



REACTOR
Microelectronics

RM6203 Application Information

-For DVB Case

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技术支持部
2010.10

OUTLINE

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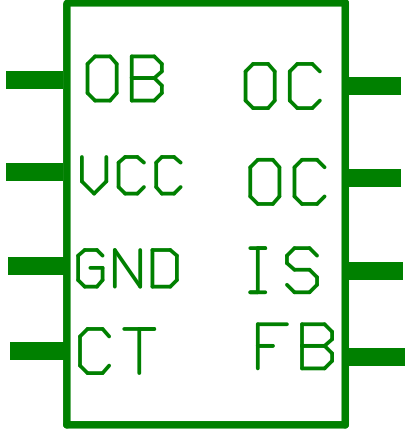


一、 RM6203 Description

The RM6203 is a kind of progressive overload and saturation current to prevent the function of switching power supply. It provides continuous output power up to 12W in the broad voltage range of 85V – 265V. Its optimized and highly reasonable circuit design has made it possible to minimize the total cost of the product. This power supply controller could be used in typical fly back circuit topology to constitute simple AC/DC converter. The internal initiating circuit of 6203 has been designed with a unique means of current sink to complete the startup using the amplifying function of the power switching tube. This will significantly reduce the power consumption of the start-up resistor; and when the output power becomes smaller, 6203 will automatically lower its operating frequency to enable very low standby power consumption.



PIN connection (top view)

package	function	description
	Pin1 OB	Base pin of the power Tube.(Enabling current input and connect to initiating resistance)
	Pin2 VCC	Power supply pin
	Pin3 GND	Ground pin
	Pin4 CT	Oscillation capacitance pin (connect to timing capacitance)
	Pin5 FB	Feedback pin
	Pin6 IS	Current inspection pin
	Pin7,8 oc	Output pin(connect to switching transformer)



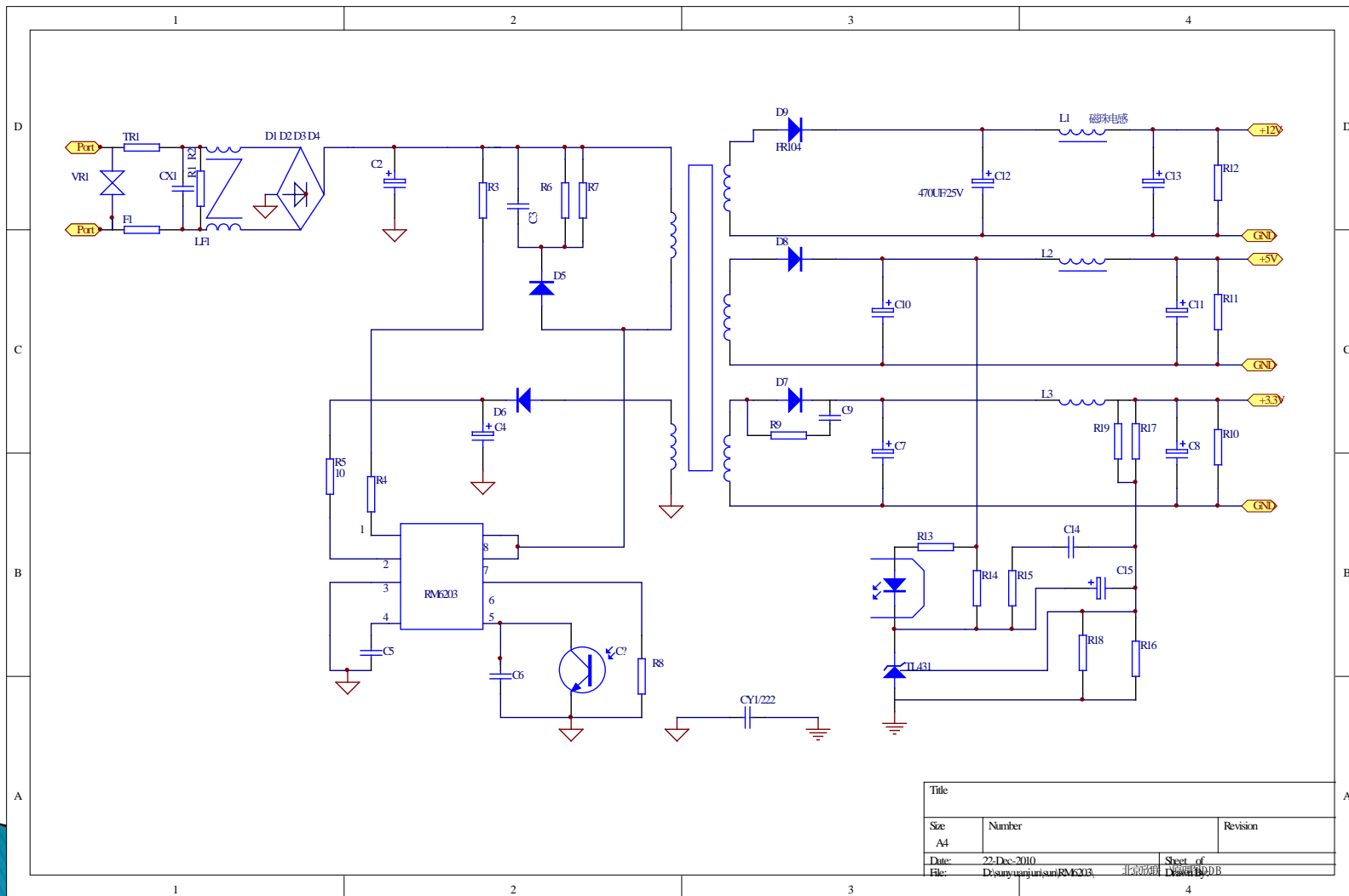
二、Electronical Characteristic Description

