

**SUBJECT**

Demo board for Mini DIP-IPM Ver.4 series

**(1) Demo Board Outline**

This PCB includes the minimum necessary components such as a snubber capacitor for surge absorption and bootstrap circuits for the version 4 Mini DIP-IPM as shown in figure 1.

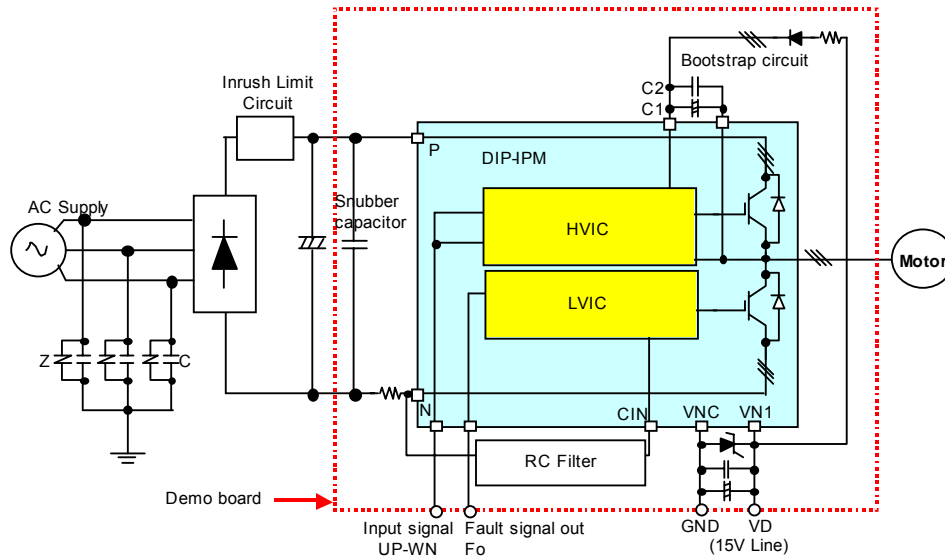


Fig. 1 Circuitry of demo board

**(2) Demo Board Photos**

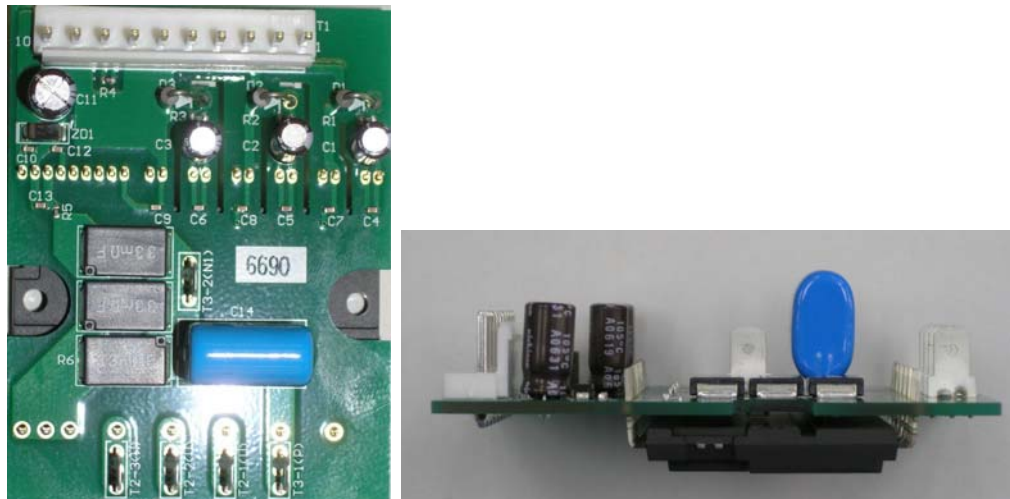


Fig.2 Top view and side view

**Note:**

Board dimensions: 70.0 x 54.0 x 24.2mm ( Including the height of DIP-IPM and parts )

Total periphery elements count: 35 (including a DIP-IPM and wiring cable)

