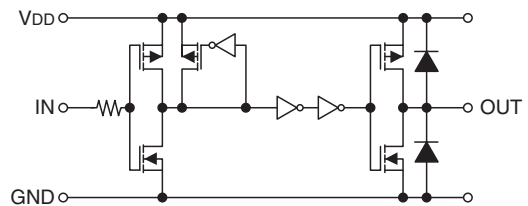
## PIN CONFIGURATION (TOP VIEW)



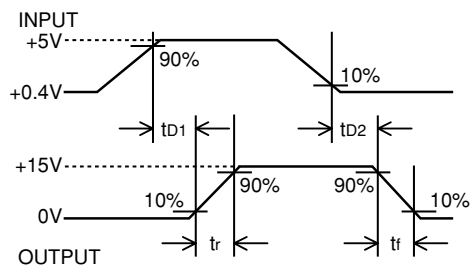
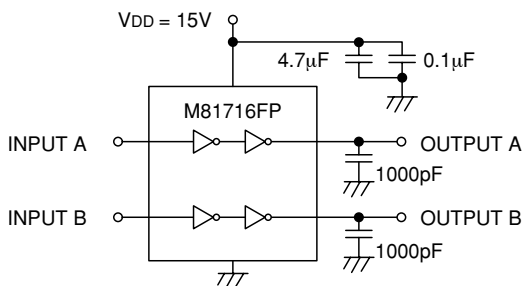
NC:NO CONNECTION

Outline:8P2S

## BLOCK DIAGRAM



## SWITCHING TIME EXAMINATION CIRCUIT DIAGRAM



※ INPUT  
RISE AND FALL  
TIMES = 5ns

**ABSOLUTE MAXIMUM RATINGS (Ta = 25°C unless otherwise specified)**

| Symbol | Parameter                 | Test conditions     | Ratings           | Unit |
|--------|---------------------------|---------------------|-------------------|------|
| VDD    | Supply Voltage            |                     | 0 ~ 24            | V    |
| VIN    | Logic Input Voltage       | IN A/B Terminal     | GND-0.3 ~ VDD+0.3 | V    |
| Pd     | Package Power Dissipation | Ta = 25°C, On Board | 0.5               | W    |
| Tj     | Junction Temperature      |                     | -40 ~ 125         | °C   |
| Tstg   | Storage Temperature       |                     | -40 ~ 125         | °C   |

**RECOMMENDED OPERATING CONDITIONS**

| Symbol | Parameter             | Test conditions | Limits |      |      | Unit |
|--------|-----------------------|-----------------|--------|------|------|------|
|        |                       |                 | Min.   | Typ. | Max. |      |
| VDD    | Supply Voltage        |                 | 4.5    | —    | 17   | V    |
| VIN    | Logic Input Voltage   | IN A/B Terminal | GND    | —    | VDD  | V    |
| Topr   | Operation Temperature |                 | -40    | —    | 100  | °C   |

\* For proper operation, the device should be used within the recommended conditions.

**ELECTRICAL CHARACTERISTICS (AC characteristic ; VDD = 15V, VIN = 0V, 5V)**

| Symbol | Parameter          | Test conditions | Limits |       |      | Unit |
|--------|--------------------|-----------------|--------|-------|------|------|
|        |                    |                 | Min.   | Typ.* | Max. |      |
| tr     | Turn-On Rise Time  | CL = 1000pF     | —      | 35    | —    | ns   |
| tf     | Turn-Off Fall Time | CL = 1000pF     | —      | 25    | —    | ns   |
| tD1    | Delay Time1        | CL = 1000pF     | —      | 22    | —    | ns   |
| tD2    | Delay Time2        | CL = 1000pF     | —      | 22    | —    | ns   |

\* Typ. is not specified.

