

MITSUBISHI HYBRID IC M57147AU-01

IPM POWER SUPPLY UNIT

DESCRIPTION

The M57147AU-01 is an insulated DC-DC converter designed to drive the IPM. 6 outputs can obtain from an input of 140 ~ 380VDC.

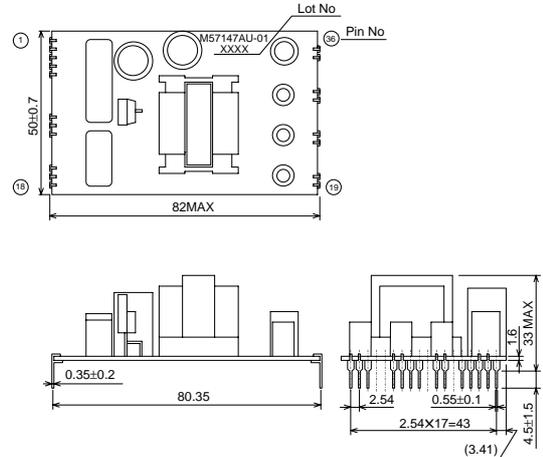
The terminals between inputs and outputs, and each outputs are insulated.

FEATURES

- Input 140 ~ 380VDC
- Output +15V, 50mAX3
+15V, 150mAX1
+12V, 400mAX1
+5V, 300mAX1
- Electrical isolation (between input and outputs)
..... 1500Vrms 1minute
- Electrical isolation (between each outputs)
..... 1500Vrms 1minute

OUTLINE DRAWING

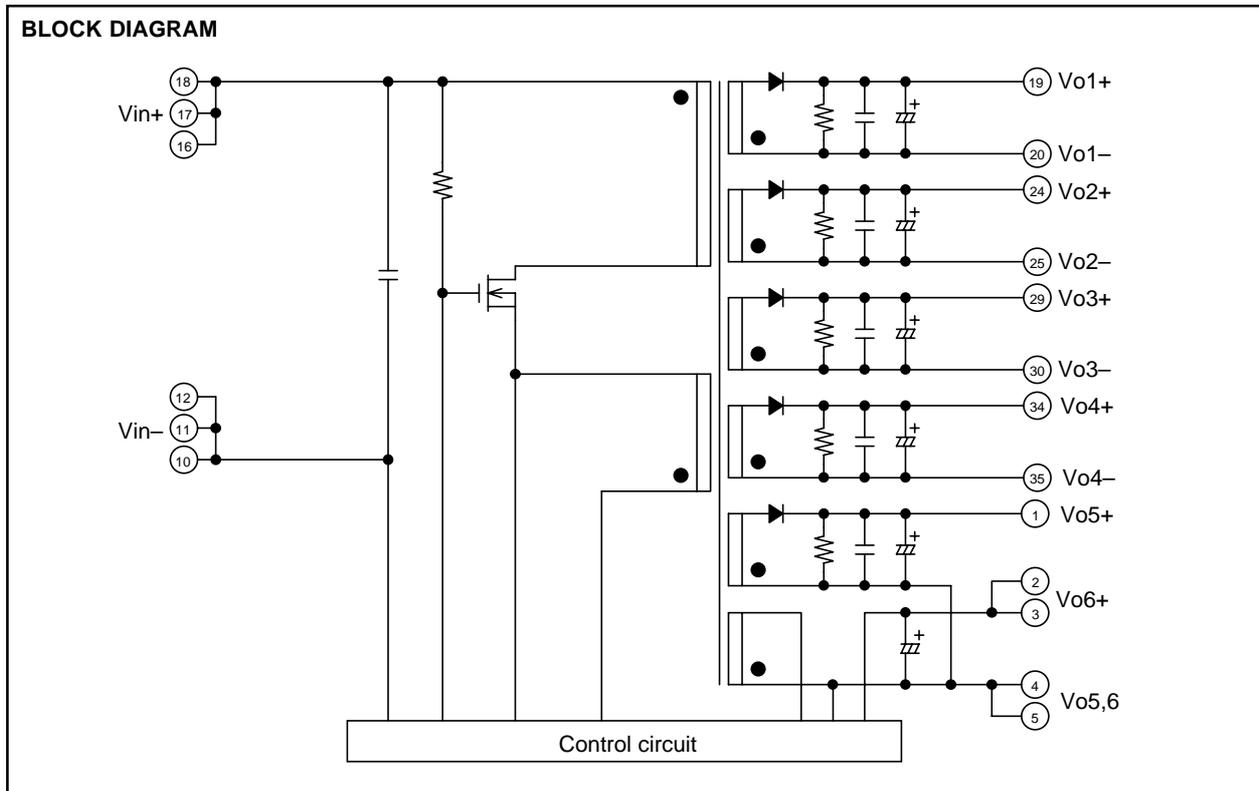
Dimensions: mm



APPLICATION

Power supply for IPM drive

BLOCK DIAGRAM



MAXIMUM RATINGS (Ta = 25°C, unless otherwise noted)

