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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)

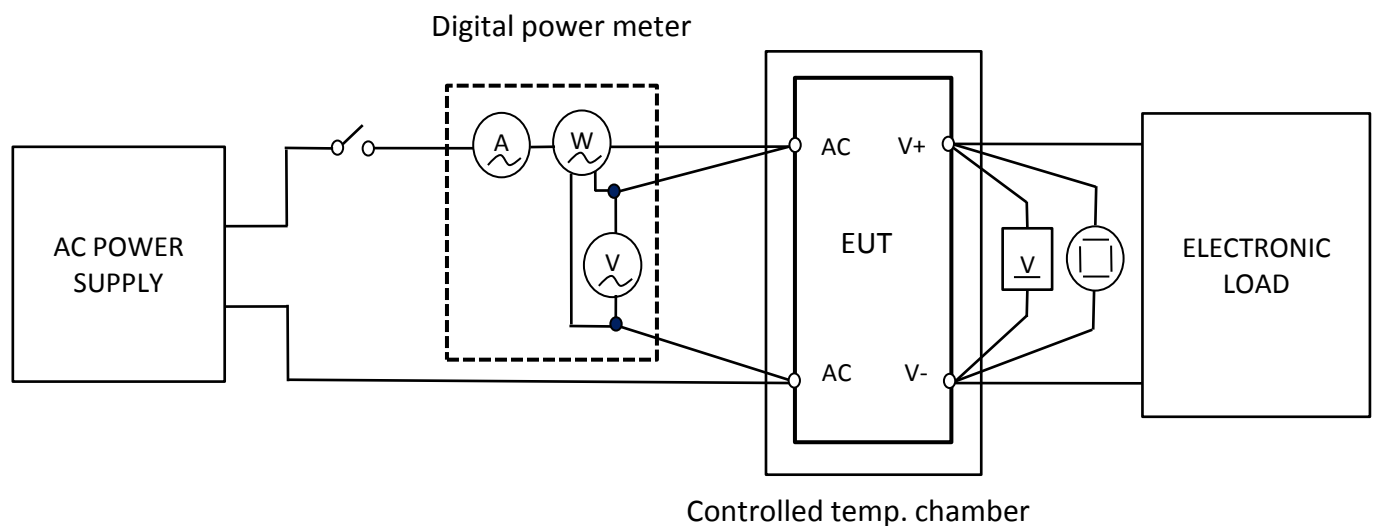
Turn On Delay(開機爬升延遲時間)

Hold Up Time Character (保持時間)

Low Vac Shut Off (輸入欠壓關斷特性)

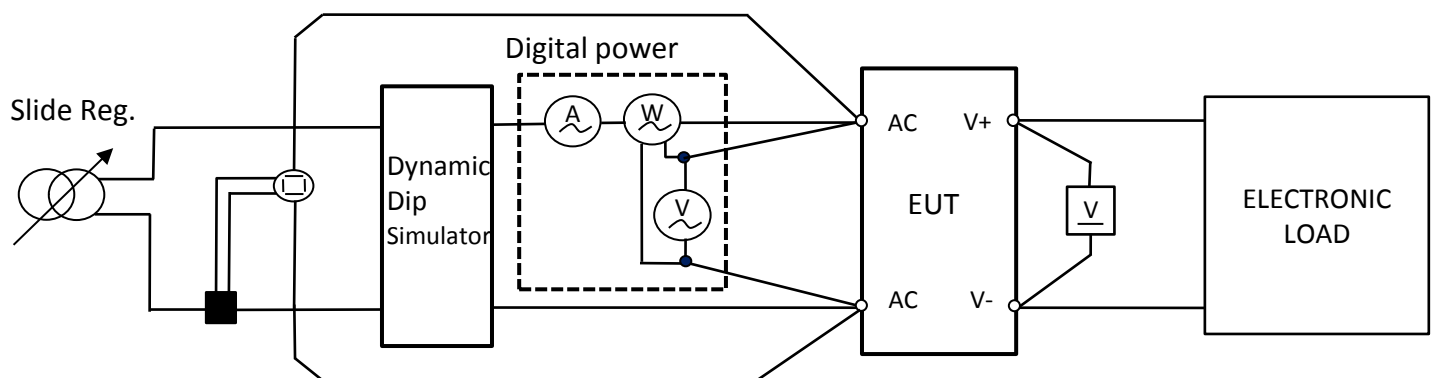
Over Shoot(過沖特性)