**ELECTRICAL CHARACTERISTICS (DC characteristic ; VDD = 4.5V ~ 17V)**

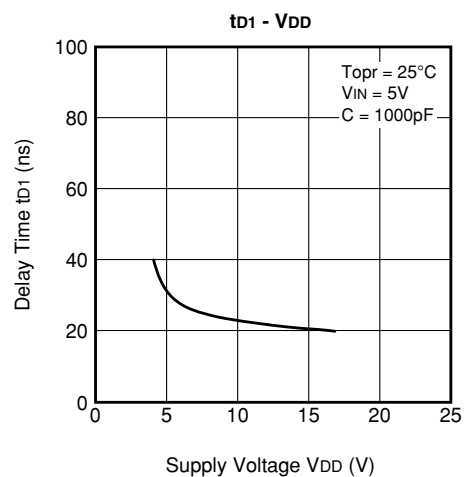
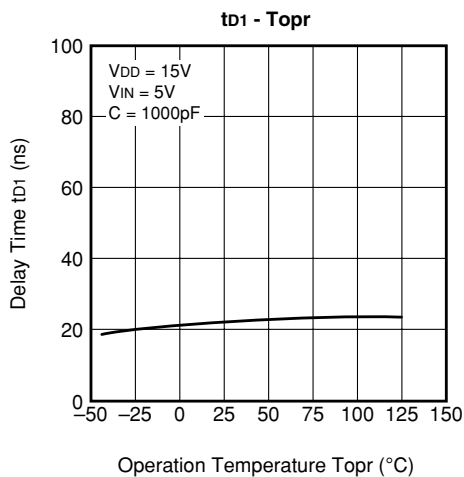
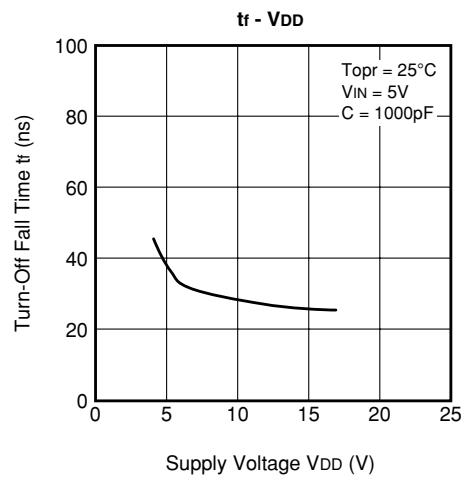
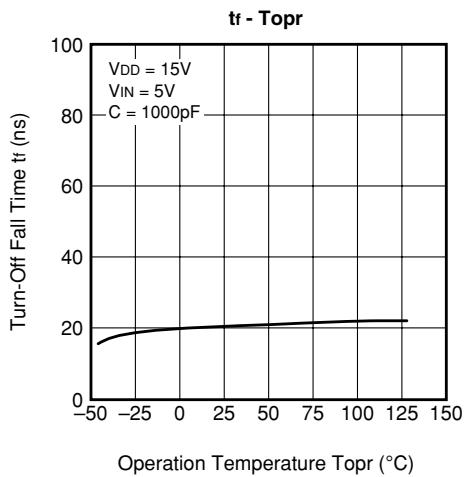
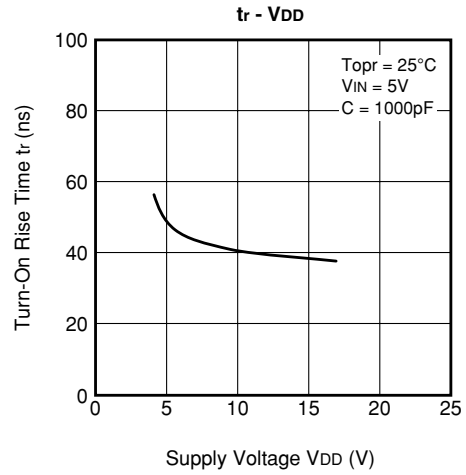
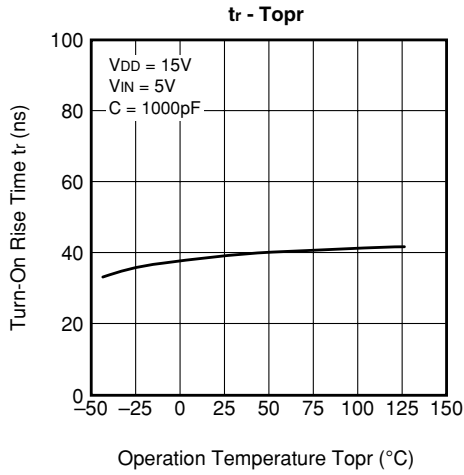
| Symbol | Parameter                                      | Test conditions                     | Limits  |       |      | Unit |
|--------|--|-------------------------------------|---------|-------|------|------|
|        |  |                                     | Min.    | Typ.* | Max. |      |
| VIH    | High Level Input Threshold Voltage             | VDD = 15V                           | 4.4     | —     | —    | V    |
| VIL    | Low Level Input Threshold Voltage              | VDD = 15V                           | —       | —     | 1.8  | V    |
| IIN    | Input Bias Current                             | VIN = 0V or VDD                     | -1      | —     | 1    | μA   |
| VOH    | High Level Output Voltage                      | IO = 0A                             | VDD-0.1 | —     | —    | V    |
| VOL    | Low Level Output Voltage                       | IO = 0A                             | —       | —     | 0.1  | V    |
| Issup  | VDD Supply Current                             | VDD = 15V, VIN = 5V(both inputs)    | —       | 4.0   | 8.0  | mA   |
|        |  | VDD = 15V, VIN = 0V(both inputs)    | —       | —     | 0.05 | mA   |
| IOH    | Output High Level Short Circuit Pulsed Current | VDD = 15V, PW ≤ 10μs, VOUT = 0V     | 0.80    | 1.00  | —    | A    |
| IOL    | Output Low Level Short Circuit Pulsed Current  | VDD = 15V, PW ≤ 10μs, VOUT = 9V     | 0.60    | 0.80  | —    | A    |
| ROUT   | Output High Level On Resistance                | VDD = 15V, Iload = 10mA, VOUT = "H" | —       | 7     | 12   | Ω    |
|        | Output Low Level On Resistance                 | VDD = 15V, Iload = 10mA, VOUT = "L" | —       | 6     | 11   | Ω    |