Symbol	Parameter	Conditions	Ratings	Unit
Vin	Input voltage	–	380	V
IL	Output current	Vo1, Vo2, Vo3	50	mA
		Vo4	150	
		Vo5	400	
		Vo6	300	
Topr	Operating temperature	No condensation	–10 ~ 70	°C
Tstg	Storage temperature	No condensation	–20 ~ 85	°C
Po	Total output power	–	*10.8	W
Viso1	Electrical isolation between input and outputs	Sine wave voltage, 60Hz, 1 minutes	1500	Vrms
Viso2	Electrical isolation between each outputs	Sine wave voltage, 60Hz, 1 minutes	1500	Vrms

*Refer to Output Power vs.Input Voltage Characteristics

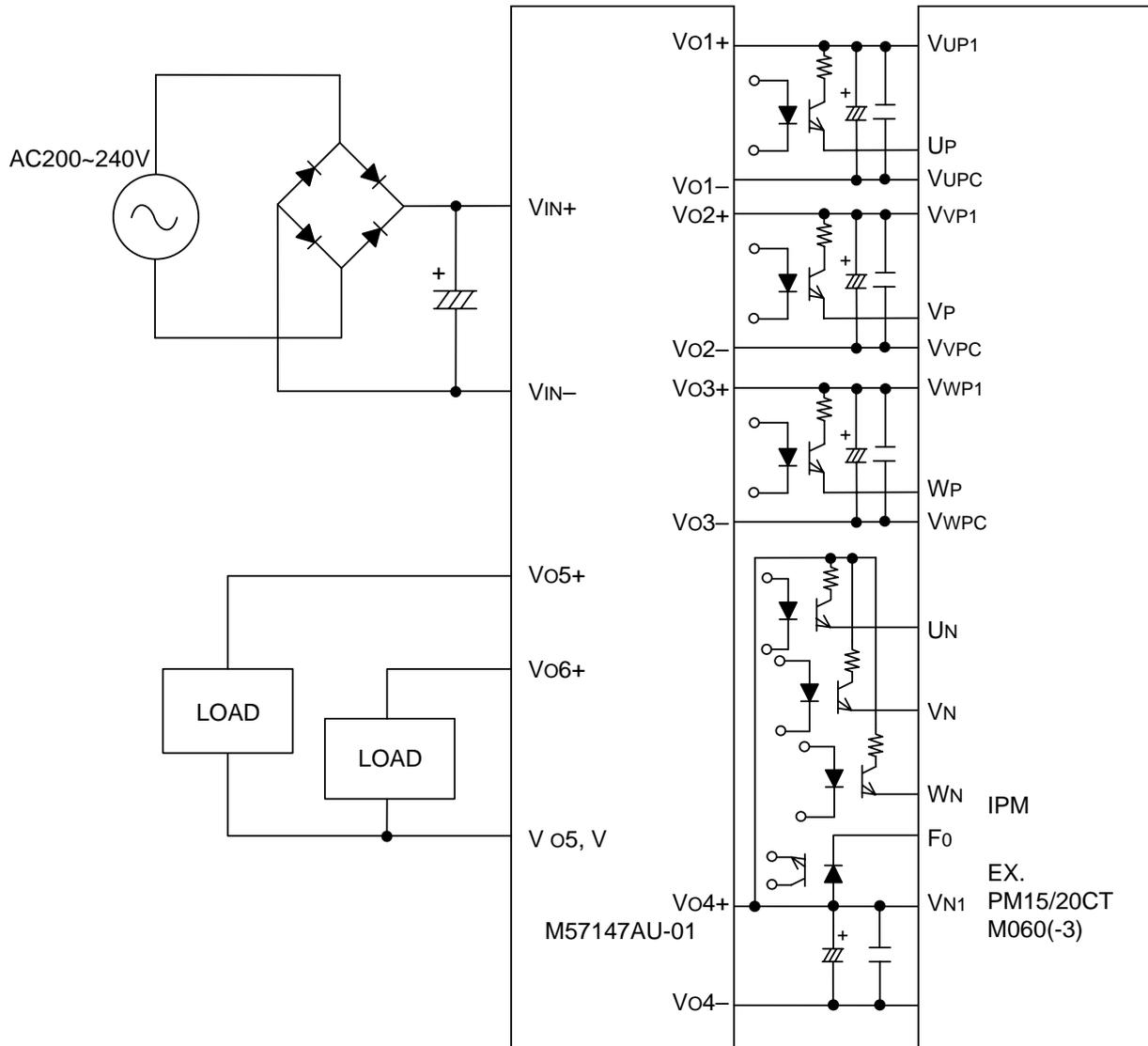
ELECTRICAL CHARACTERISTICS (Vin= 140 ~ 380V, Ta = 25°C, Unless otherwise noted)

