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Evaluation Method 評價方法

Circuit used for determination 特性電路圖

Circuit 1 特性回路1

Line&Load Regulation And Temperature Chafaile Character (輸入&負荷及溫度變動特性)

Over-Voltage Protection (過電壓保護特性)

Over-Current Protection (過電流保護特性)

Dynamic ripple Character(動態負載特性)

Efficiency Character(效率特性)

Input&Load Change Character(輸入&負荷變動特性)

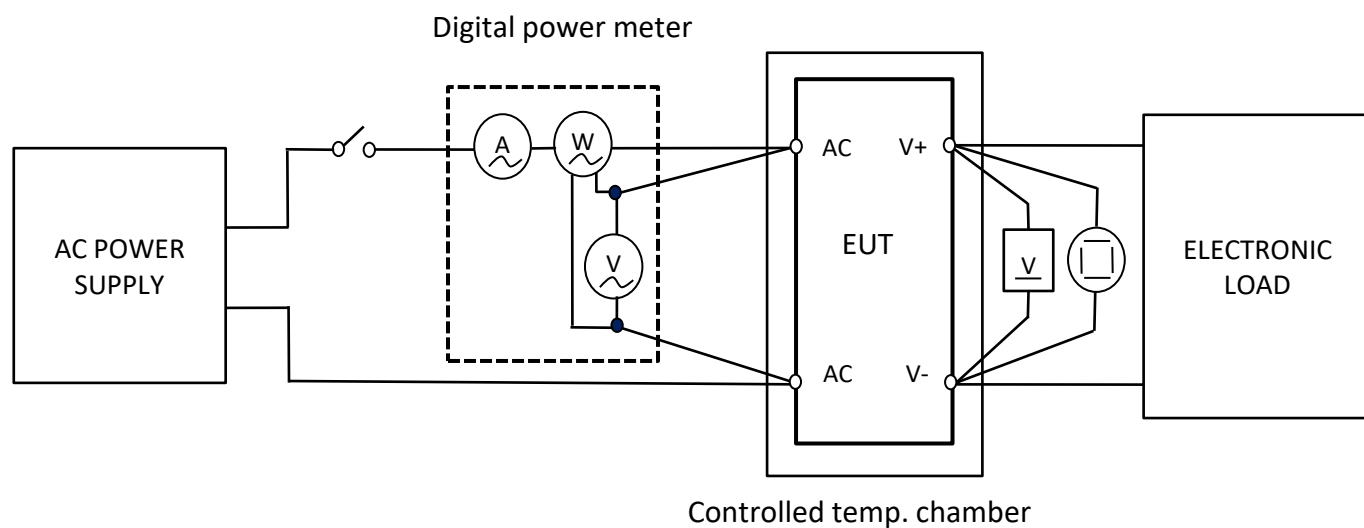
Turn On Delay(開機爬升延遲時間)

Hold Up Time Character (保持時間)

Low Vac Shut Off (輸入欠壓關斷特性)

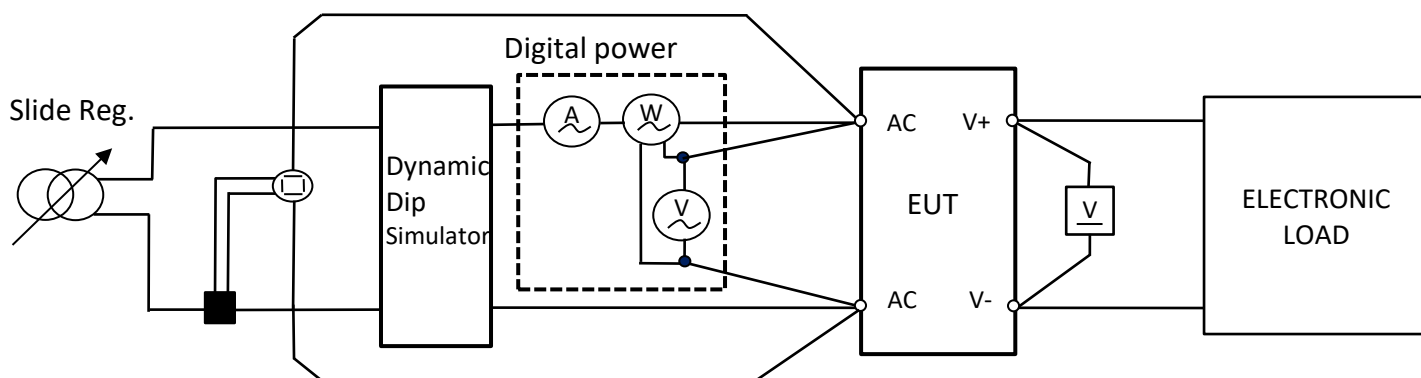
Over Shoot(過沖特性)

Under Shoot(下沖特性)



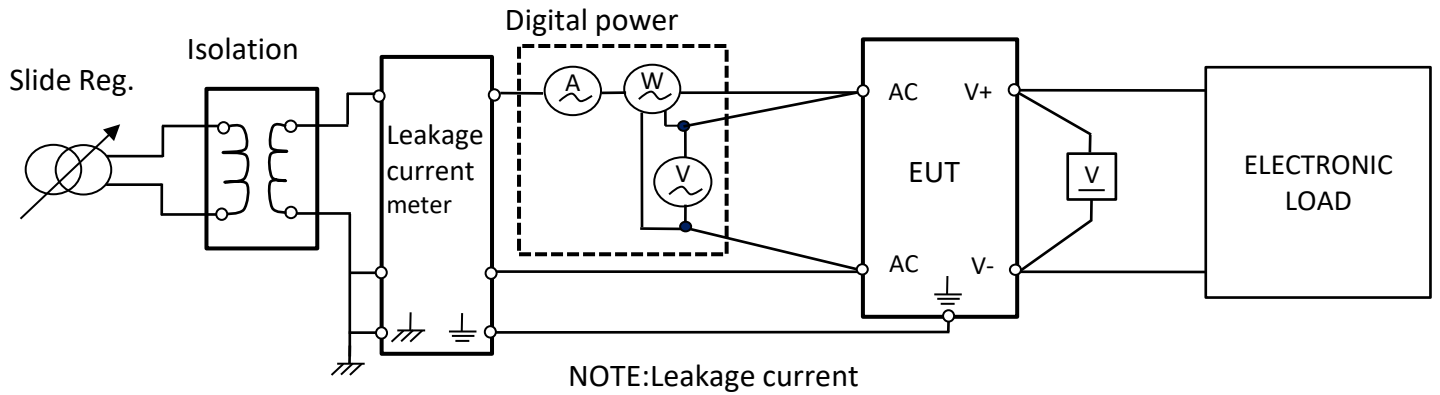
Circuit 2 特性回路2

Inrush Current (浪涌電流)



