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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)

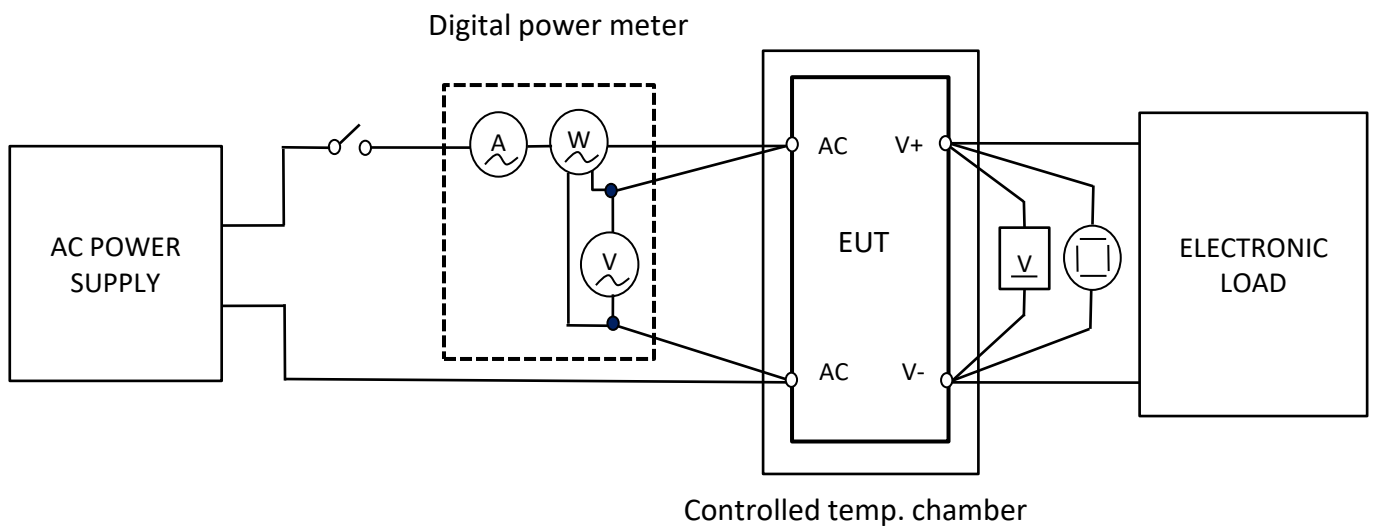
Turn On Delay(開機爬升延遲時間)

Hold Up Time Character (保持時間)

Low Vac Shut Off (輸入欠壓關斷特性)

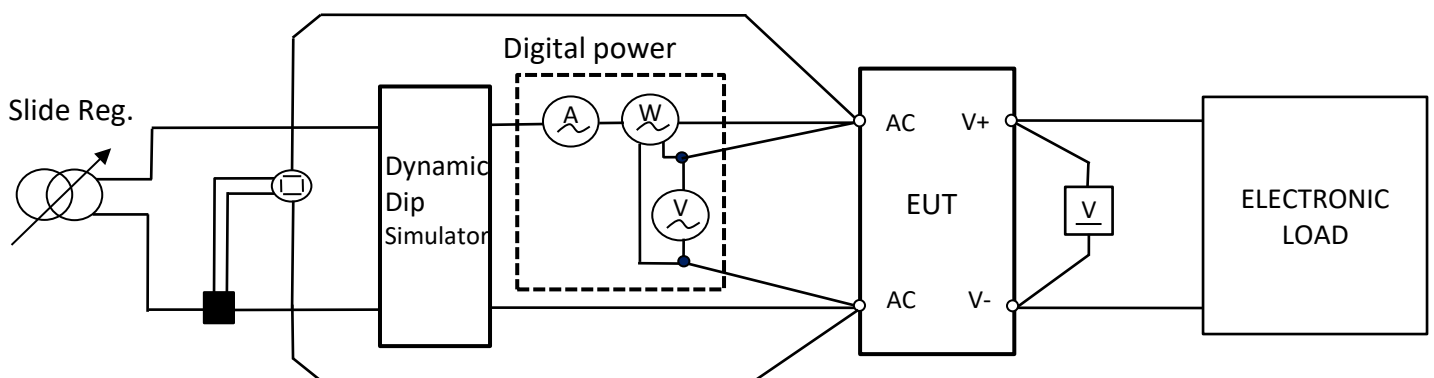
Over Shoot(過沖特性)

Under Shoot(下沖特性)



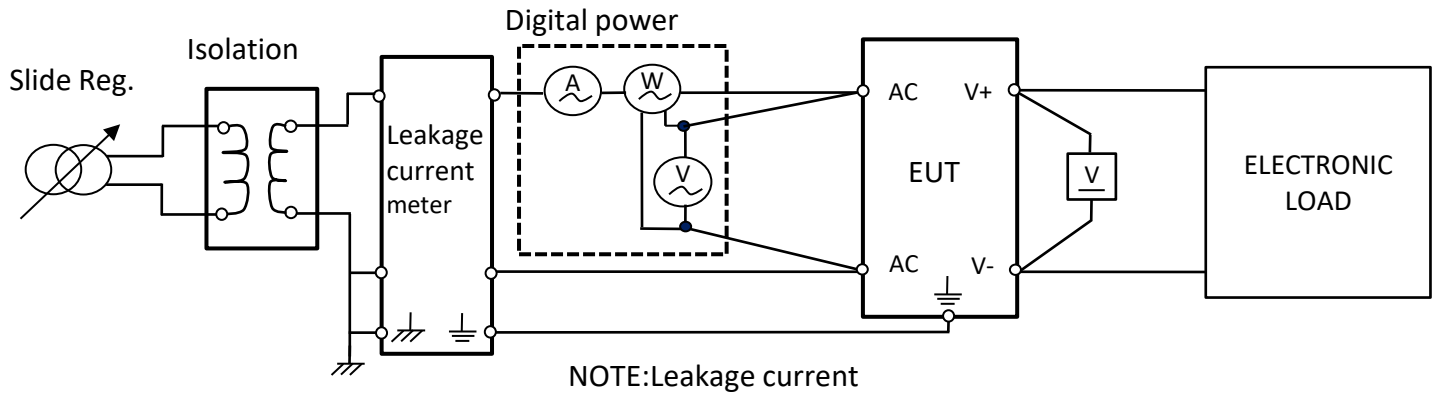
Circuit 2 特性回路2

Inrush Current (浪涌電流)