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Output Section						
Max. Withstanding Voltage of the Switching Tube		IOC=10mA	800			V
Reference Section						
Line Regulation		Vcc=5.5-9V		2	20	mV
Load Regulation		Io=0.1-1.2mA			3	%
Oscillator Section						
Oscillating Frequency	F _{OSC}	Ct=680PF	55	61	67	KHz
PWM Section						
Maximum Duty Ratio	D _{MAX}		53	57	61	%
Power Supply Current Section						
Static Current	I _Q	Vcc=8V	2.7	3.0	3.3	mA
Start-up voltage			8.6	8.8	9.0	V
Oscillator Turn-off Voltage			4.4	4.6	4.8	V

三、Application Circuit



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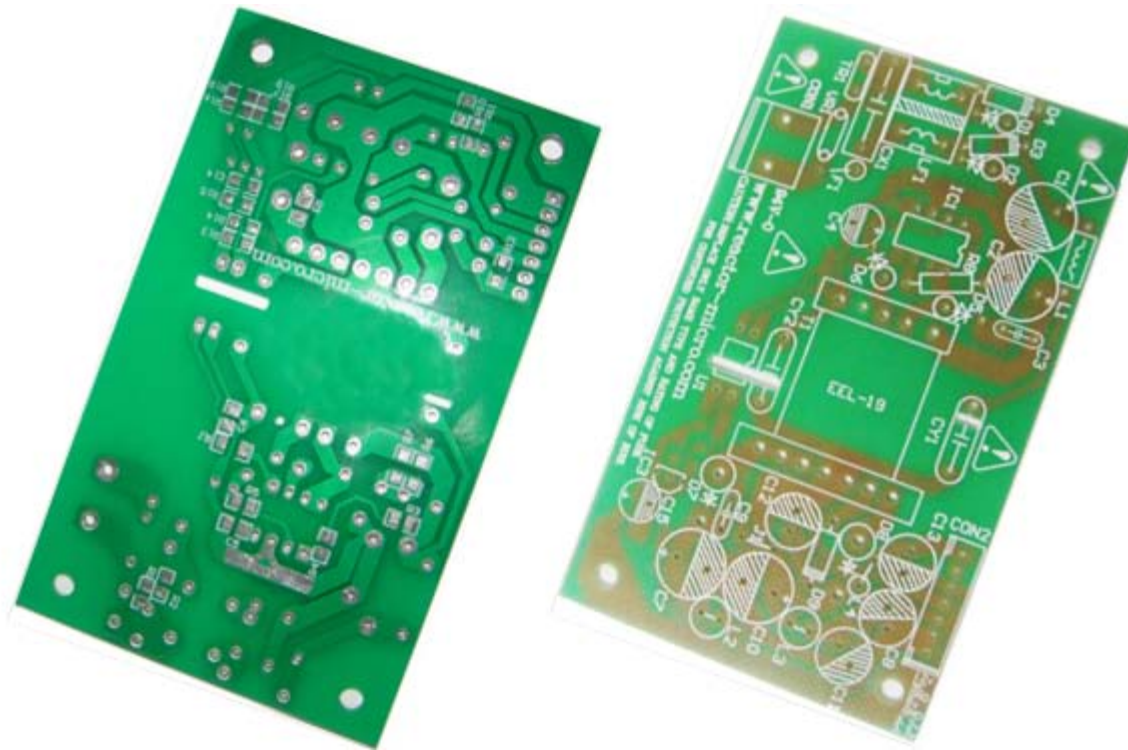