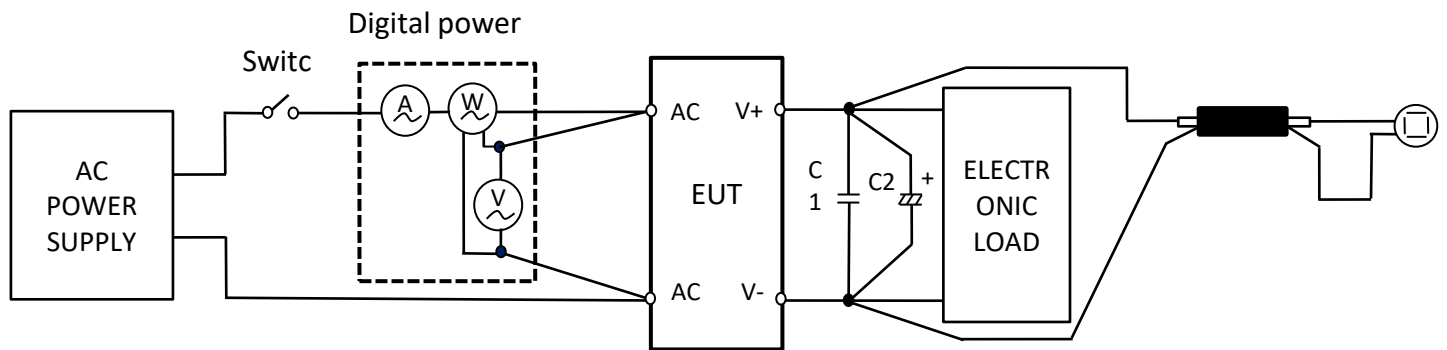
Circuit 3 特性回路3

Leak Current (漏電流特性)



Circuit 4 特性回路4

Ripple And Noise Character(紋波特性)



C1 : 0.1μF CERAMICS CAPACITOR

C2 : 10μ 100V ALUMINUM CAPACITOR

THE BANDWIDTH OF OSCILLOSCOPE IS SET WITH 20MHz

1.ELECTRICAL FUNCTION Character(電氣特性)

1-1.Line&Load Regulation And Temperature Chafaile Character (輸入&負荷及溫度變動特性)

※ Character Condition(特性條件) :

1	I/P Voltage(Vac)(輸入電壓)	85Vac/100Vac/240Vac/265Vac
2	I/P Frequency(Hz)(輸入頻率)	47Hz ~63Hz
3	Output Load(輸出負載)	0%,25%,50%,75%,100% Of Full Load
4	Regulation(調整率)	Load Regulation: $\leq 10\%$; Line Regulation $\leq 2\%$
5	Ambient Temp.(°C)(環境溫度)	25°C
6	Sample Size(取樣數)	1PCS

Output voltage	5.0V
----------------	------

※ Character Data(特性數據) :

O/P \ I/P	85Vac/63Hz	100Vac/60Hz	240Vac/50Hz	265Vac/47Hz	Line Regulation $\leq 2\%$
0%	5.178V	5.179V	5.178V	5.178V	0.02%
25%	5.139V	5.14V	5.139V	5.14V	0.02%
50%	5.101V	5.102V	5.102V	5.102V	0.02%
75%	5.063V	5.063V	5.064V	5.063V	0.02%
100%	5.025V	5.025V	5.026V	5.025V	0.02%
Load Regulation: $\leq 10\%$	3.06%	3.08%	3.04%	3.06%	

1-2.1 Ripple And Noise Character (紋波與雜訊)

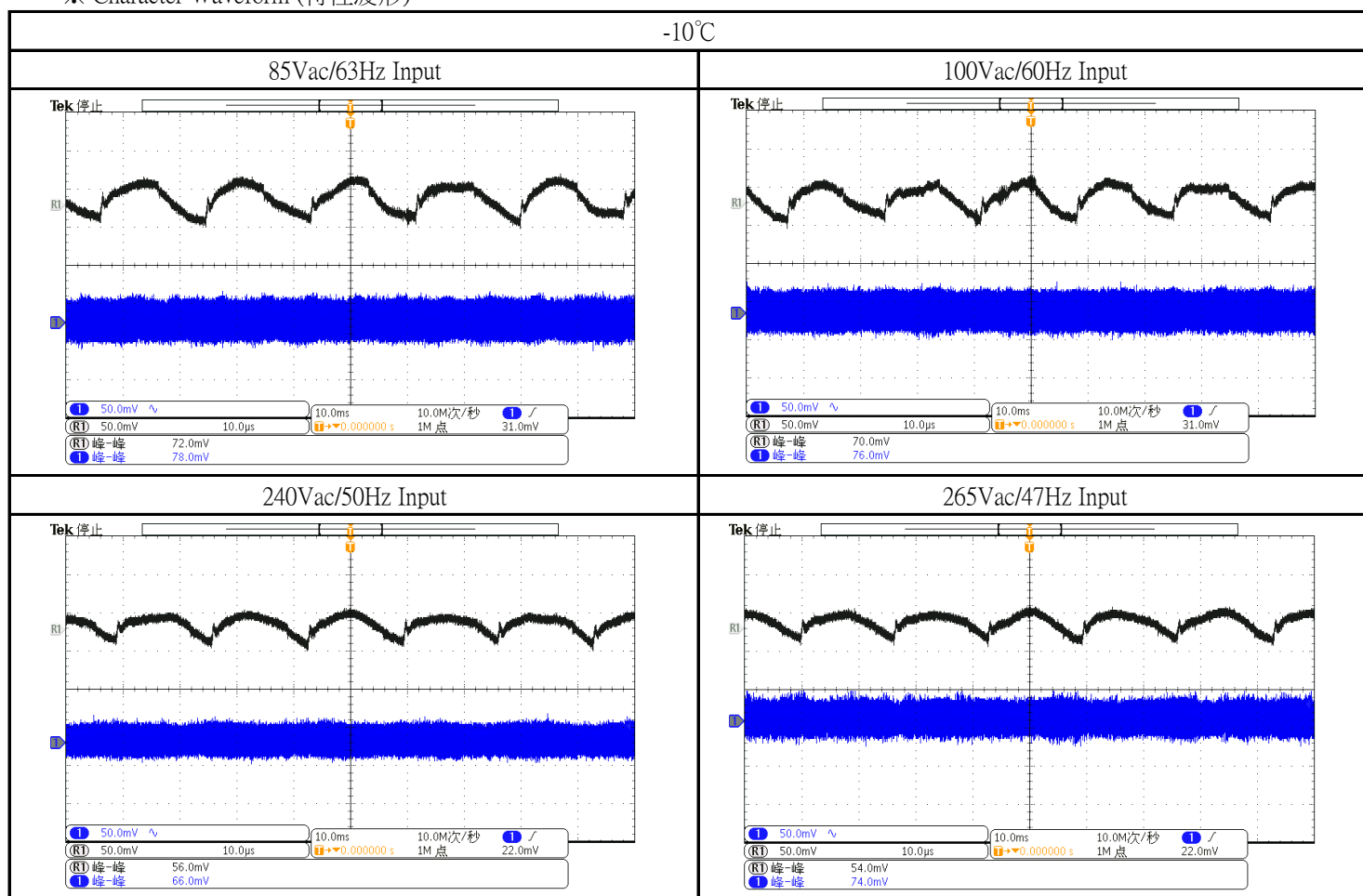
※ Character Condition(特性條件):