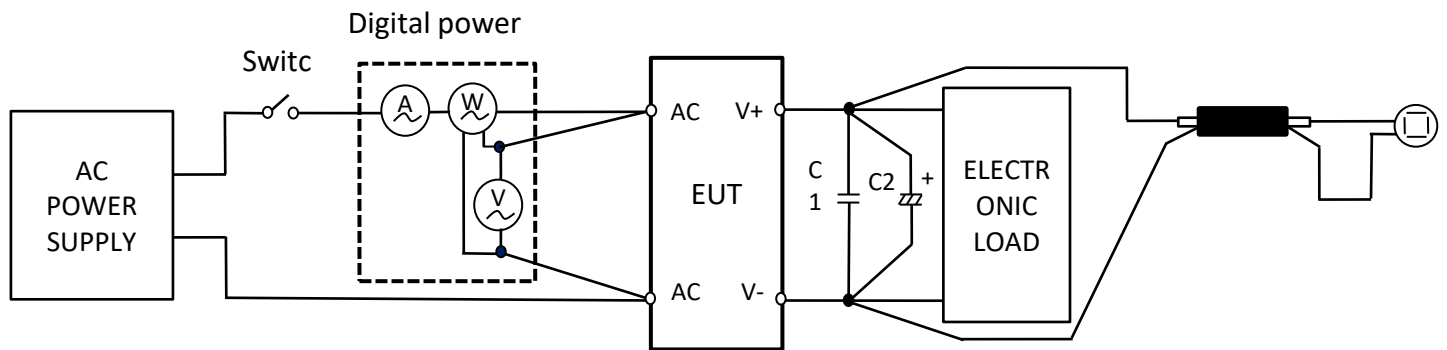
Circuit 3 特性回路3

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 : 10μF 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)	90Vac/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	48.0V
----------------	-------

※ Character Data(特性數據) :

O/P \ I/P	90Vac/63Hz	100Vac/60Hz	240Vac/50Hz	265Vac/47Hz	Line Regulation $\leq 2\%$
0%	47.943V	47.946V	47.945V	47.948V	0.01%
25%	47.93V	47.934V	47.936V	47.938V	0.02%
50%	47.914V	47.918V	47.921V	47.924V	0.02%
75%	47.9V	47.901V	47.907V	47.909V	0.02%
100%	47.884V	47.885V	47.893V	47.894V	0.02%
Load Regulation: $\leq 10\%$	0.12%	0.13%	0.11%	0.11%	

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

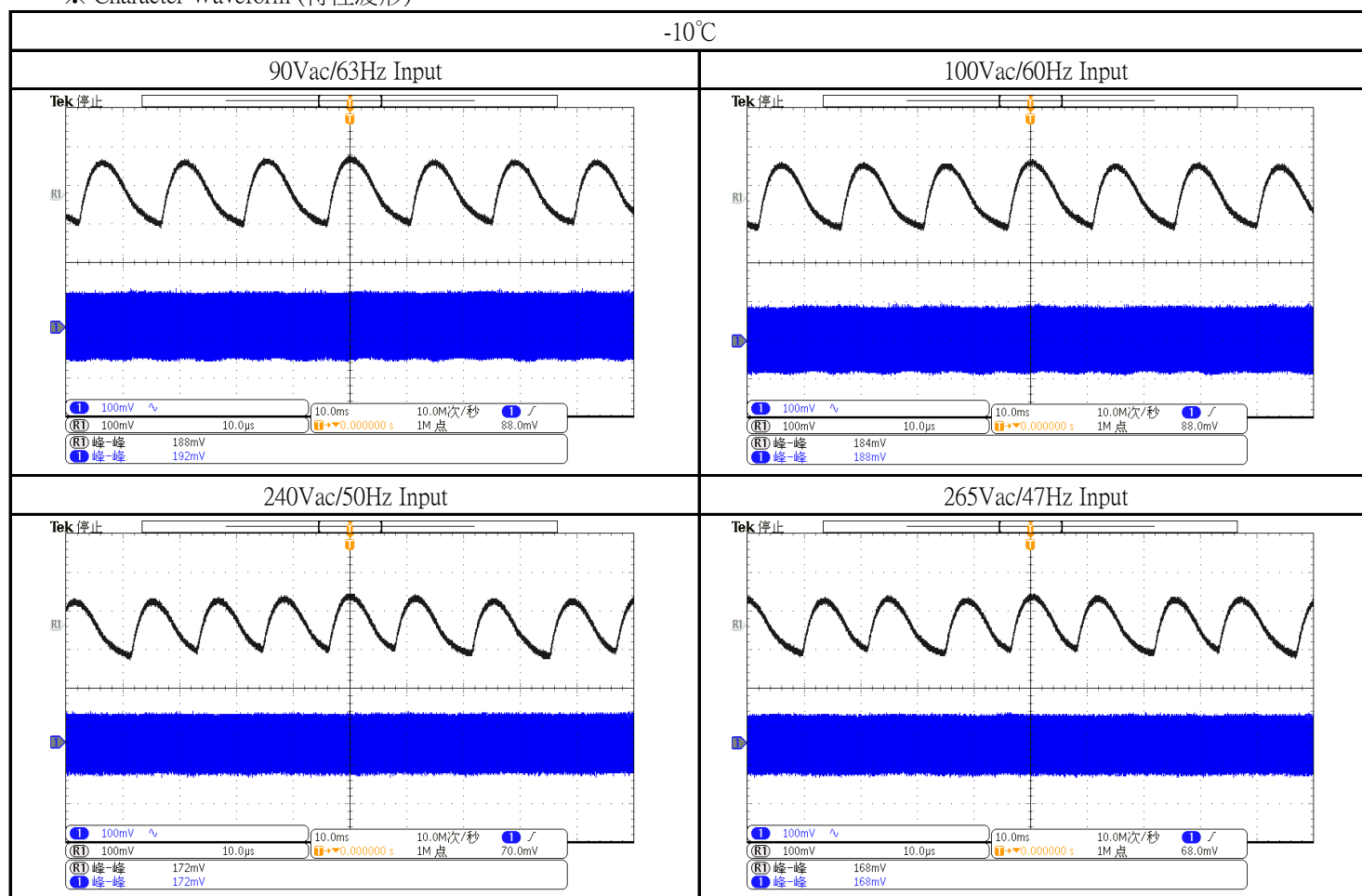
※ Character Condition(特性條件):