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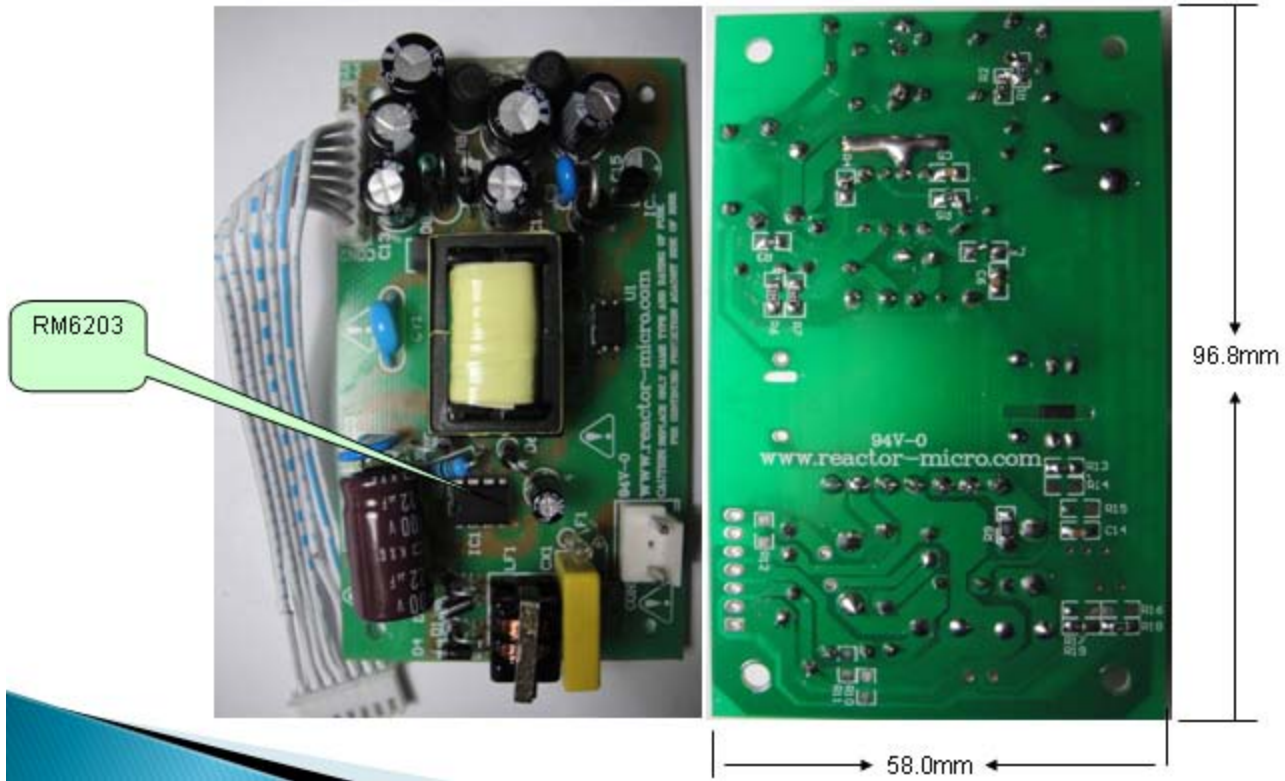
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Demo board



