M81716FP

GENERAL PURPOSE DRIVER

DESCRIPTION

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

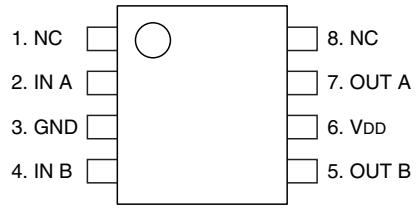
FEATURES

- 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.

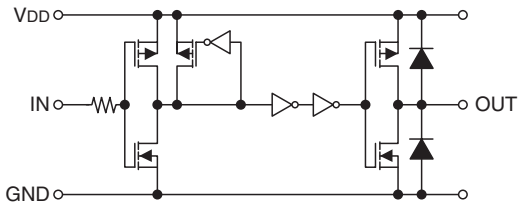
PIN CONFIGURATION (TOP VIEW)



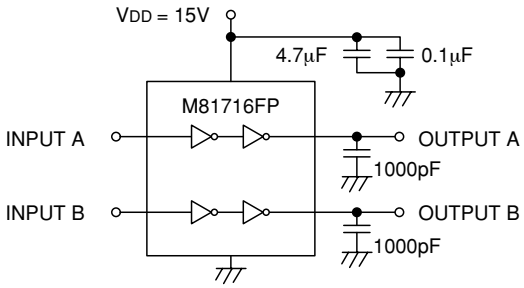
NC:NO CONNECTION

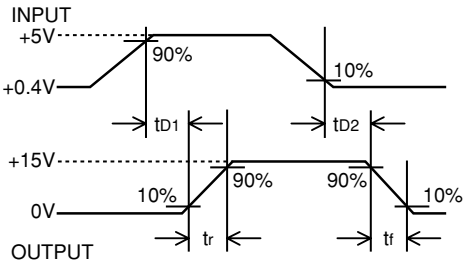
Outline:8P2S

BLOCK DIAGRAM



SWITCHING TIME EXAMINATION CIRCUIT DIAGRAM





※ INPUT
RISE AND FALL
TIMES = 5ns

MITSUBISHI ELECTRIC

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

Symbol	Parameter	Test conditions	Ratings	Unit
V_{DD}	Supply Voltage		0 ~ 24	V
V_{IN}	Logic Input Voltage	IN A/B Terminal	GND–0.3 ~ V_{DD}+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.	
V_{DD}	Supply Voltage		4.5	—	17	V
V_{IN}	Logic Input Voltage	IN A/B Terminal	GND	—	V_{DD}	V
Topr	Operation Temperature		–40	—	100	°C

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

ELECTRICAL CHARACTERISTICS (V_{DD} = 15V, V_{IN} = 0V, 5V)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.*	Max.	
t_r	Turn-On Rise Time	CL = 1000pF	—	35	—	ns
t_f	Turn-Off Fall Time	CL = 1000pF	—	25	—	ns
t_{D1}	Delay Time1	CL = 1000pF	—	22	—	ns
t_{D2}	Delay Time2	CL = 1000pF	—	22	—	ns

* Typ. is not specified.

ELECTRICAL CHARACTERISTICS (V_{DD} = 4.5V ~ 17V)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.*	Max.	
V_{IH}	High Level Input Threshold Voltage	V_{DD} = 15V	4.4	—	—	V
V_{IL}	Low Level Input Threshold Voltage	V_{DD} = 15V	—	—	1.8	V
I_{IN}	Input Bias Current	V_{IN} = 0V or V_{DD}	–1	—	1	μA
V_{OH}	High Level Output Voltage	I_O = 0A	V_{DD}–0.1	—	—	V
V_{OL}	Low Level Output Voltage	I_O = 0A	—	—	0.1	V
Isupp	V_{DD} Supply Current	V_{DD} = 15V, V_{IN} = 5V(both inputs)	—	4.0	8.0	mA
		V_{DD} = 15V, V_{IN} = 0V(both inputs)	—	—	0.05	mA
I_{OH}	Output High Level Short Circuit Pulsed Current	V_{DD} = 15V, PW ≤ 10μs, VOUT = 0V	0.80	1.00	—	A
I_{OL}	Output Low Level Short Circuit Pulsed Current	V_{DD} = 15V, PW ≤ 10μs, VOUT = 9V	0.60	0.80	—	A
ROUT	Output High Level On Resistance	V_{DD} = 15V, Iload = 10mA, VOUT = "H"	—	7	12	Ω
	Output Low Level On Resistance	V_{DD} = 15V, Iload = 10mA, VOUT = "L"	—	6	11	Ω