1	I/P Voltage(Vac)(輸入電壓)	90Vac/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	90Vac/63Hz		100Vac/60Hz		240Vac/50Hz		265Vac/47Hz	
ITEM	Ripple	Noise	Ripple	Noise	Ripple	Noise	Ripple	Noise
-10°C	188.0mV	192.0mV	184.0mV	188.0mV	172.0mV	172.0mV	168.0mV	168.0mV

※ Character Waveform (特性波形):



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

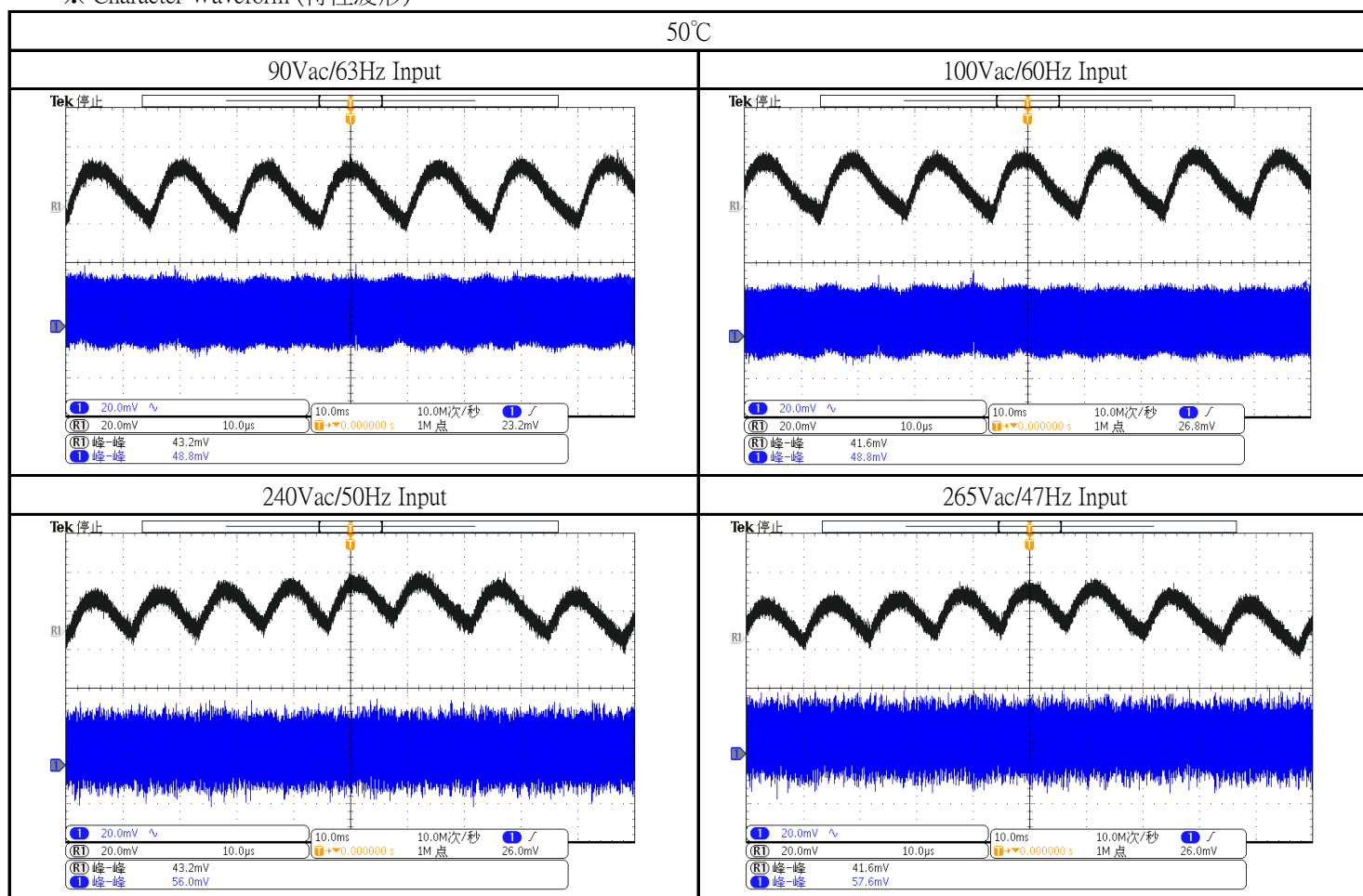
※ Character Condition(特性條件):

1	I/P Voltage(Vac)(輸入電壓)	90Vac/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	90Vac/63Hz		100Vac/60Hz		240Vac/50Hz		265Vac/47Hz	
ITEM	Ripple	Noise	Ripple	Noise	Ripple	Noise	Ripple	Noise
50°C	43.2mV	48.8mV	41.6mV	48.8mV	43.2mV	56.0mV	41.7mV	57.6mV

※ Character Waveform (特性波形):



1-3.Over-Voltage Protection(過電壓保護特性)