Under Shoot(下沖特性)



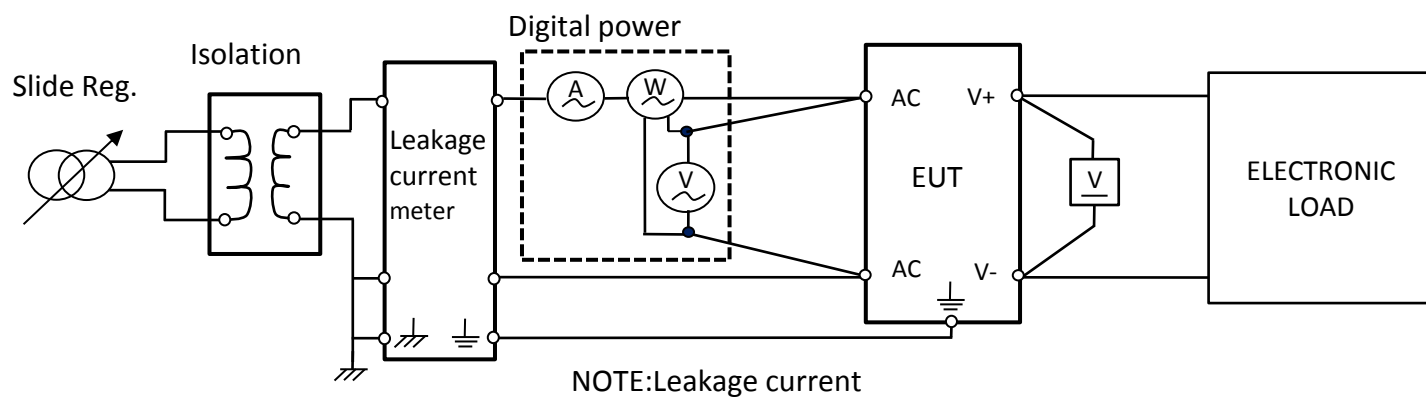
Circuit 2 特性回路2

Inrush Current (浪涌電流)



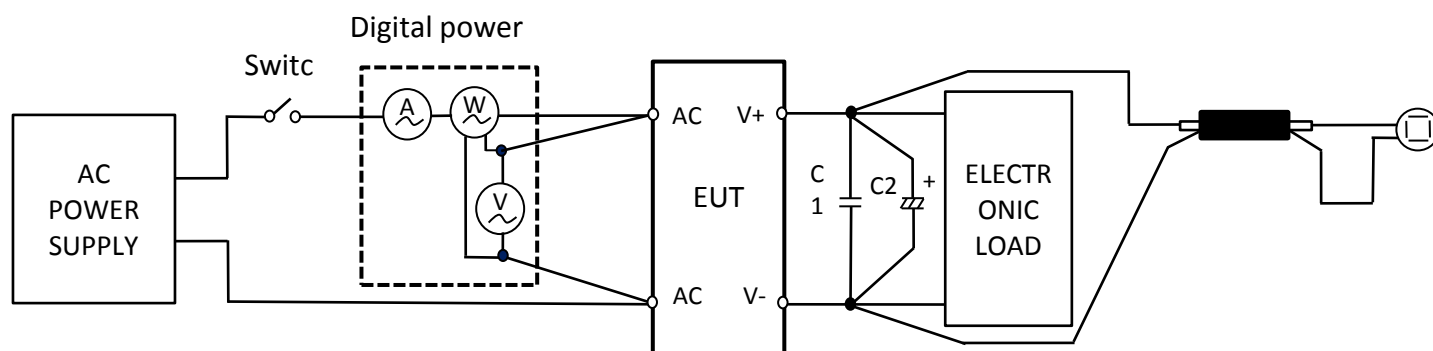
Circuit 3 特性回路3

Leak Current (漏電流特性)



Circuit 4 特性回路4

Ripple And Noise Character(紋波特性)



C1 : 0.1 μ F CERAMICS CAPACITOR
 C2 : 10 μ 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	3.3V
----------------	------

※ Character Data(特性數據) :