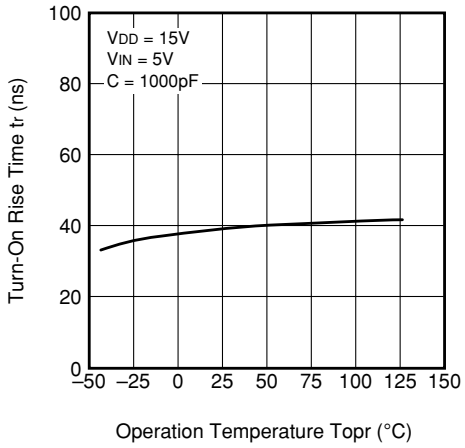
* Typ. is not specified.

PW : Input Pulse Wide

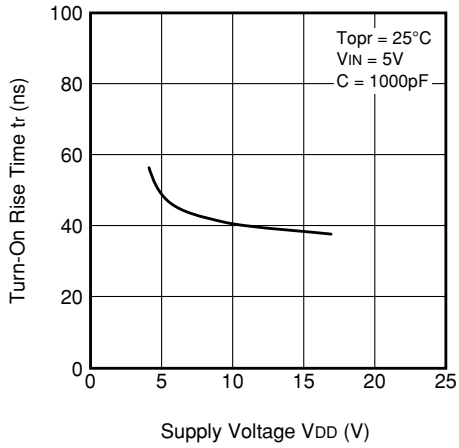
Iload : Supply input-and-output current to the OUT A/B terminal