1	I/P Voltage(Vac)(輸入電壓)	85Vac/100Vac/240Vac/265Vac
2	I/P Frequency(Hz)(輸入頻率)	47Hz ~63Hz
3	Output Load(輸出負載)	Full Load
4	Ambient Temp.(°C)(環境溫度)	-10°C
5	Sample Size(取樣數)	1PCS

※ Character Data(特性數據):

I/P	85Vac/63Hz		100Vac/60Hz		240Vac/50Hz		265Vac/47Hz	
ITEM	Ripple	Noise	Ripple	Noise	Ripple	Noise	Ripple	Noise
-10°C	72.0mV	78.0mV	70.0mV	76.0mV	56.0mV	66.0mV	54.0mV	74.0mV

※ Character Waveform (特性波形):



1-2.3 Ripple And Noise Character (紋波與雜訊)

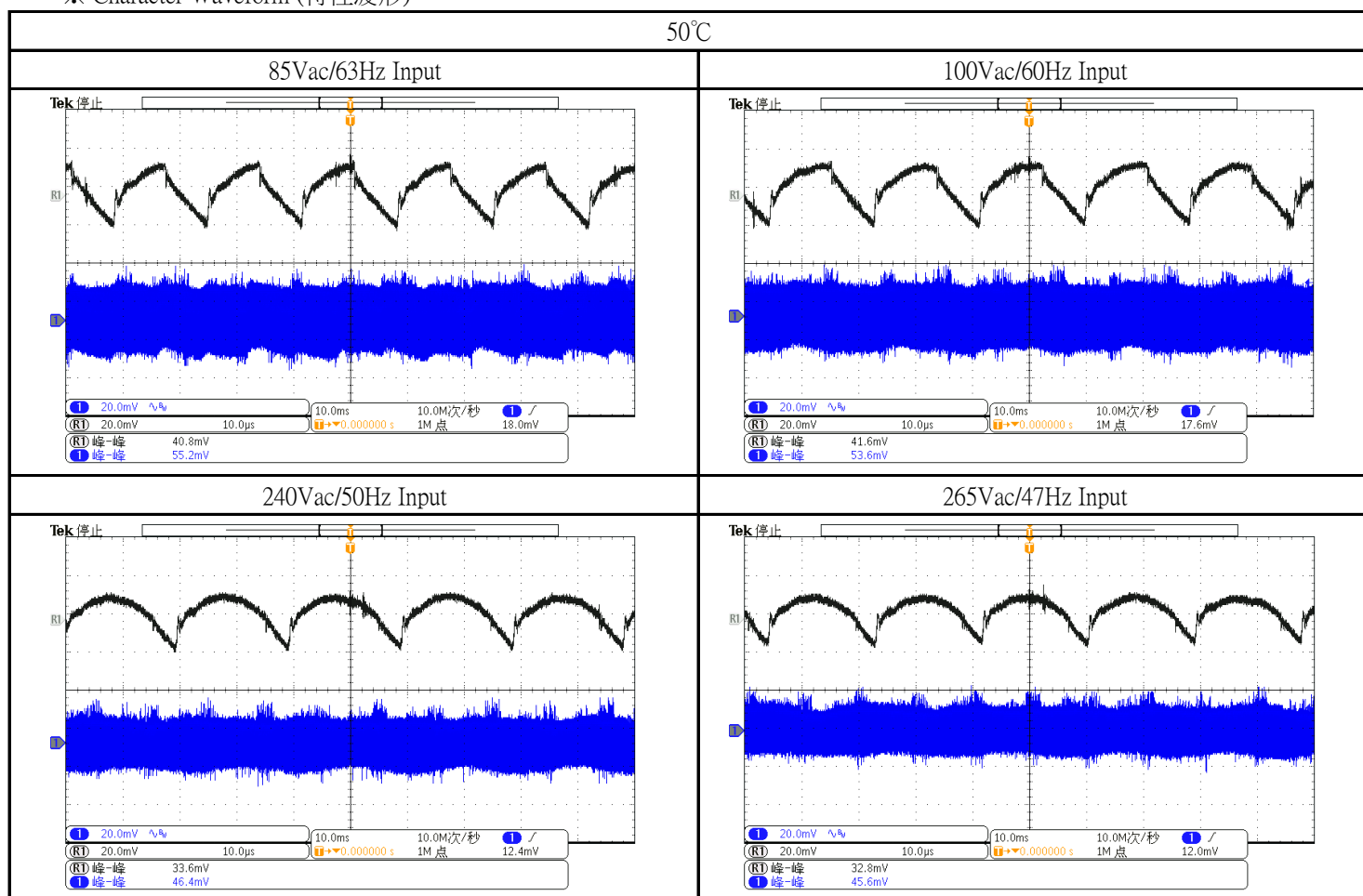
※ Character Condition(特性條件):

1	I/P Voltage(Vac)(輸入電壓)	85Vac/100Vac/240Vac/265Vac
2	I/P Frequency(Hz)(輸入頻率)	47Hz ~63Hz
3	Output Load(輸出負載)	Full Load
4	Ambient Temp.(°C)(環境溫度)	50°C
5	Sample Size(取樣數)	1PCS

※ Character Data(特性數據):

I/P	85Vac/63Hz		100Vac/60Hz		240Vac/50Hz		265Vac/47Hz	
ITEM	Ripple	Noise	Ripple	Noise	Ripple	Noise	Ripple	Noise
50°C	40.8mV	55.2mV	41.6mV	53.63mV	33.6mV	46.4mV	32.8mV	45.6mV

※ Character Waveform (特性波形):



1-3.Over-Voltage Protection(過電壓保護特性)