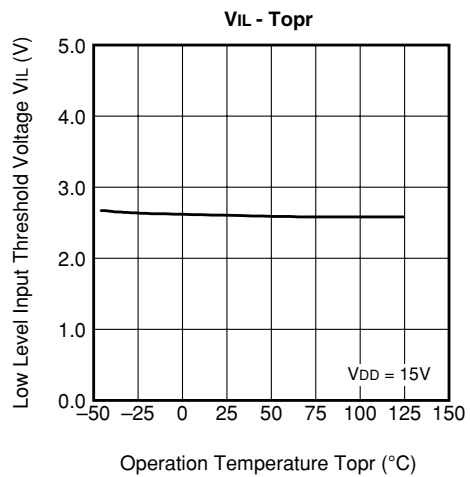
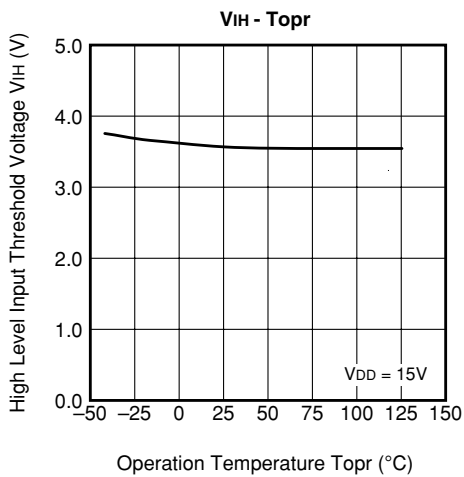
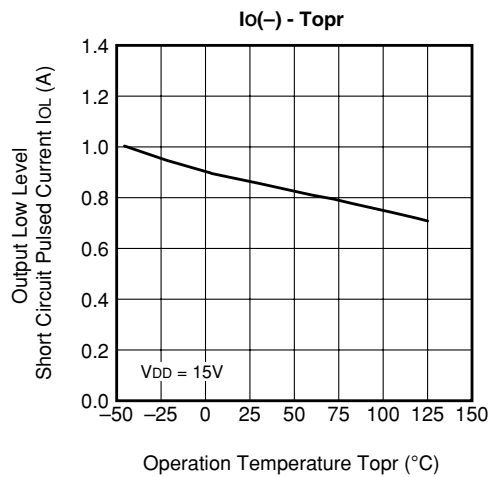
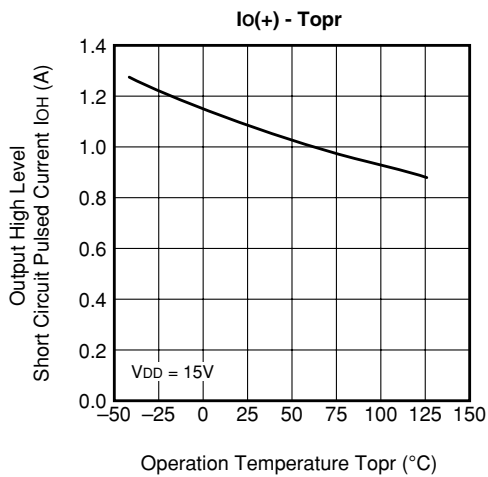
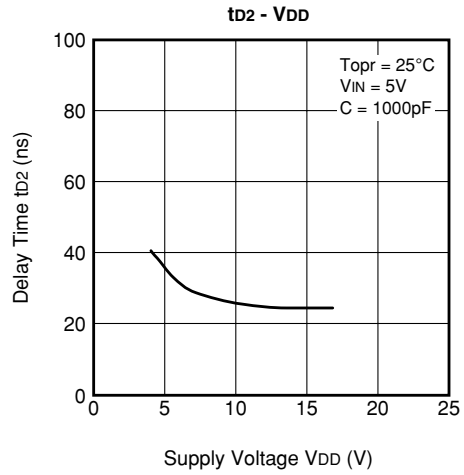
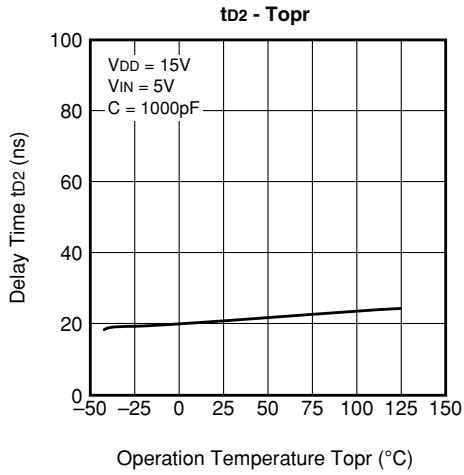
\* Typ. is not specified.