PERFORMANCE CURVES

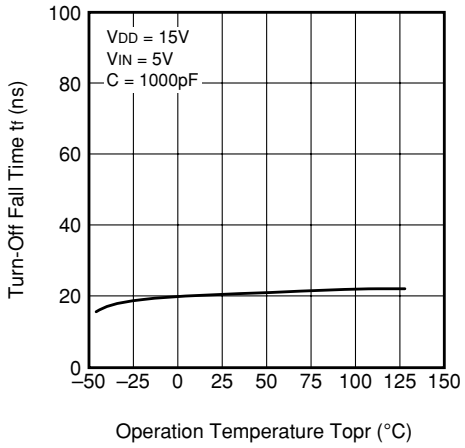
t_r - Topr



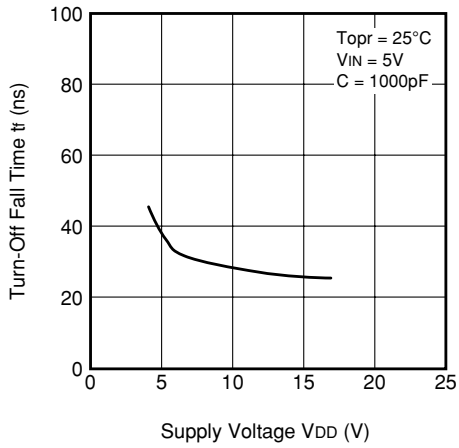
t_r - V_{DD}



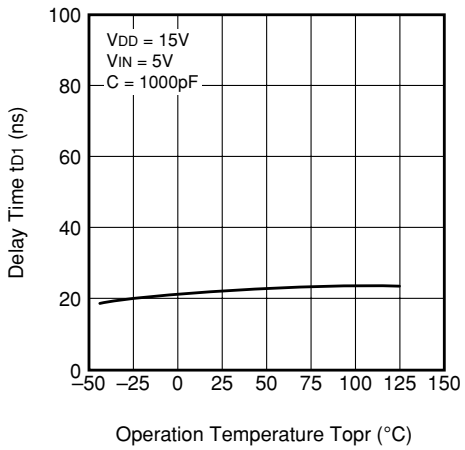
t_f - Topr



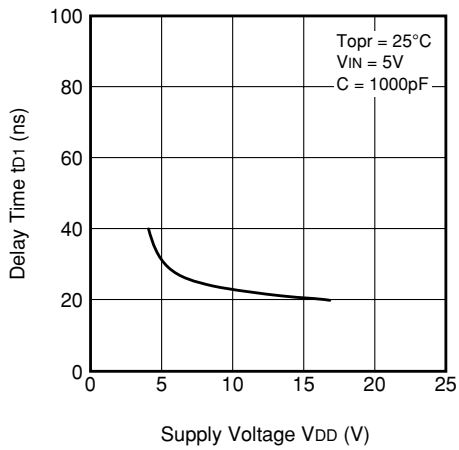
t_f - V_{DD}



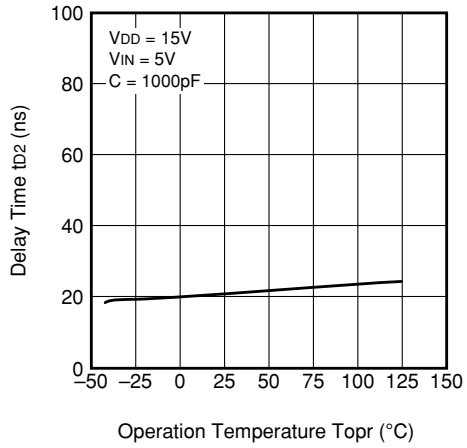
t_{D1} - Topr



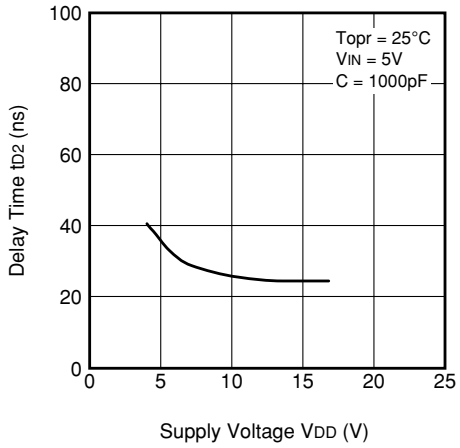
t_{D1} - V_{DD}



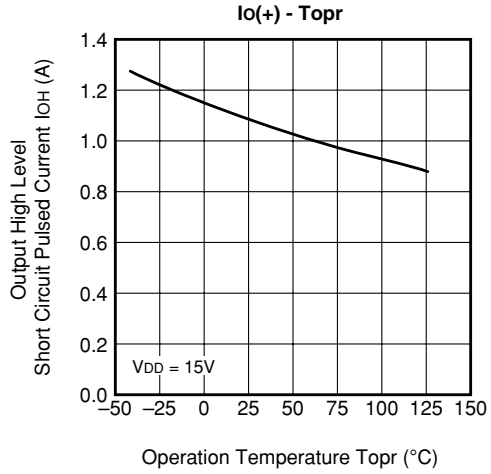
t_{D2} - Topr



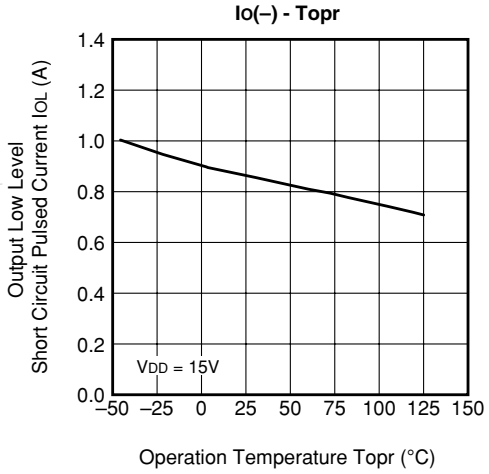
t_{D2} - V_{DD}



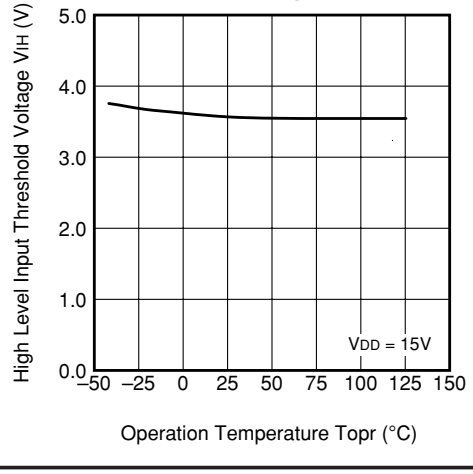
Io(+) - Topr



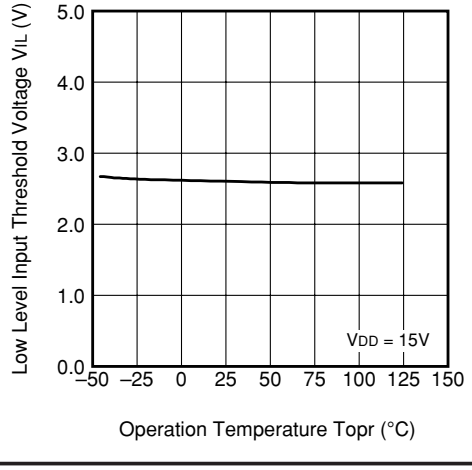