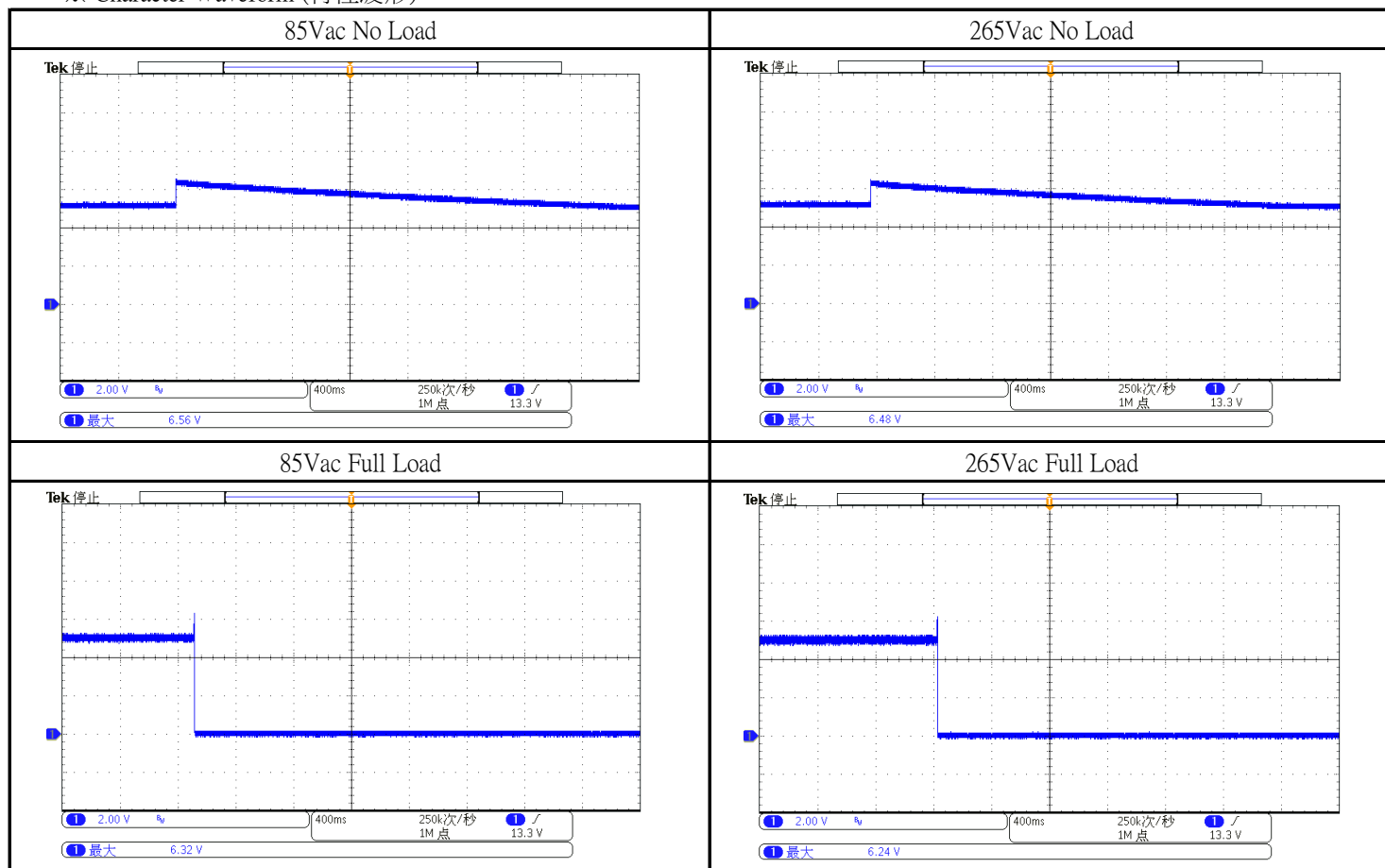
※ Character Condition(特性條件):

1	I/P Voltage(Vac)(輸入電壓)	85Vac/265Vac
2	I/P Frequency(Hz)(輸入頻率)	47Hz /63Hz
3	Output Load(輸出負載)	No/Full Load
4	Ambient Temp.(°C)(環境溫度)	25°C
5	Sample Size(取樣數)	1PCS

※ Character Data(特性數據):

O/P	No Load		Full Load	
I/P	85Vac/63Hz	265Vac/47Hz	85Vac/63Hz	265Vac/47Hz
Character Result	6.56V	6.48V	6.32V	6.24V

※ Character Waveform (特性波形):



1-4.Over-Current Protection(過電流保護特性)

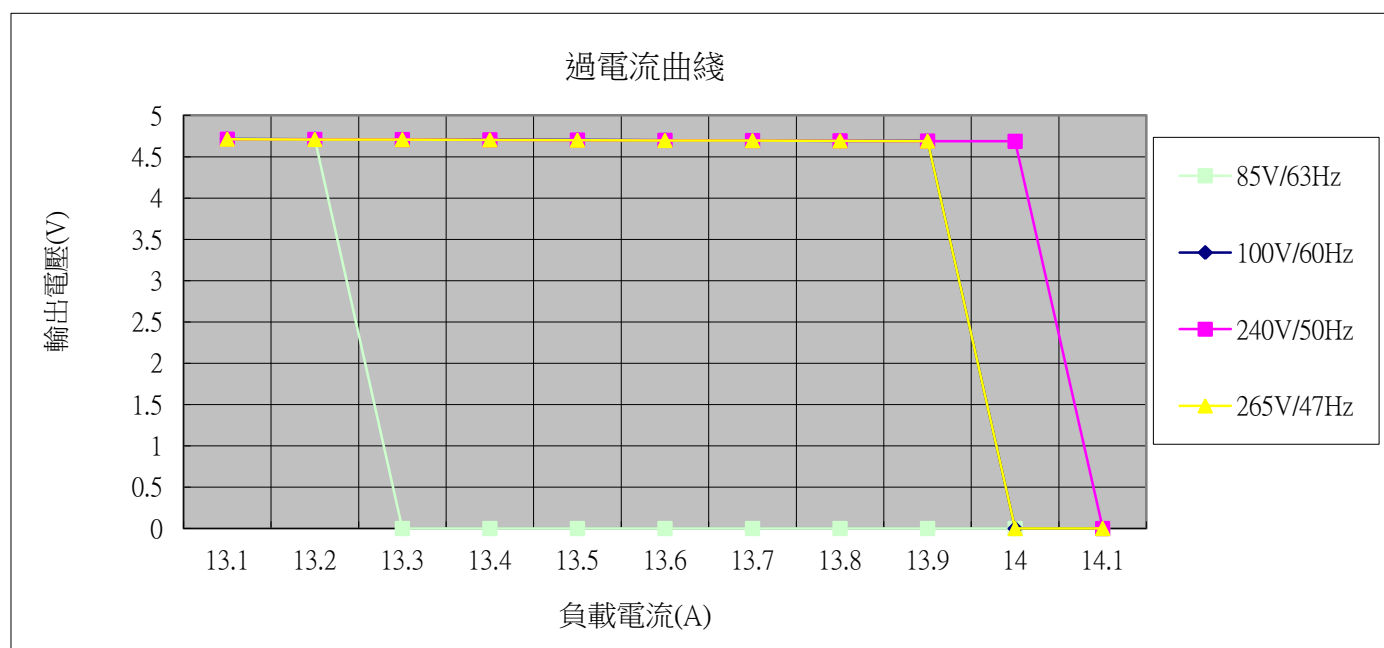
※ Character Condition(特性條件):

1	I/P Voltage(Vac)(輸入電壓)	85Vac/100Vac/240Vac/265Vac
2	I/P Frequency(Hz)(輸入頻率)	47Hz ~63Hz
3	Output Load(輸出負載)	Full Load
4	Ambient Temp.(°C)(環境溫度)	25°C
5	Sample Size(取樣數)	1PCS

※ Character Data(特性數據):