O/P \ I/P	85Vac/63Hz	100Vac/60Hz	240Vac/50Hz	265Vac/47Hz	Line Regulation $\leq 2\%$
0%	3.34V	3.34V	3.34V	3.34V	0.00%
25%	3.31V	3.31V	3.31V	3.31V	0.00%
50%	3.28V	3.28V	3.28V	3.28V	0.00%
75%	3.25V	3.25V	3.25V	3.25V	0.00%
100%	3.22V	3.22V	3.22V	3.22V	0.00%
Load Regulation: $\leq 10\%$	3.64%	3.64%	3.64%	3.64%	

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

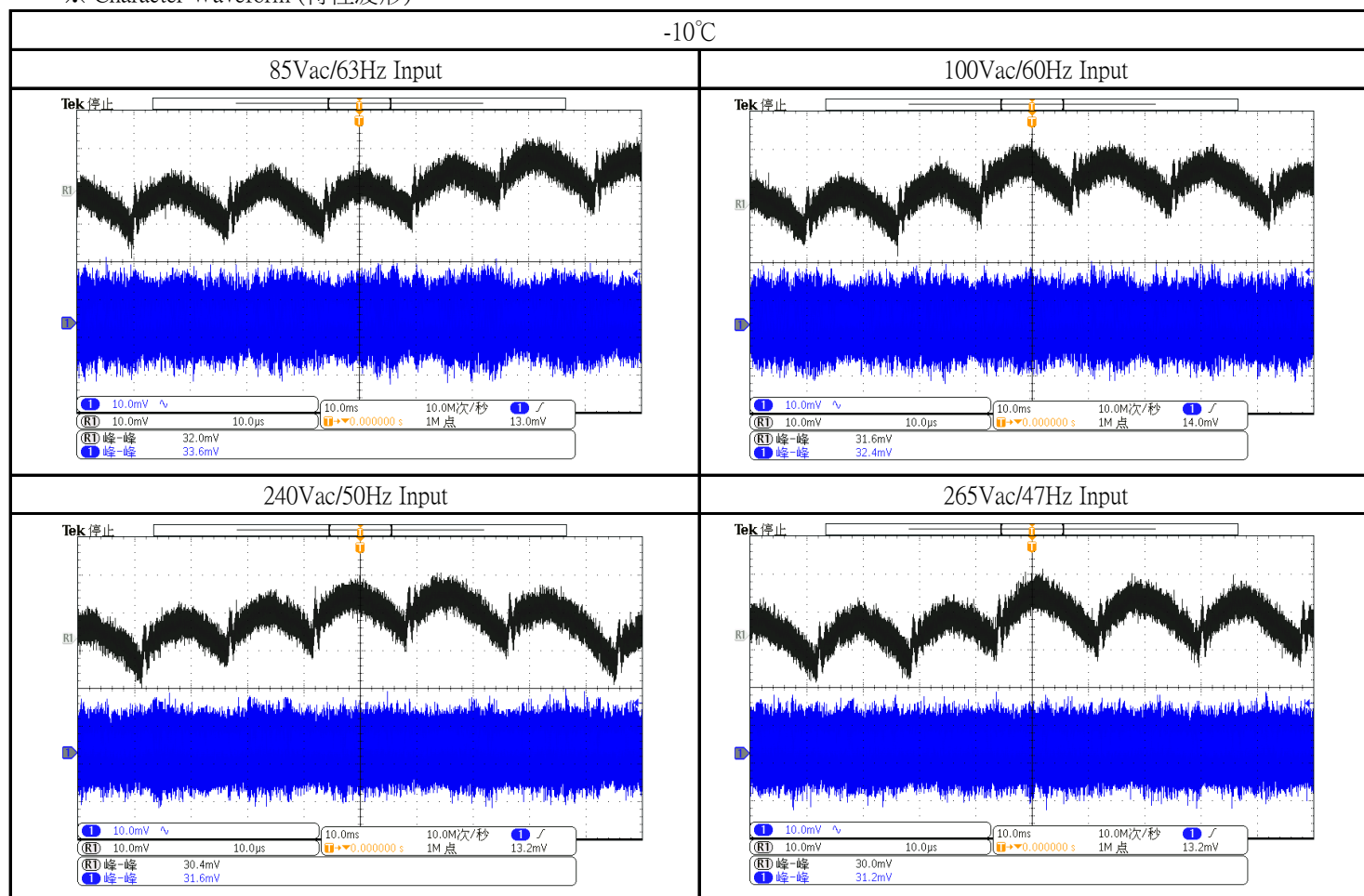
※ Character Condition(特性條件):