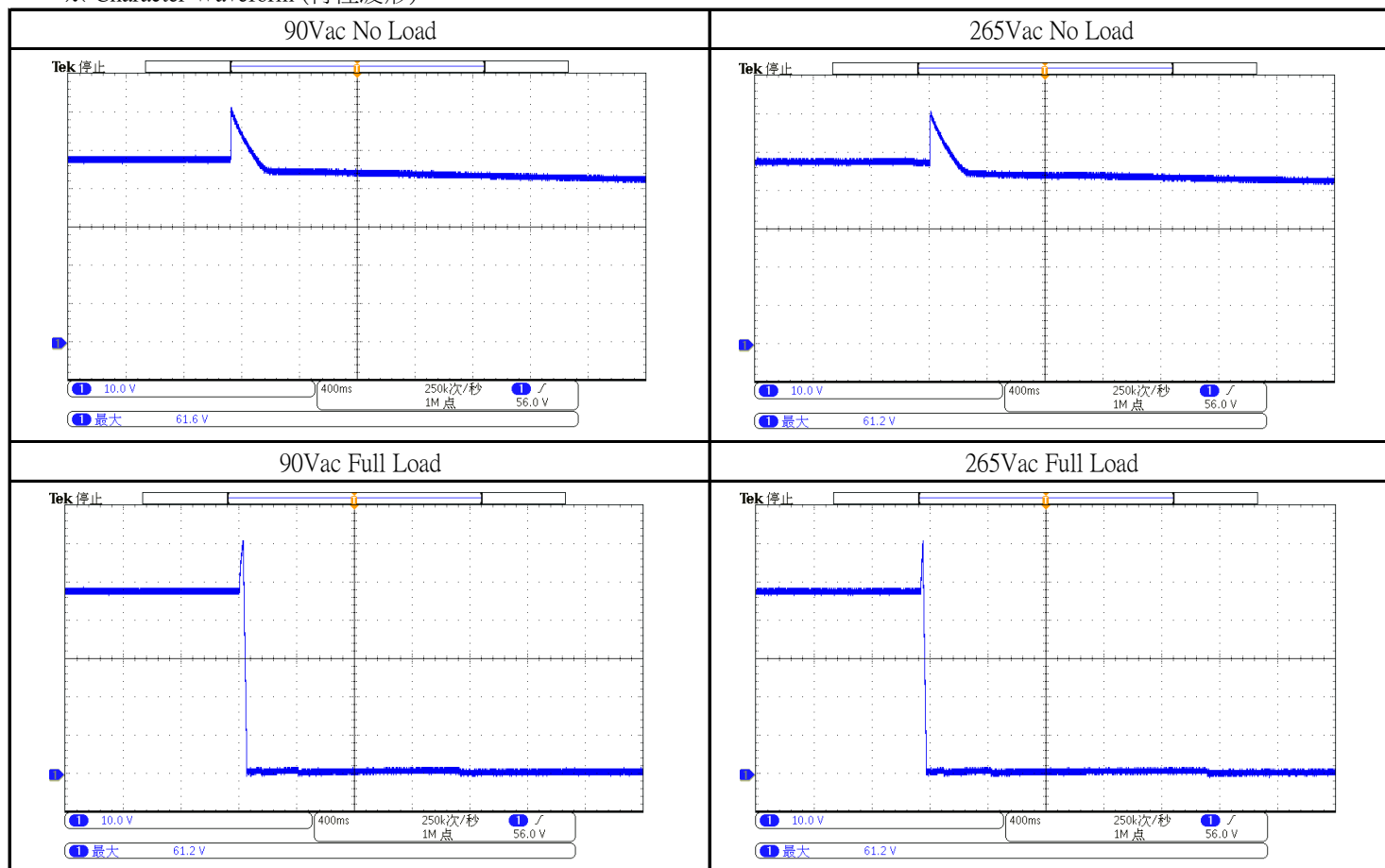
※ Character Condition(特性條件):

1	I/P Voltage(Vac)(輸入電壓)	90Vac/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	90Vac/63Hz	265Vac/47Hz	90Vac/63Hz	265Vac/47Hz
Character Result	61.6V	61.2V	61.2V	61.2V

※ Character Waveform (特性波形):



1-4.Over-Current Protection(過電流保護特性)

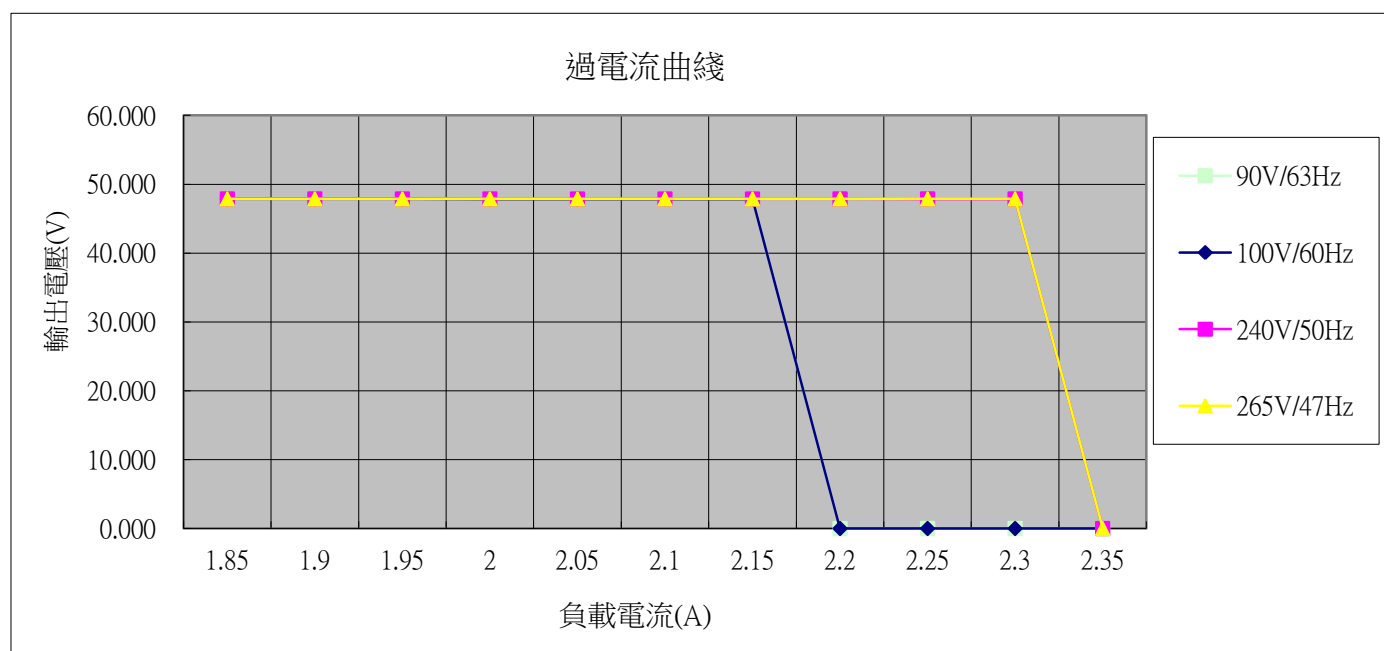
※ Character Condition(特性條件):