I/P	85V/63Hz	100V/60Hz	240V/50Hz	265V/47Hz
O.C.P點	13.3A	14.0A	14.1A	14.0A

I/P	85V/63Hz										
Voltage(V)	4.716	4.711	0	0	0	0	0	0	0	0	0
Current(A)	13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.8	13.9	14	14.1
I/P	100V/60Hz										
Voltage(V)	4.716	4.713	4.709	4.706	4.703	4.7	4.697	4.693	4.69	0	0
Current(A)	13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.8	13.9	14	14.1
I/P	240V/50Hz										
Voltage(V)	4.713	4.71	4.707	4.704	4.701	4.698	4.695	4.692	4.689	4.686	0
Current(A)	13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.8	13.9	14	14.1
I/P	265V/47Hz										
Voltage(V)	4.712	4.709	4.706	4.703	4.7	4.697	4.694	4.691	4.689	0	0
Current(A)	13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.8	13.9	14	14.1



1-5. Dynamic ripple Character(動態負載特性)

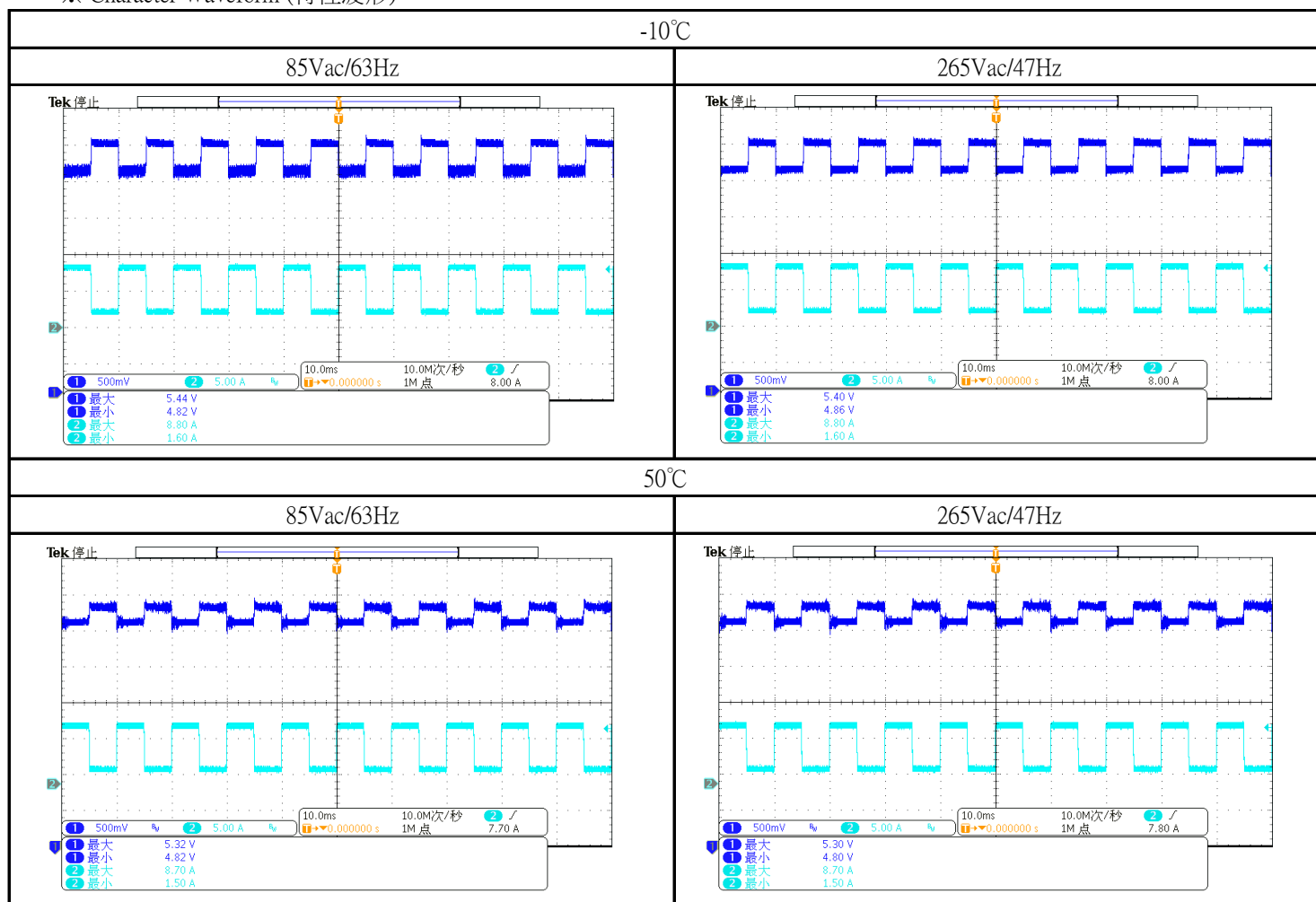
※ Character Condition(特性條件):

1	I/P Voltage(Vac)(輸入電壓)	85Vac/265Vac
2	I/P Frequency(Hz)(輸入頻率)	47Hz /63Hz
3	Output Load(輸出負載)	20%-80% Full Load, TH=5ms, TL=5ms, Slew rate=0.1A/us
4	Ambient Temp.(°C)(環境溫度)	-10°C /50°C
5	Sample Size(取樣數)	1PCS

※ Character Data(特性數據):

I/P	85Vac/63Hz		265Vac/47Hz	
O/P	Max	Min	Max	Min
-10°C	5.44V	4.82V	5.4V	4.86V
50°C	5.32V	4.82V	5.3V	4.8V

※ Character Waveform (特性波形):



1-6.Efficiency Character(效率特性)

※ Character Condition(特性條件) :

1	I/P Voltage(Vac)(輸入電壓)	100Vac/200Vac
2	I/P Frequency(Hz)(輸入頻率)	50Hz / 60Hz
3	Output Load(輸出負載)	0%,10%,25%,50%,75%,100% of Full Load
4	Ambient Temp.(°C)(環境溫度)	25°C
5	Sample Size(取樣數)	1PCS
6	Output Load(輸出負載)	10.0A

※ Character Data(特性數據) :

使用線材	N/A
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Efficiency								Stand by consumption	
Load		10% 25% 50% 75% 100%						0%	
I/P		100Vac/60Hz			200Vac/50Hz			Input 100V/60Hz	200V/50HZ
O/P Load		Pin (W)	Pout (W)	Efficiency (%)	Pin (W)	Pout (W)	Efficiency (%)	0.035W	0.083W
10%	1.0A	6.07	5.400	88.96%	6.28	5.400	85.99%		
25%	2.5A	15.15	13.47	88.91%	15.16	13.47	88.85%		
50%	5.0A	30.53	26.9	88.11%	30.18	26.9	89.13%		
75%	7.5A	46.44	40.2	86.56%	45.49	40.2	88.37%		
100%	10.0A	63.14	53.5	84.73%	61.49	53.5	87.01%		
Average				87.08%			88.34%		