(3) Demo Board Outlines

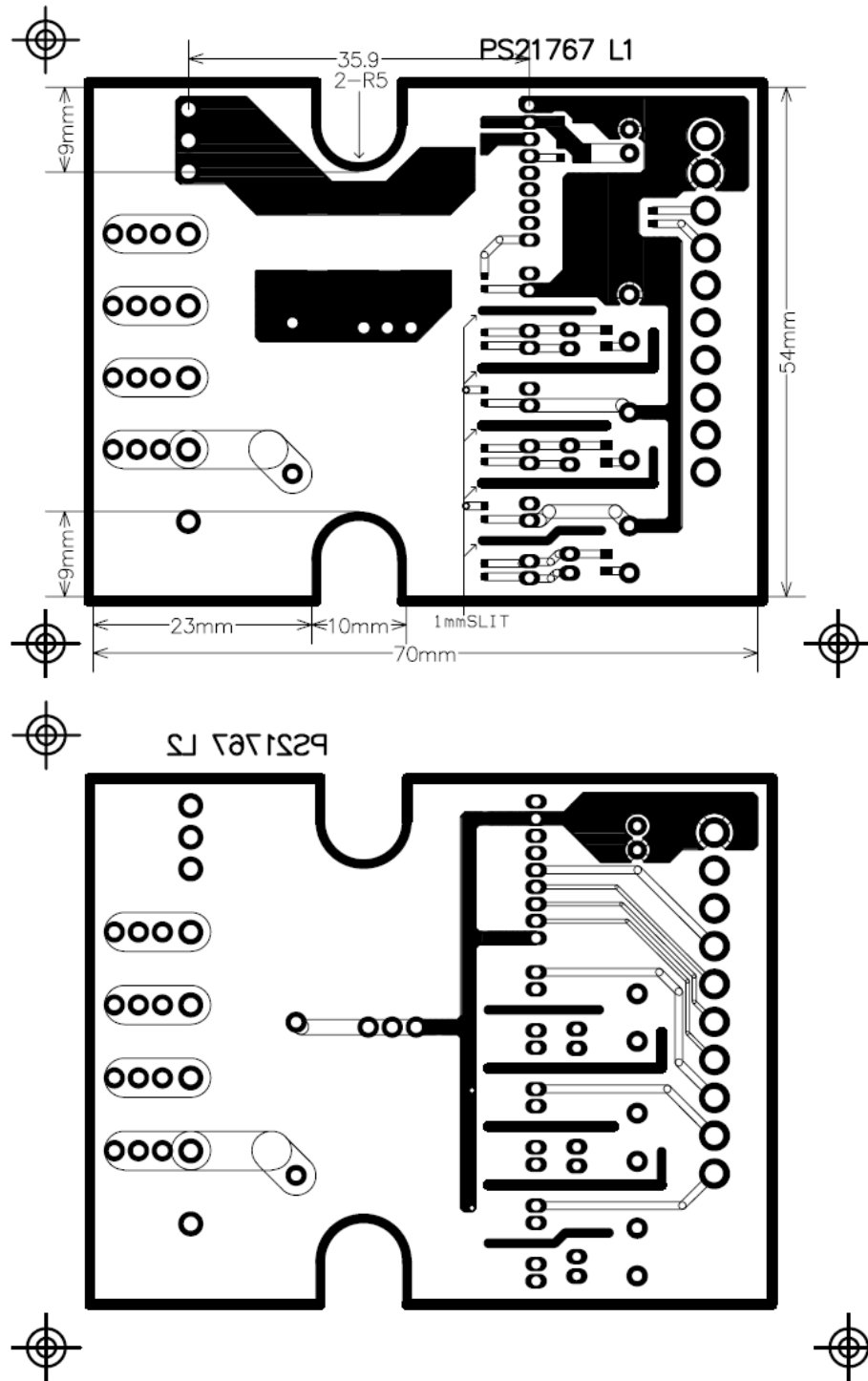


Fig.3 Patterns of front face and back face

(4) **Circuit schematic**

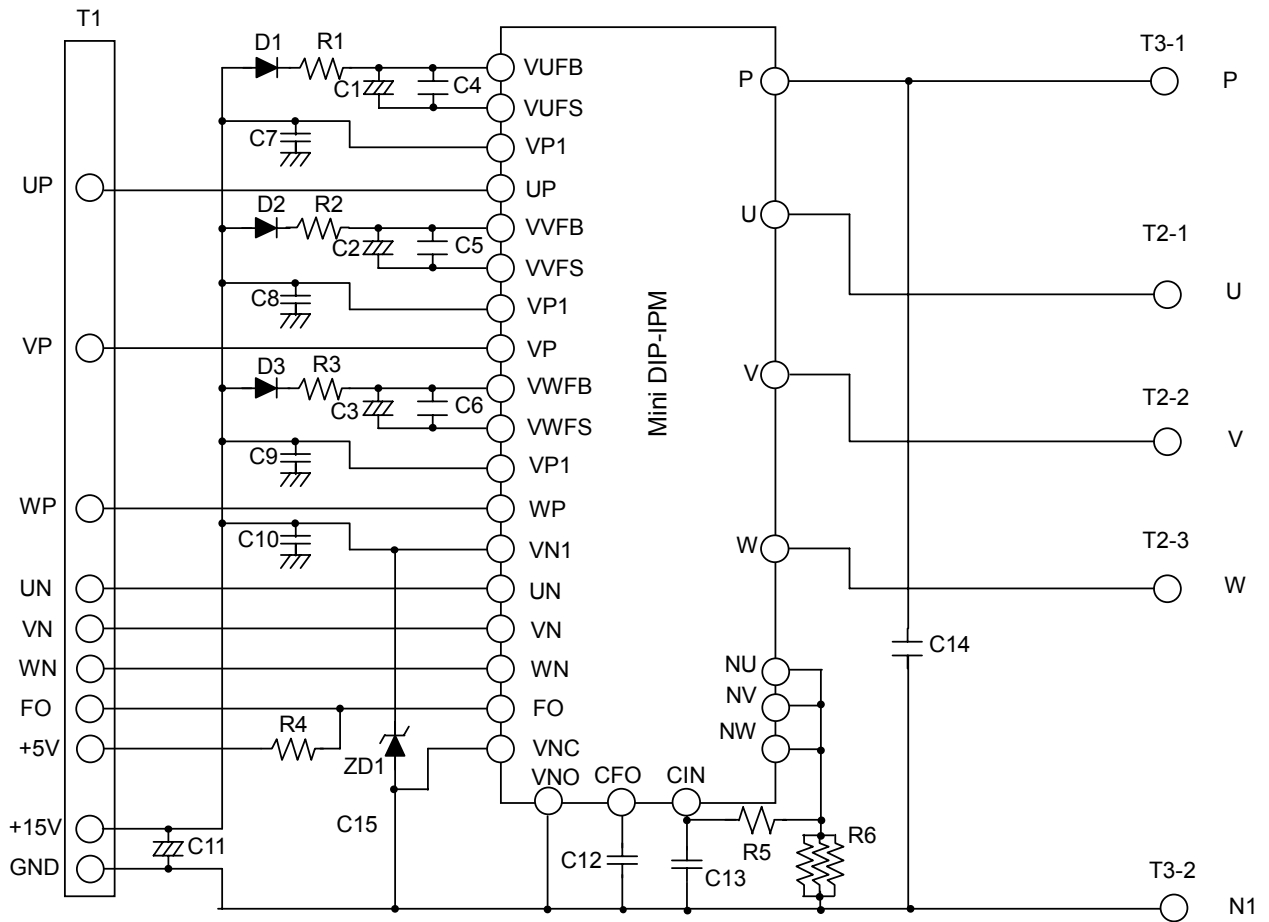


Fig.4 Circuit schematic

Note: Although there is no zener diode mounted to P-side three floating drive supplies (between  $V_{UFB}-V_{UFS}$ ,  $V_{VFB}-V_{VFS}$ ,  $V_{WFB}-V_{WFS}$ ) on this demo board, it is highly recommend to add these zener diodes in actual system board.

(5) **Parts list**

Table 1 Parts list

Symbol	Type Name	Description	Note
D1	10DRA60	1A 600V Diode	Japan International
D2	10DRA60	1A 600V Diode	Japan International
D3	10DRA60	1A 600V Diode	Japan International
ZD1	U1ZB24	24V 1W Zener Diode	Toshiba
C1	UPW1H220MDD	22 $\mu$ F50V Al electrolytic capacitor	Nichicon
C2	UPW1H220MDD	22 $\mu$ F50V Al electrolytic capacitor	Nichicon
C3	UPW1H220MDD	22 $\mu$ F50V Al electrolytic capacitor	Nichicon
C4	C1608X7R1H102K	1000pF50V ceramic capacitor	TDK
C5	C1608X7R1H102K	1000pF50V ceramic capacitor	TDK
C6	C1608X7R1H102K	1000pF50V ceramic capacitor	TDK
C7	C1608X7R1H102K	1000pF50V ceramic capacitor	TDK
C8	C1608X7R1H102K	1000pF50V ceramic capacitor	TDK
C9	C1608X7R1H102K	1000pF50V ceramic capacitor	TDK