Io(–) - Topr



V_{IH} - Topr



V_{IL} - Topr

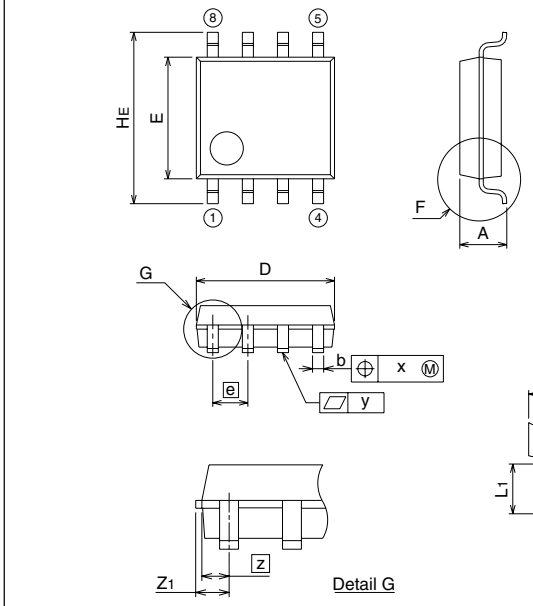


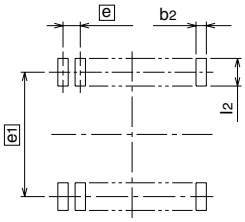
PACKAGE OUTLINE

8P2S-A (MMP)

Plastic 8pin 225mil SOP

EIAJ Package Code	JEDEC Code	Weight(g)	Lead Material
SOP8-P-225-1.27	–	0.07	Cu Alloy





Recommended Mount Pad

Symbol	Dimension in Millimeters		
	Min	Nom	Max
A	–	–	1.9
A_1	0.05	–	–
A_2	–	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
e	–	1.27	–
H_E	5.9	6.2	6.5
L	0.2	0.4	0.6
L_1	–	0.9	–
z	–	0.595	–
Z_1	–	–	0.745
x	–	–	0.25
y	–	–	0.1
θ	0°	–	10°
b_2	–	0.76	–
e1	–	5.72	–
l_2	1.27	–	–