1	I/P Voltage(Vac)(輸入電壓)	90Vac/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	90V/63Hz	100V/60Hz	240V/50Hz	265V/47Hz
O.C.P點	2.2A	2.2A	2.35A	2.35A

I/P	90V/63Hz										
Voltage(V)	47.885	47.885	47.885	47.883	47.882	47.881	47.870	0.000	0	0	0
Current(A)	1.85	1.9	1.95	2	2.05	2.1	2.15	2.2	2.25	2.3	2.35
I/P	100V/60Hz										
Voltage(V)	47.869	47.868	47.867	47.864	47.864	47.863	47.861	0.000	0	0	0
Current(A)	1.85	1.9	1.95	2	2.05	2.1	2.15	2.2	2.25	2.3	2.35
I/P	240V/50Hz										
Voltage(V)	47.876	47.876	47.874	47.871	47.868	47.867	47.866	47.865	47.864	47.862	0
Current(A)	1.85	1.9	1.95	2	2.05	2.1	2.15	2.2	2.25	2.3	2.35
I/P	265V/47Hz										
Voltage(V)	47.880	47.880	47.878	47.878	47.876	47.874	47.872	47.871	47.868	47.867	0
Current(A)	1.85	1.9	1.95	2	2.05	2.1	2.15	2.2	2.25	2.3	2.35



1-5. Dynamic ripple Character(動態負載特性)

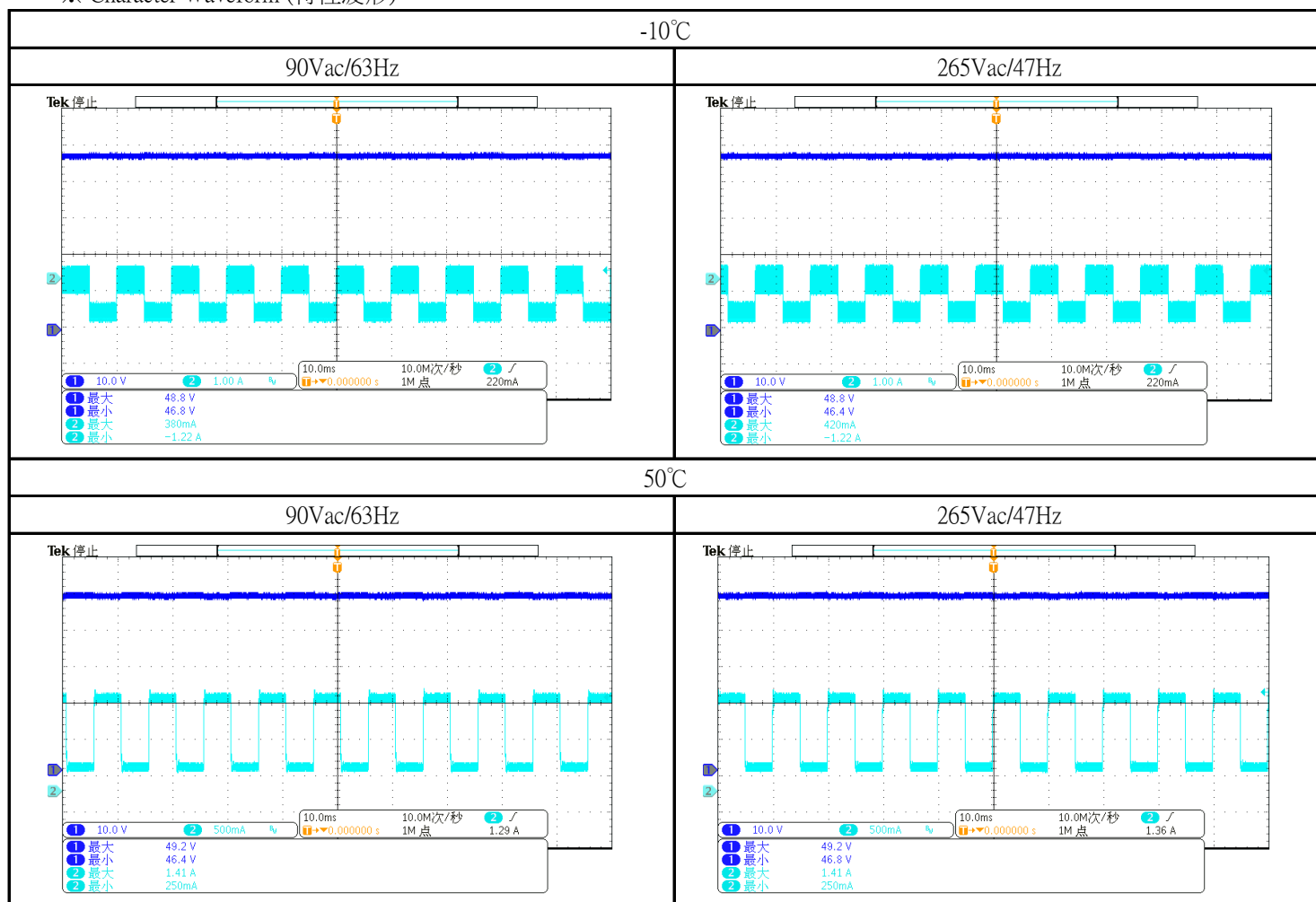
※ Character Condition(特性條件):