PW : Input Pulse Wide

Iload : Supply input-and-output current to the OUT A/B terminal

**PERFORMANCE CURVES**





# M81716FP

## GENERAL PURPOSE DRIVER

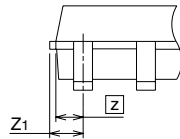
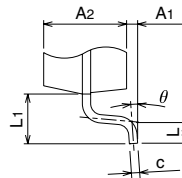
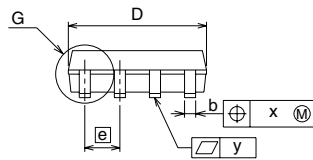
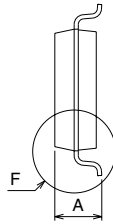
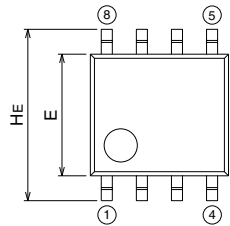
### PACKAGE OUTLINE

#### 8P2S-A

(MMP)

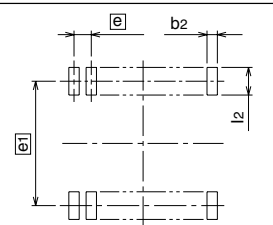
Plastic 8pin 225mil SOP

|                                      |                 |                   |                           |
|--------------------------------------|-----------------|-------------------|---------------------------|
| EIAJ Package Code<br>SOP8-P-225-1.27 | JEDEC Code<br>- | Weight(g)<br>0.07 | Lead Material<br>Cu Alloy |
|--------------------------------------|-----------------|-------------------|---------------------------|



Detail G

Detail F



Recommended Mount Pad

| Symbol   | Dimension in Millimeters |       |       |
|----------|--------------------------|-------|-------|
|          | Min                      | Nom   | Max   |
| A        | -                        | -     | 1.9   |
| A1       | 0.05                     | -     | -     |
| A2       | -                        | 1.5   | -     |
| b        | 0.35                     | 0.4   | 0.5   |
| c        | 0.13                     | 0.15  | 0.2   |
| D        | 4.8                      | 5.0   | 5.2   |
| E        | 4.2                      | 4.4   | 4.6   |
| e1       | -                        | 1.27  | -     |
| HE       | 5.9                      | 6.2   | 6.5   |
| L        | 0.2                      | 0.4   | 0.6   |
| L1       | -                        | 0.9   | -     |
| Z        | -                        | 0.595 | -     |
| Z1       | -                        | -     | 0.745 |
| x        | -                        | -     | 0.25  |
| y        | -                        | -     | 0.1   |
| $\theta$ | 0°                       | -     | 10°   |
| b2       | -                        | 0.76  | -     |
| e1       | -                        | 5.72  | -     |
| l2       | 1.27                     | -     | -     |