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四、BOM LIST

名称型号(规格)	用量	位置	备注(尺寸及要求)	封装形式	
EE1-19变压器1.65mh	1	T1		DIP	1.2
工子形电感8*6 3.3 UH±10%	1	L3		DIP	0.1
工子形电感8*6 5.6 UH±10%	1	L2		DIP	0.1
磁珠 电感10UH 1/2W	1	L1 L4		DIP	0.05
保险管T 1A/250V	1	F1	3*10	DIP	0.1
94V0 PCB板 1.6MM	1			DIP	0.8
1N4007	5	D1 D2 D3 D4 D6		DIP	0.2
FR104	1	D9		DIP	0.04
FR107	1	D5		DIP	0.04
SB560	1	D7		DIP	0.3
SR3A0	1	D8		DIP	0.1
电解电容400V-22UF-M(105℃/2KH)	1	C2		DIP	0.45
电解电容25V-22UF-M(105℃)	1	C4		DIP	0.15
高频低阻电解16V-1000UF	1	C7		DIP	0.3
高频低阻电解16V-1000UF	1	C10		DIP	0.3
高频低阻电解10V-1000UF	1	C8		DIP	0.3



四、BOM LIST

名称型号(规格)	用量	位置	备注(尺寸及要求)	封装形式	
高频低阻电解25V-220UF	2	C12、C13	6*10	DIP	0.2
105_X7R_0805_25V_105°C	1	C14		SMD	0.1
电解电容16V-680UF-M(105°C)	1	C11		DIP	0.2
102K/1KV	1	C3		DIP	0.05
金属膜电阻1/2W-1.5Ω±1%	1	R8		DIP	0.05
DIP-8 RM6203	1	IC1	DIP-8	DIP	0.9
222M/250V	1	CY1		DIP	0.1
UU9.8 18mH	1	LF1		DIP	0.3
X电容0.1uF/275VAC	1	CX1		DIP	0.1
222/250V	1	C9		DIP	0.01
104_0805_X7R_16V	1	C6		SMD	0.015
0805-3.3KΩ±5%	1	R15		SMD	0.015
0805-220Ω±5%	1	R13		SMD	0.01
0805-1kΩ±5%	1	R14		SMD	0.01
0805-1KΩ±1%	1	R17		SMD	0.015
0805-3KΩ±1%	1	R18		SMD	0.015
0806-100KΩ±5%	1	R6		SMD	0.01