1	I/P Voltage(Vac)(輸入電壓)	90Vac/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	90Vac/63Hz		265Vac/47Hz	
O/P	Max	Min	Max	Min
-10°C	48.8V	46.8V	48.8V	46.4V
50°C	49.2V	46.4V	49.2V	46.8V

※ 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)	115Vac/230Vac
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)	2.0A

※ 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		115Vac/60Hz			230Vac/50Hz			Input 115V/60Hz	230V/50HZ
O/P Load		Pin (W)	Pout (W)	Efficiency (%)	Pin (W)	Pout (W)	Efficiency (%)	0.102W	0.113W
10%	0.16A	8.62	7.580	87.94%	8.75	7.570	86.51%		
25%	0.4A	21.33	19.15	89.78%	21.23	19.14	90.16%		
50%	0.8A	42.51	38.35	90.21%	43.33	38.35	88.51%		
75%	1.2A	63.57	57.55	90.53%	63.96	57.55	89.98%		
100%	1.6A	84.81	76.71	90.45%	84.55	76.71	90.73%		
Average				90.24%			89.84%		

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)	90Vac~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	
		90V/63Hz	265Vac/47Hz
	Input Current (A)	0.02	0.038
	Input Power (W)	0.0035	0.12
Input change with full load			
Full Load		Input Condition	
		90V/63Hz	265Vac/47Hz
	Input Current (A)	1.02	0.343
	Input Power (W)	86.2	83.7

1-8.Inrush Current (浪涌電流)

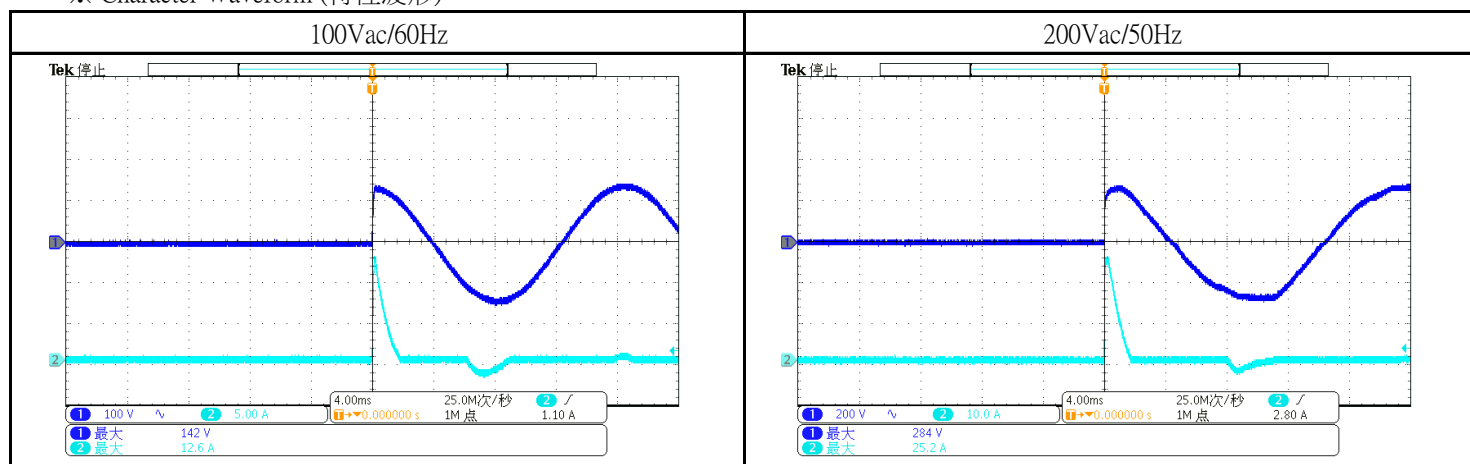
※ Character Condition(特性條件):

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	12.6A	25.2A

※ Character Waveform (特性波形):



1-9.Turn On Delay(開機爬升延遲時間)

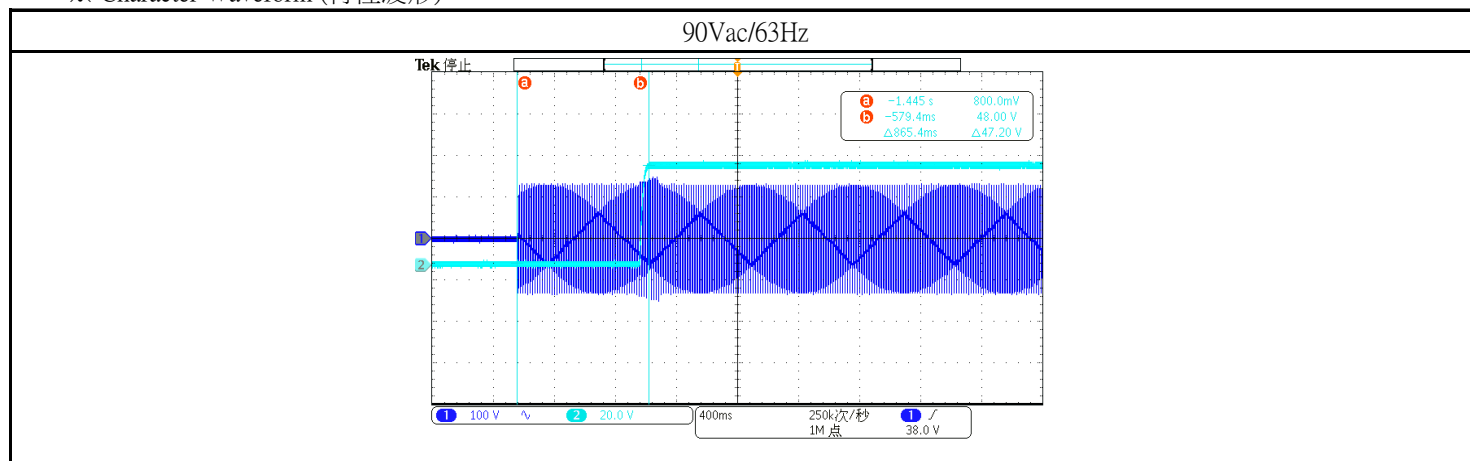
※ Character Condition(特性條件) :