1-7.Input&Load Change Character(輸入&負荷變動特性)

※ Character Condition(特性條件)：

1	I/P Voltage(Vac)(輸入電壓)	85Vac~265Vac
2	I/P Frequency(Hz)(輸入頻率)	47Hz ~63Hz
3	Output Load(輸出負載)	No Load and Full Load
4	Ambient Temp.(°C)(環境溫度)	25°C
5	Sample Size(取樣數)	1PCS
6		

※ Character Equipment(特性設備)：

ITEM	Equipment Item(設備)	Model No. / Manufacturer(製造商和型號)
1	AC Source(變頻器)	ALL POWER/APG-1005N
2	Power Meter(功率表)	YOKOGAWA/WT310
3	DC Load(DC負載)	ITECH/IT8512+

※ Character Data(特性數據)：

Input change with no load			
No Load		Input Condition	
		85V/63Hz	265Vac/47Hz
	Input Current (A)	0.0107	0.0251
	Input Power (W)	0.0067	0.176
Input change with full load			
Full Load		Input Condition	
		85V/63Hz	265Vac/47Hz
	Input Current (A)	1.183	0.483
	Input Power (W)	60.81	58.04

1-8.Inrush Current (浪涌電流)

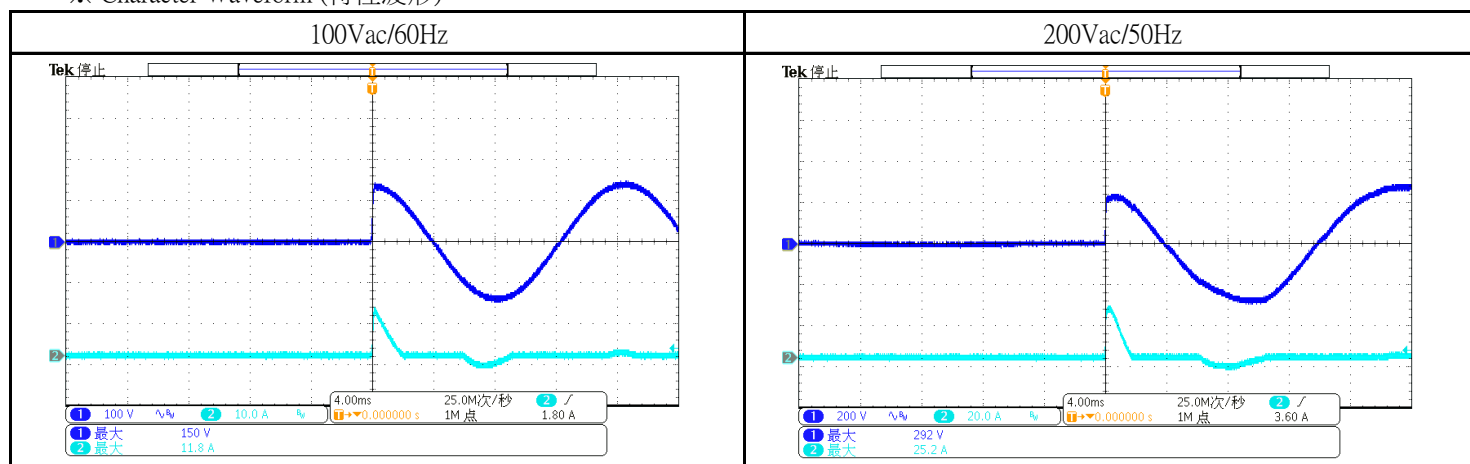
※ Character Condition(特性條件):

1	I/P Voltage(Vac)(輸入電壓)	100Vac/200Vac
2	I/P Frequency(Hz)(輸入頻率)	50Hz /60Hz
3	Output Load(輸出負載)	Full Load
4	Ambient Temp.(°C)(環境溫度)	25°C
5	Sample Size(取樣數)	1PCS

※ Character Data(特性數據):

Inrush Current		
<div> <div>O/P</div> <div>I/P</div> </div>	Full Load	Full Load
	100Vac/60Hz	200Vac/50Hz
Character Result	11.8A	25.2A

※ Character Waveform (特性波形):



1-9.Turn On Delay(開機爬升延遲時間)

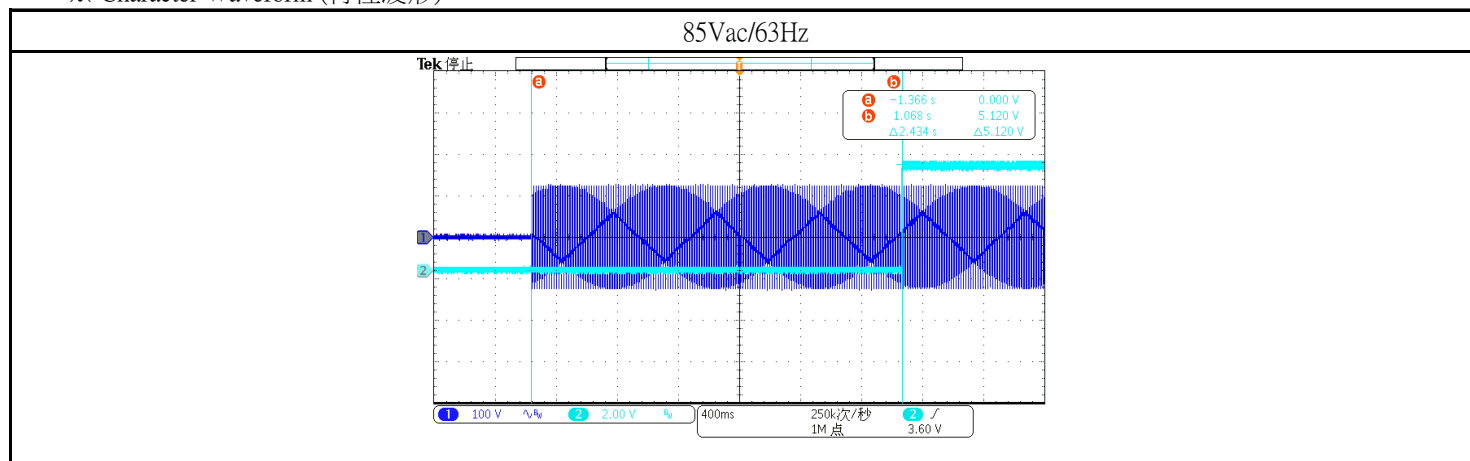
※ Character Condition(特性條件) :

1	I/P Voltage(Vac)(輸入電壓)	85Vac
2	I/P Frequency(Hz)(輸入頻率)	63Hz
3	Output Load(輸出負載)	Full Load
4	Ambient Temp.(°C)(環境溫度)	25°C
5	Sample Size(取樣數)	1PCS

※ Character Data(特性數據) :

Turn on delay time	
I/P	85Vac/63Hz
Character Result	2.434S

※ Character Waveform (特性波形) :



2-1. Hold Up Time Character (保持時間)