四、BOM LIST

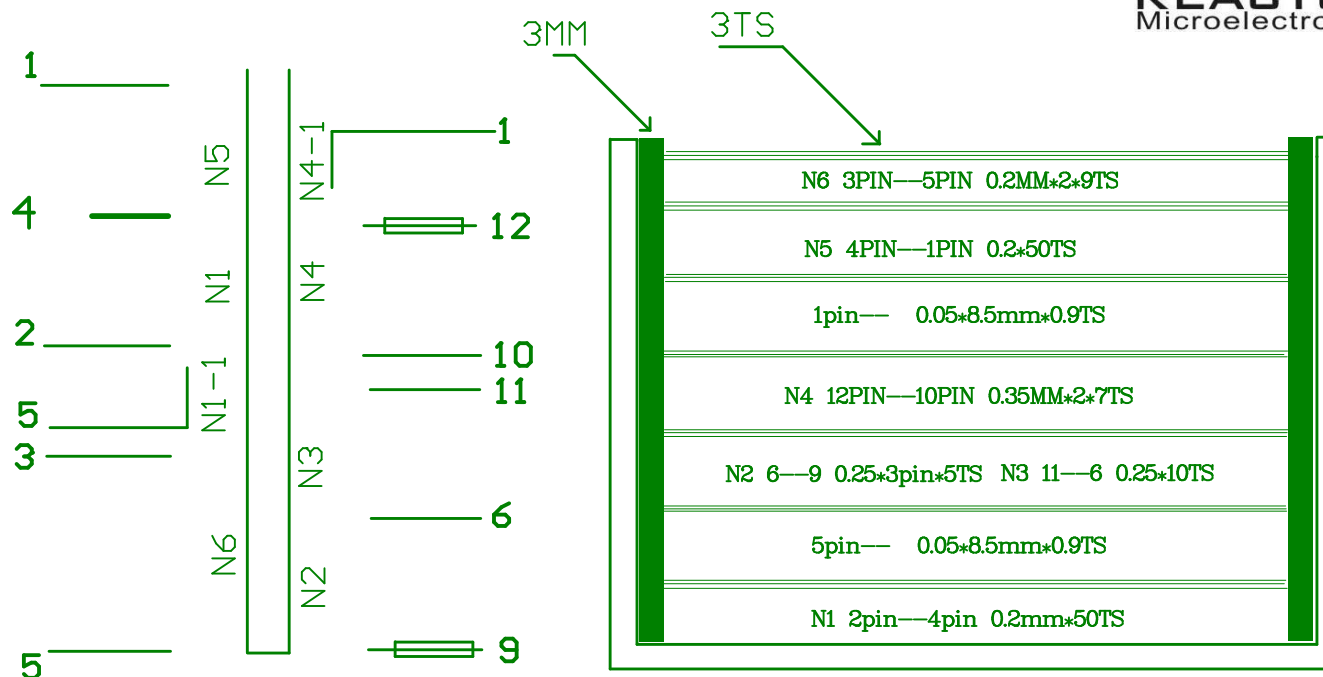
名称型号(规格)	用量	位置	备注(尺寸及要求)	封装形式	
1WS-1.5R \pm 1%	1	R8		DIP	
0805-1M Ω \pm 5%	2	R3 R4		SMD	0.02
0805-10 Ω \pm 5%	2	R5\R9		SMD	0.01
1.5k_0805	1	R10		SMD	0.01
5.6K_0805	1	R11		SMD	0.01
20k_0805	1	R12		SMD	0.01
681_X7R_0805_16V	1	C5		SMD	0.05
PC817C	1	U1		DIP	0.2
TL431	1	IC3		DIP	0.15

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五、Transformer



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1 .INDUCTANCE

$L_p(2--1) 1.65mH \pm 5\% @1KHZ, 0.25V$

2 .HI--POT TEST:

PRI. TO SCE. 3000V AC/3MA/60S/60Hz



六、 Test Report-Test Condition and Test SPEC.

Description	MIN	TPY	MAX	Test Data	Result
Input					
Voltage Frequency	90V 50hz		265V 60hz	85V-265V	PASS
Output 5v/0.47A 3.3V/1.5A 12V/14mA Max Load:					
Voltage 5v	4.85V	5V	5.15V		PASS
Voltage 3.3v	3.13v	3.3v	3.46v		PASS
Voltage 12v	11v	12v	13v		PASS
Efficiency 5v/0.47A 3.3V/1.5A 12V/14mA Max Load:					
AC220V Energy Star(5)				70.21%(avg.)	PASS

Test Report-data



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Output1 (3.3 V 1.5 A) :

Input Voltage (V)	Vout	Pin (W)	OCP (A)	Short (W)	Vds (V)	Diode (V)	F (KHz)	Ripple Voltage (mV)
100	3.25	11.3	3	0.66-1.11	296	12.8	68	29
115	3.25	11.3	3.2	0.8-1.34	308	13.6	69.1	26
230	3.25	11.2	3.1	2.34-2.83	492	21.2	65.5	38
265	3.25	11.4	2.7	2.05-2.8	480	24.4	65.8	31

Output2 (5 V 0.47 A) :