1	I/P Voltage(Vac)(輸入電壓)	90Vac
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	90Vac/63Hz
Character Result	0.8654S

※ Character Waveform (特性波形) :



2-1. Hold Up Time Character (保持時間)

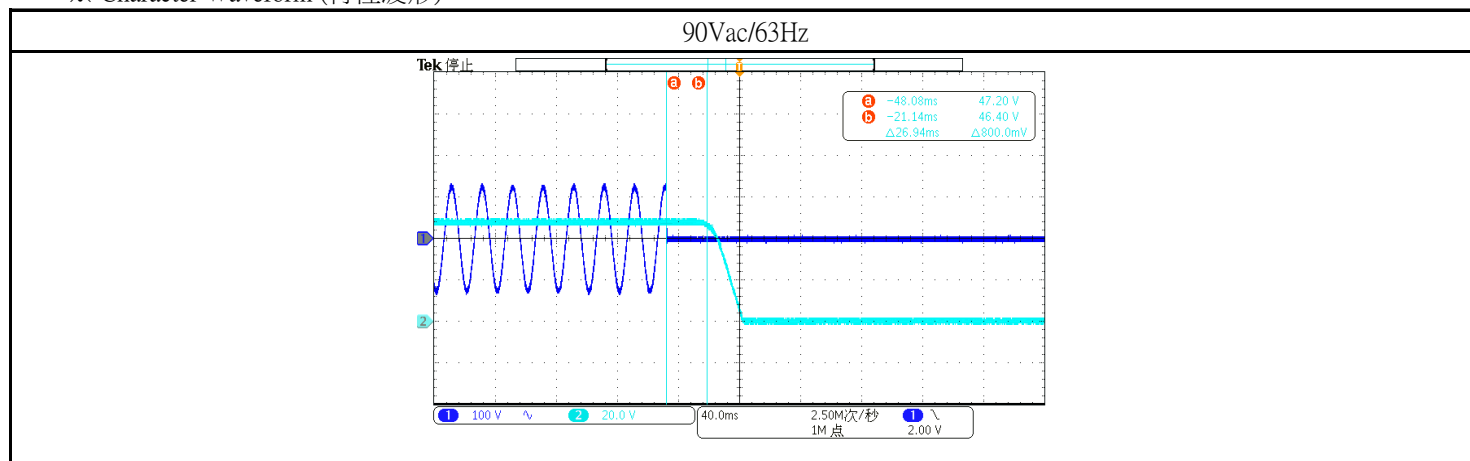
※ Character Condition(特性條件)：

1	I/P Voltage(Vac)(輸入電壓)	90Vac
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)：

Hold up time	
I/P	90Vac/63Hz
Character Result	26.94mS

※ 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)	0~90Vac
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	
0~90Vac Input	
O/P	Full Load
Brown in	74.28V
90~0Vac Input	
O/P	Full Load
Brown out	69.0V

2-3. Over Shoot(過沖特性)

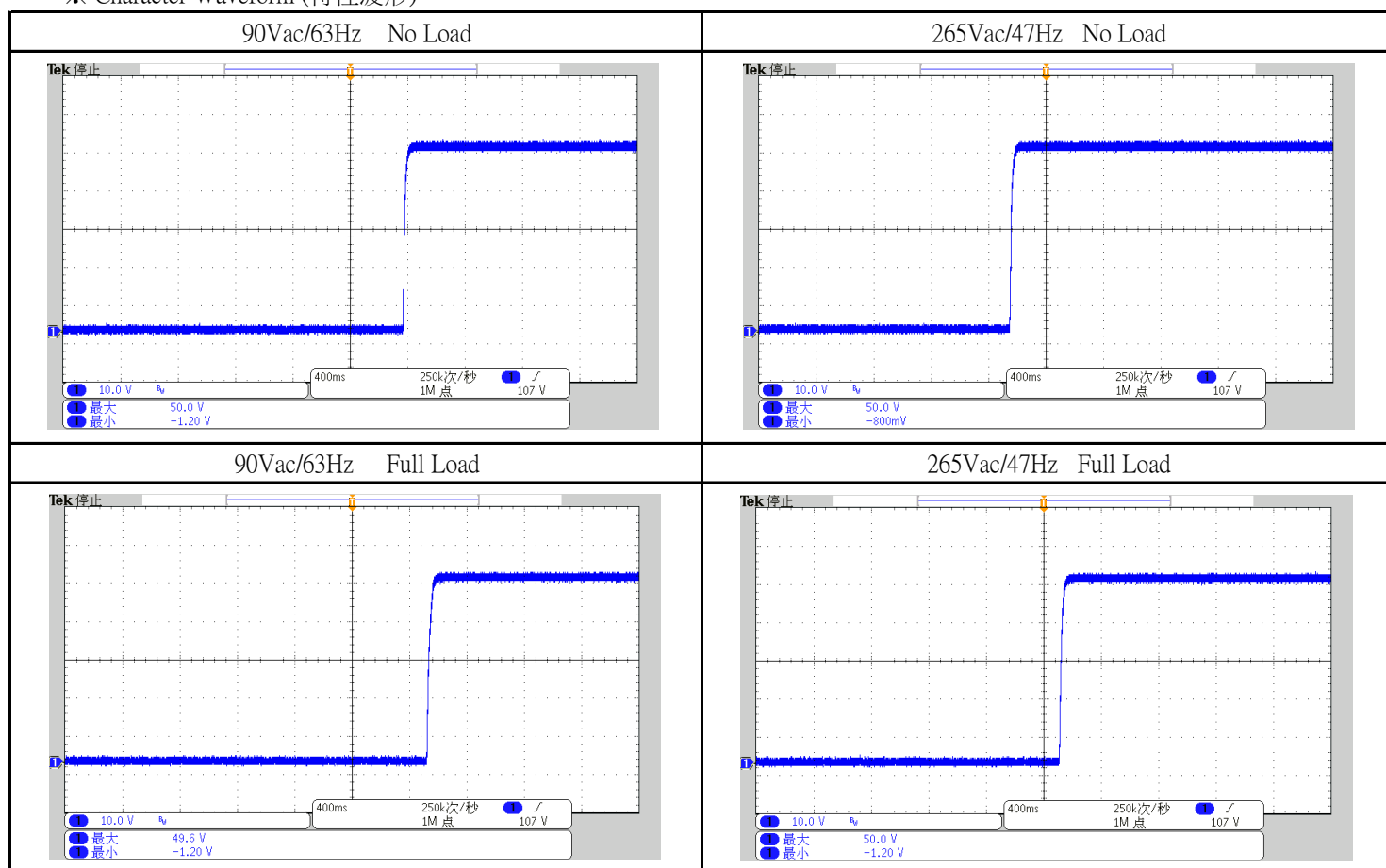
※ Character Condition(特性條件):