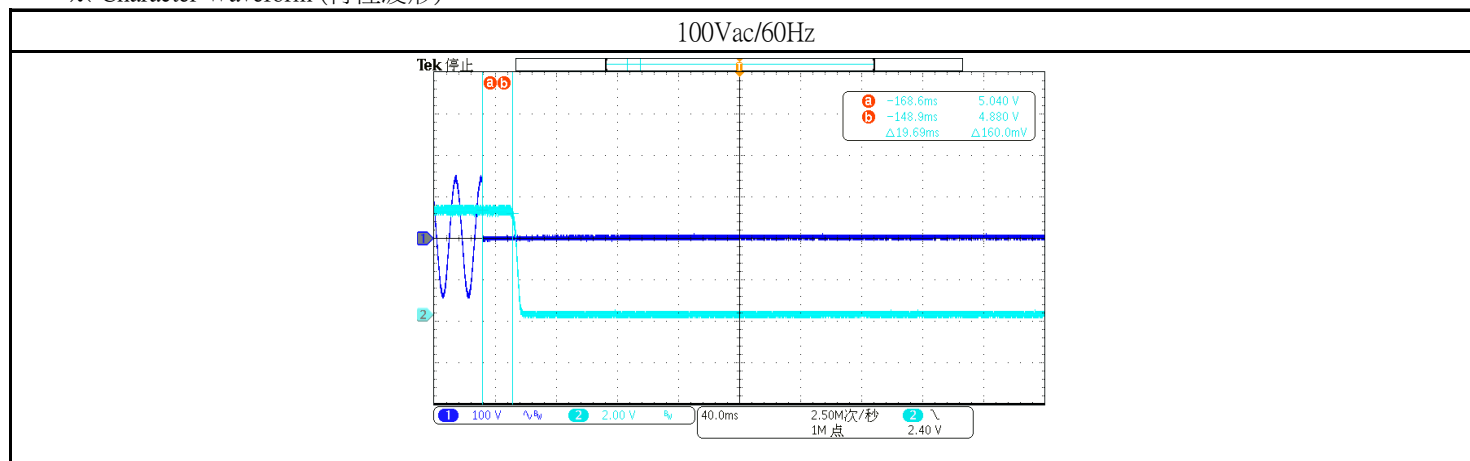
※ Character Condition(特性條件)：

1	I/P Voltage(Vac)(輸入電壓)	100Vac
2	I/P Frequency(Hz)(輸入頻率)	60Hz
3	Output Load(輸出負載)	Full Load
4	Ambient Temp.(°C)(環境溫度)	25°C
5	Sample Size(取樣數)	1PCS

※ Character Data(特性數據)：

Hold up time	
I/P	100Vac/60Hz
Character Result	19.69mS

※ Character Waveform (特性波形)：



2-2. Low Vac Shut Off (輸入欠壓關斷特性)

※ Character Condition(特性條件):

1	I/P Voltage(Vac)(輸入電壓)	0~85Vac
2	I/P Frequency(Hz)(輸入頻率)	60Hz
3	Output Load(輸出負載)	Full Load
4	Ambient Temp.(°C)(環境溫度)	25°C
5	Sample Size(取樣數)	1PCS

※ Character Data(特性數據):

LOW Vac SHUT OFF	
0~85Vac Input	
O/P	Full Load
Brown in	77.4V
85~0Vac Input	
O/P	Full Load
Brown out	69.6V

2-3. Over Shoot(過沖特性)

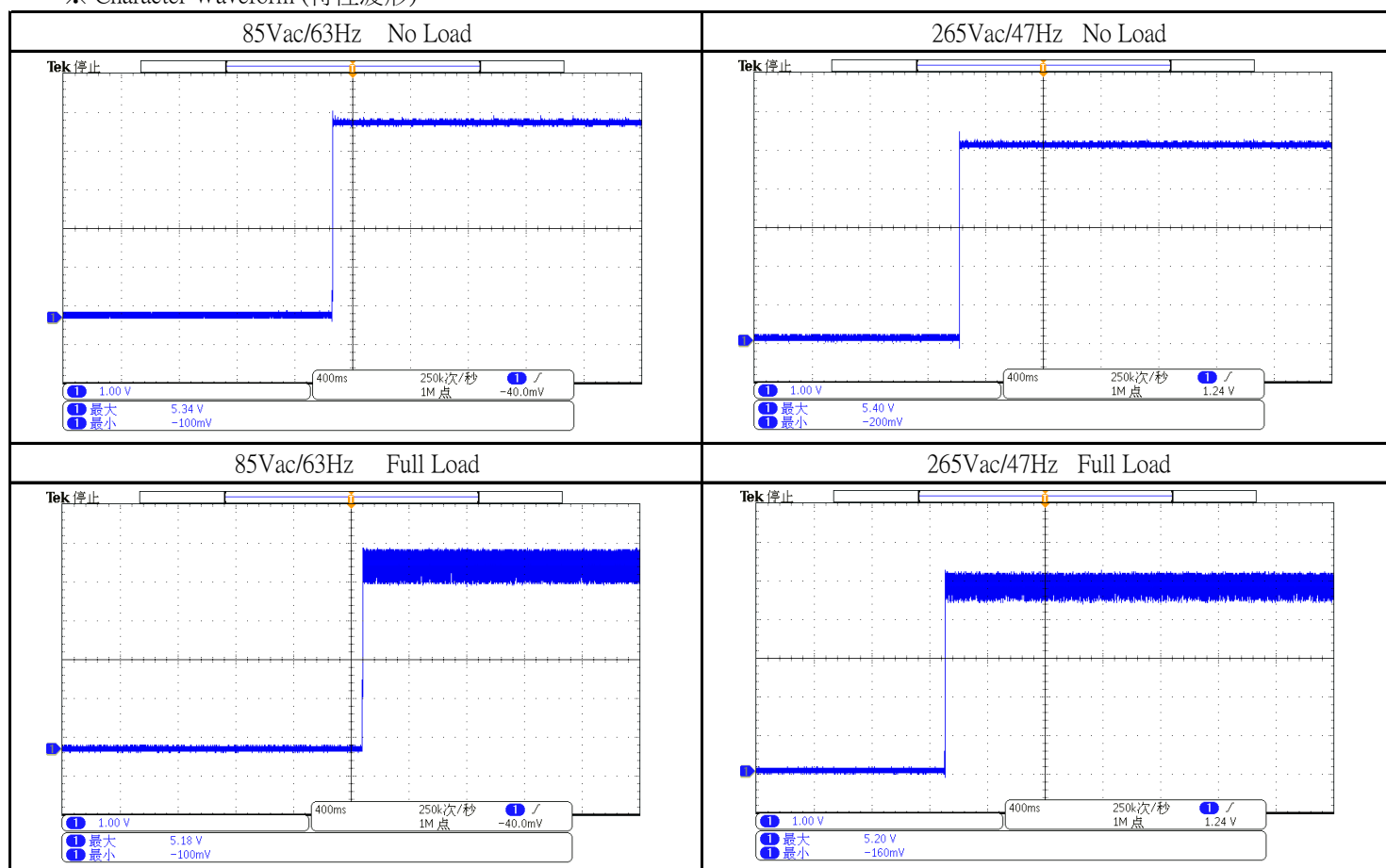
※ Character Condition(特性條件):