Symbol	Parameter	Test Conditions	Limits			Unit
			Min.	Typ.	Max.	
Vin	Input voltage	Recommended range	140	–	380	V
Vo1	Output voltage	Io1 = 5 ~ 50mA, Io2 = Io3 = 5mA, Io4 = 25mA Io5 = 200mA, Io6 = 200mA	14	15	16	V
Vo2		Io2 = 5 ~ 50mA, Io1 = Io3 = 5mA, Io4 = 25mA Io5 = 200mA, Io6 = 200mA	14	15	16	
Vo3		Io3 = 5 ~ 50mA, Io1 = Io2 = 5mA, Io4 = 25mA Io5 = 200mA, Io6 = 200mA	14	15	16	
Vo4		Io4 = 25 ~ 150mA, Io1 = Io2 = Io3 = 5mA Io5 = 200mA, Io6 = 200mA	14	15	16	
Vo5		Io5 = 30 ~ 400mA, Io1 = Io2 = Io3 = 5mA, Io4 = 25mA Io6 = 200mA	11	12	14	
Vo6		Io6 = 50 ~ 300mA, Io1 = Io2 = Io3 = 5mA, Io4 = 25mA Io5 = 200mA	4.75	5.0	5.25	
Reg-I		Line regulation	Vo1 voltage change Io1 = Io2 = Io3 = 50mA, Io4 = 150mA, Io5 = 400mA, Io6 = 300mA	–	0.3	
	Vo2 voltage change Io1 = Io2 = Io3 = 50mA, Io4 = 150mA, Io5 = 400mA, Io6 = 300mA		–	0.3	0.5	
	Vo3 voltage change Io1 = Io2 = Io3 = 50mA, Io4 = 150mA, Io5 = 400mA, Io6 = 300mA		–	0.3	0.5	
	Vo4 voltage change Io1 = Io2 = Io3 = 50mA, Io4 = 150mA, Io5 = 400mA, Io6 = 300mA		–	0.3	0.5	
	Vo5 voltage change Io1 = Io2 = Io3 = 50mA, Io4 = 150mA, Io5 = 400mA, Io6 = 300mA		–	0.2	0.5	
	Vo6 voltage change Io1 = Io2 = Io3 = 50mA, Io4 = 150mA, Io5 = 400mA, Io6 = 300mA		–	0.1	0.2	

ELECTRICAL CHARACTERISTICS (Vin= 140 ~ 380V, Ta = 25°C, unless otherwise noted)

Symbol	Parameter	Test Conditions	Limits			Unit
			Min.	Typ.	Max.	
Reg-L	Load regulation	Vo1 voltage change Io1 = 5 ~ 50mA, Io2 = Io3 = 50mA, Io4 = 150mA, Io5 = 400mA, Io6 = 300mA, Vin = 300V	–	0.4	1.0	V
		Vo2 voltage change Io2 = 5 ~ 50mA, Io1 = Io3 = 50mA, Io4 = 150mA, Io5 = 400mA, Io6 = 300mA, Vin = 300V	–	0.4	1.0	
		Vo3 voltage change Io3 = 5 ~ 50mA, Io1 = Io2 = 50mA, Io4 = 150mA, Io5 = 400mA, Io6 = 300mA, Vin = 300V	–	0.4	1.0	
		Vo4 voltage change Io4 = 25 ~ 150mA, Io1 = Io2 = Io3 = 50mA,, Io5 = 400mA, Io6 = 300mA, Vin = 300V	–	0.5	1.0	
		Vo5 voltage change Io5 = 30 ~ 400mA, Io1 = Io2 = Io3 = 50mA, Io4 = 150mA, Io6 = 300mA, Vin = 300V	–	1.5	1.8	
		Vo6 voltage change Io6 = 50 ~ 300mA, Io1 = Io2 = Io3 = 50mA, Io4 = 150mA, Io5 = 400mA, Vin = 300V	–	0.1	0.2	
η	Efficiency	Vin = 300V, Po = 10.8W	70	77	–	%

TYPICAL CHARACTERISTICS



AVAILABLE IPM EXAMPLES

PM100CVA060	PM10CSJ060	PM100CSA060	PM50RSA060	PM50RSK060	PM15CTM060
PM150CVA060	PM15CSJ060	PM150CSA060	PM75RSA060	PM75RSK060	PM15CTM060-3
PM200CVA060	PM20CSJ060	PM200CSA060	PM100RSA060		PM20CTM060
	PM30CSJ060		PM150RSA060	PM30CTJ060	PM20CTM060-3
		PM50CTK060		PM30CTJ060-3	
PM75RVA060	PM30RSF060	PM75CTK060			