1	I/P Voltage(Vac)(輸入電壓)	90Vac/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	90Vac/63Hz	265Vac/47Hz	90Vac/63Hz	265Vac/47Hz
Character Result	50.0V	50.0V	49.6V	50.0V

※ Character Waveform (特性波形):



2-4.Under Shoot(下冲特性)

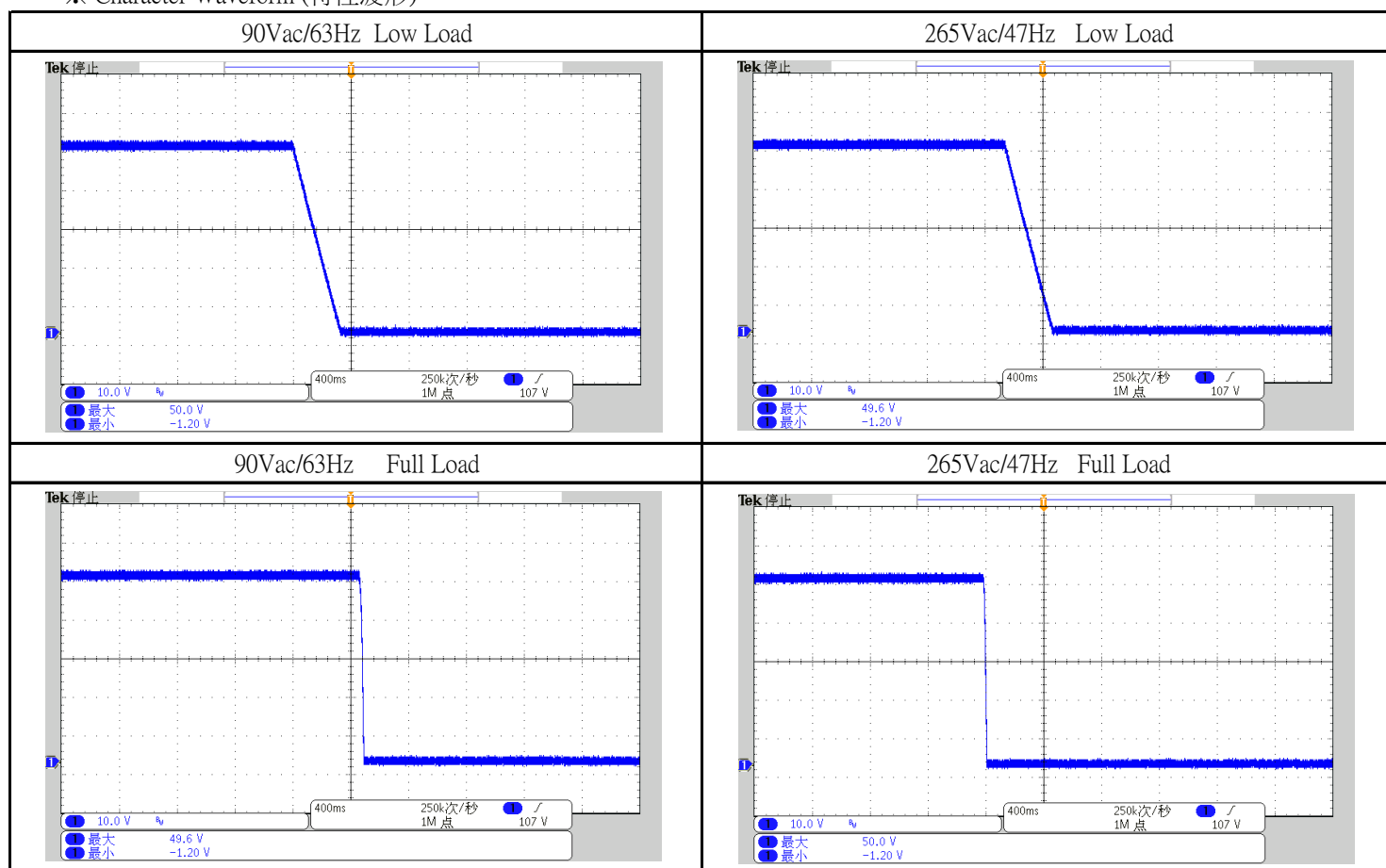
※ Character Condition(特性條件):

1	I/P Voltage(Vac)(輸入電壓)	90Vac/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	90Vac/63Hz	265Vac/47Hz	90Vac/63Hz	265Vac/47Hz
Character Result	50.0V	49.6V	49.6V	50.0V

※ 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	0.147	-	0.144	-	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.