1	I/P Voltage(Vac)(輸入電壓)	85Vac/265Vac
2	I/P Frequency(Hz)(輸入頻率)	47Hz /63Hz
3	Output Load(輸出負載)	No Load/Full Load
4	Ambient Temp.(°C)(環境溫度)	25°C
5	Sample Size(取樣數)	1PCS

※ Character Data(特性數據):

Over Shoot				
O/P	No Load		Full Load	
I/P	85Vac/63Hz	265Vac/47Hz	85Vac/63Hz	265Vac/47Hz
Character Result	5.34V	5.4V	5.18V	5.2V

※ Character Waveform (特性波形):



2-4.Under Shoot(下冲特性)

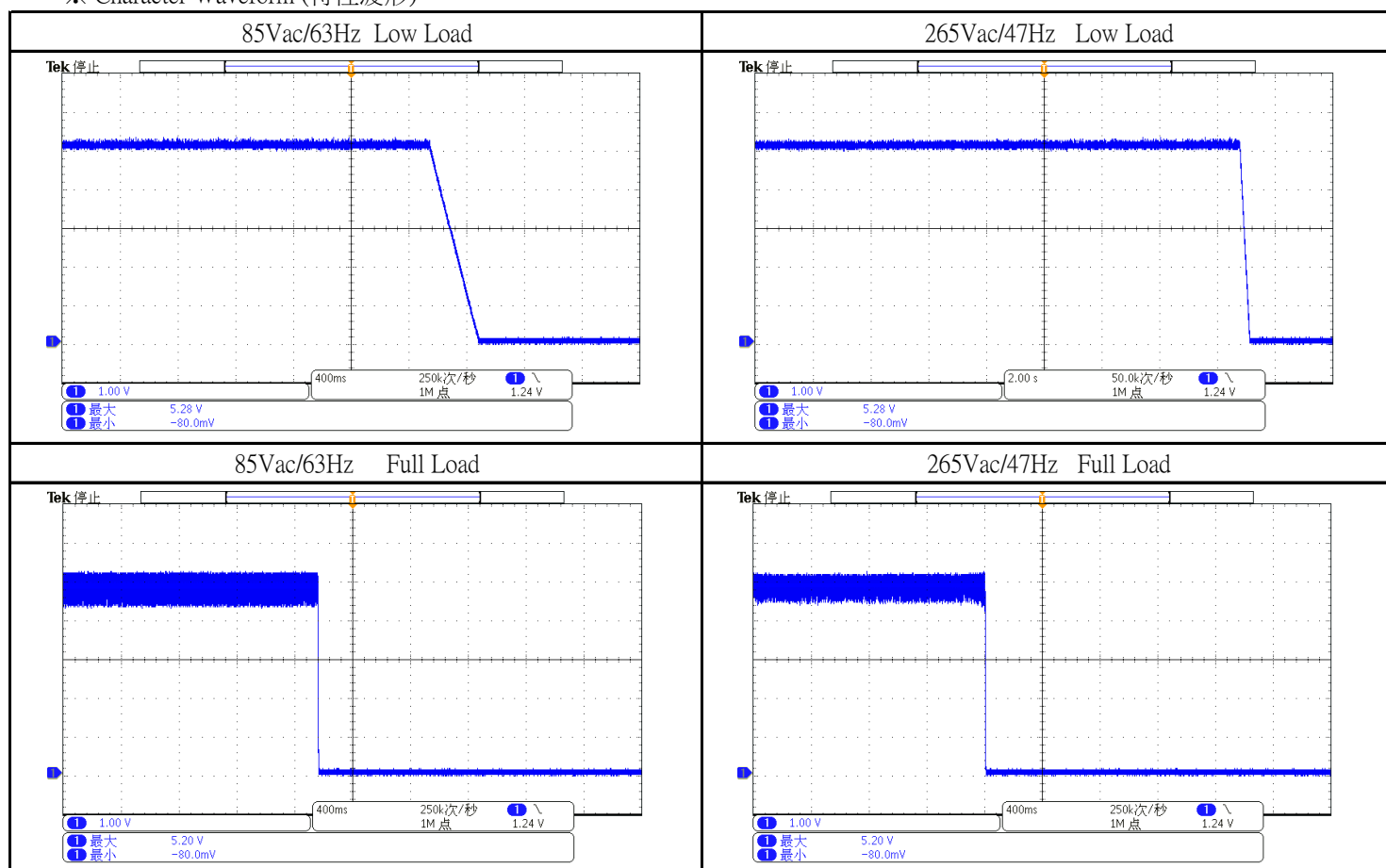
※ Character Condition(特性條件):

1	I/P Voltage(Vac)(輸入電壓)	85Vac/265Vac
2	I/P Frequency(Hz)(輸入頻率)	47Hz /63Hz
3	Output Load(輸出負載)	Low/Full Load
4	Ambient Temp.(°C)(環境溫度)	25°C
5	Sample Size(取樣數)	1PCS

※ Character Data(特性數據):

Under Shoot				
O/P	0.1A		Full Load	
I/P	85Vac/63Hz	265Vac/47Hz	85Vac/63Hz	265Vac/47Hz
Character Result	5.28V	5.28V	5.2V	5.2V

※ Character Waveform (特性波形):



2-5.Leak Current(漏電流特性)

※Character Condition(特性條件)：

1	I/P Voltage(Vac)(輸入電壓)	265Vac
2	I/P Frequency(Hz)(輸入頻率)	50Hz
3	Output Load(輸出負載)	No Load
4	Ambient Temp.(°C)(環境溫度)	25°C
5	Sample Size(取樣數)	1PCS
6		

※Character Equipment(特性設備)：

ITEM	Equipment Item(設備)	Model No. / Manufacturer(製造商和型號)
1	Leak current Characterer(泄漏電流特性儀)	VG2301
2		
3		
4		

LEAK CURRENT CHARACTER

Spec.(mA MAX)	0.5
O/P	No Load
I/P	265Vac

※Character Data：

SINGLE-PHASE EQUIPMENT

The Character was made in all combinations to the normal and reverse polarity of the supply circuit(Polarity Switch P1)

Terminal A (Switch"s") of Measuring Instrument Connected to:	Switch"e" Position	Touch Current (mA r.m.s.)				
		Polarity P1/Primary Switch Condition				
		Normal/On	Normal/Off	Reverse/On	Reverse/Off	Judgement
Output	Closed	0.334	-	0.332	-	Pass

The touch current [did not] exceed _____ mA r.m.s with terminal A connected to the earth terminal of the unit with Switch "e" opened.

The touch current [did not] exceed 0.5 mA r.m.s with terminal A connected to the earth terminal of the unit with Switch "e" closed.