C10	C1608X7R1H102K	1000pF50V ceramic capacitor	TDK
C11	UPW1H470MED	47 $\mu$ F50V Al electrolytic capacitor	Nichicon
C12	GRM39R223K50	0.022 $\mu$ F50V ceramic capacitor	Murata
C13	C1608X7R1H102K	1000pF50V ceramic capacitor	TDK
C14	MDDSA0.22 $\mu$ F630V	0.22 $\mu$ F630V snubber capacitor	Hitachi AIC
R1	RK73H1JTD10F	1/16W 10 $\Omega$ F	Hokuriku Denko
R2	RK73H1JTD10F	1/16W 10 $\Omega$ F	Hokuriku Denko
R3	RK73H1JTD10F	1/16W 10 $\Omega$ F	Hokuriku Denko
R4	RK73H1JTD10kF	1/16W 10K $\Omega$ F	Hokuriku Denko
R5	RK73H1JTD2kF	1/16W 2K $\Omega$ F	Hokuriku Denko
R6-1	SL2TBK33/47LOF	PS21765: 47m $\Omega$ , $\pm$ 1%, 2WX3 PS21767: 33m $\Omega$ , $\pm$ 1%, 2WX3	KOA, Current detecting resistor
R6-2	SL2TBK33/47LOF		
R6-3	SL2TBK33/47LOF		
T1	B10P-VH	10pin Socket	JST
T2-1	TP42097-21	Fasten tab	Kyoushin
T2-2	TP42097-21	Fasten tab	Kyoushin
T2-3	TP42097-21	Fasten tab	Kyoushin
T3-1	TP42097-21	Fasten tab	Kyoushin
T3-2	TP42097-21	Fasten tab	Kyoushin
IPM	PS21765/PS21767	20A/30A mini DIP-IPM	Mitsubishi
	Wiring cable		JST

The demo board kit includes an input signal connection cable and a power supply cable with a connector. The input signal cable should be cut to make the connection between MCU/DSP and the demo board as short as possible.