Input Voltage (V)	Vout	Diode (V)	Ripple Voltage (mV)
100	5.15	16.4	30
115	5.13	18	35
230	5.13	29.2	36
265	5.16	32.8	23

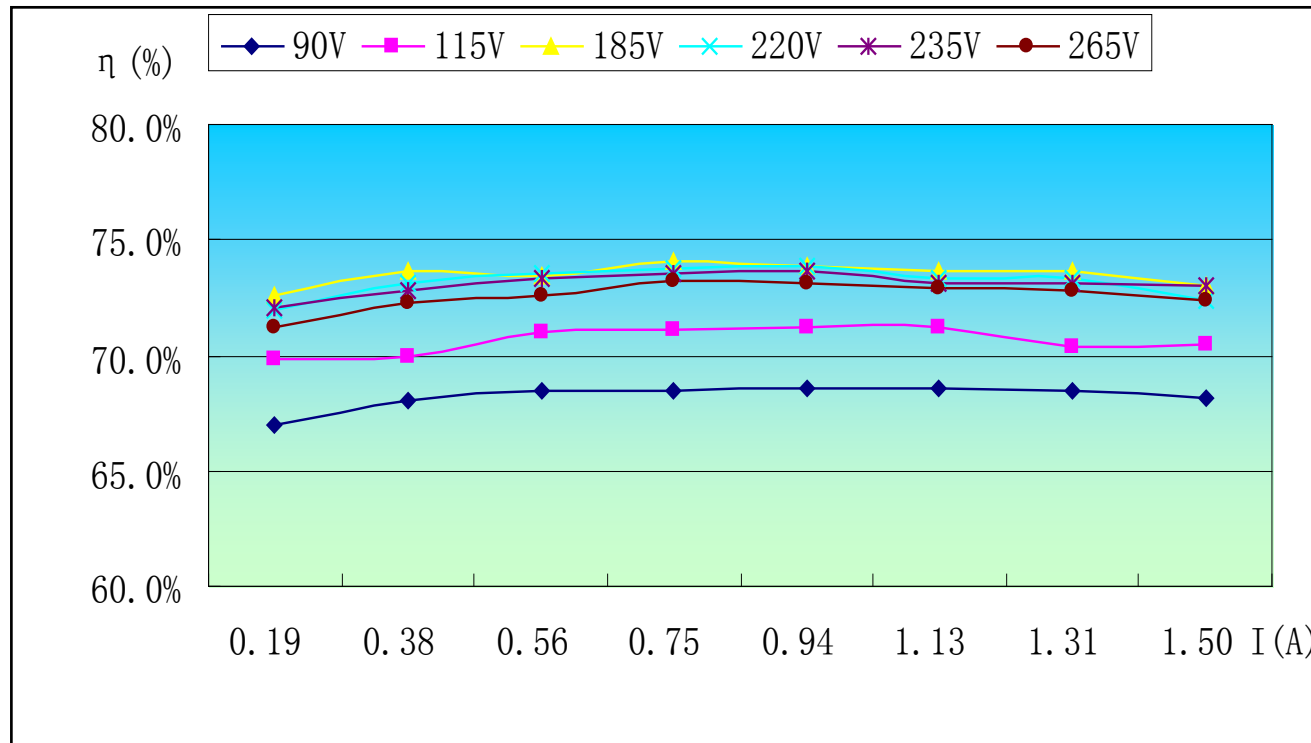
Output3 (12 V 14mA) :

Input Voltage (V)	Vout	Diode (V)	Ripple Voltage (mV)	Eff(%)
100	11.47	34	74	68.2
115	11.5	38.4	76	69.1
230	11.65	52.6	71	70.7
265	11.8	59.6	68	68.9



Test Data

Efficiency



Test Condition: $I_{out2}=I_{out2}(\max)$; $I_{out3}=I_{out3}(\max)$; I_{out1} 分别取值为 I_{out1} 的 1/8、1/4、3/8、1/2、5/8、3/4、7/8、100%负载作为测试点来计算效率。



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The End