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	32.0mV	33.6mV	31.6mV	32.4mV	30.4mV	31.6mV	30.0mV	31.2mV

※ Character Waveform (特性波形):



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

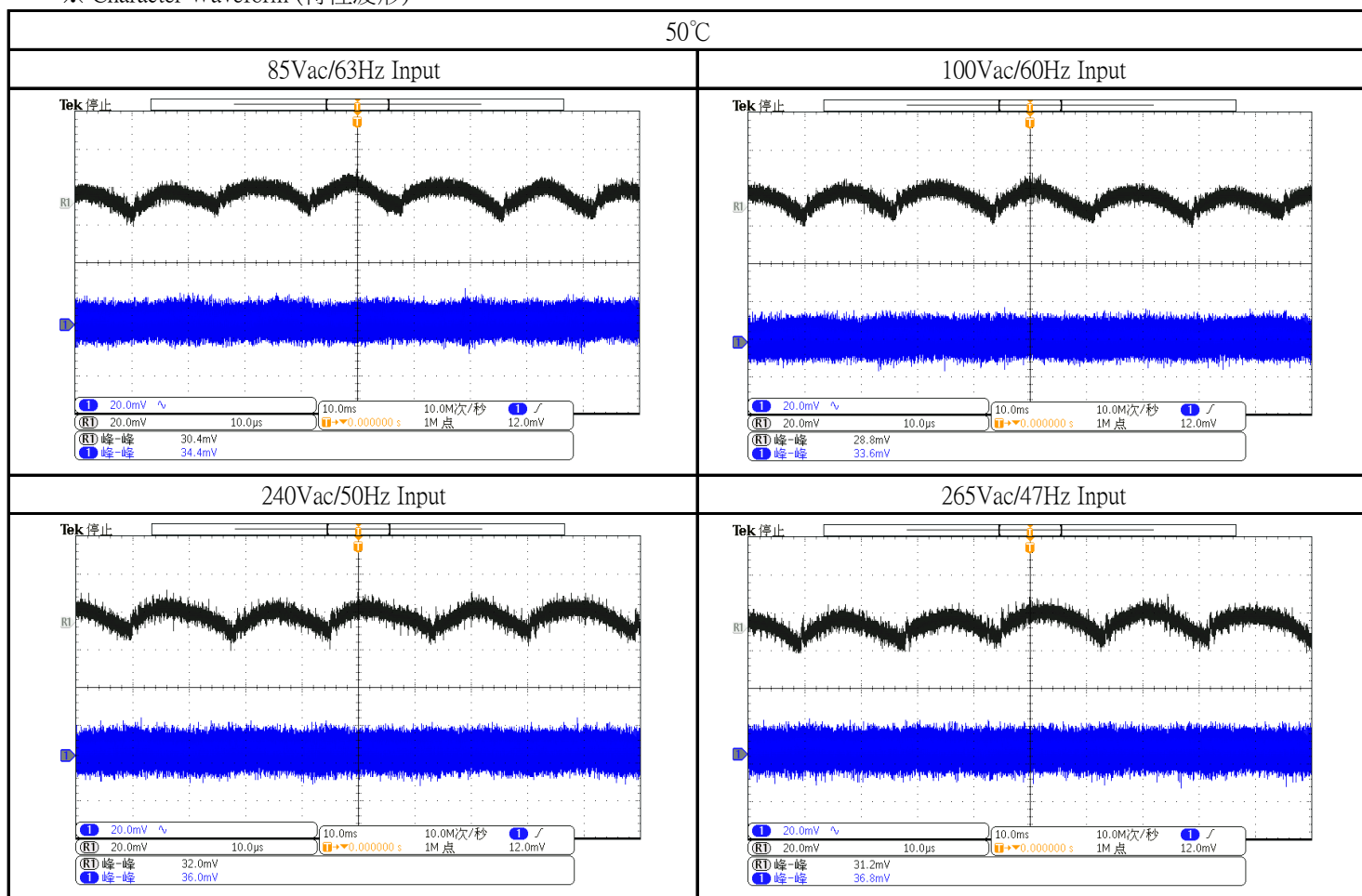
※ Character Condition(特性條件):

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	30.4mV	34.4mV	28.8mV	33.6mV	32.0mV	36.0mV	31.2mV	36.8mV

※ Character Waveform (特性波形):



1-3.Over-Voltage Protection(過電壓保護特性)

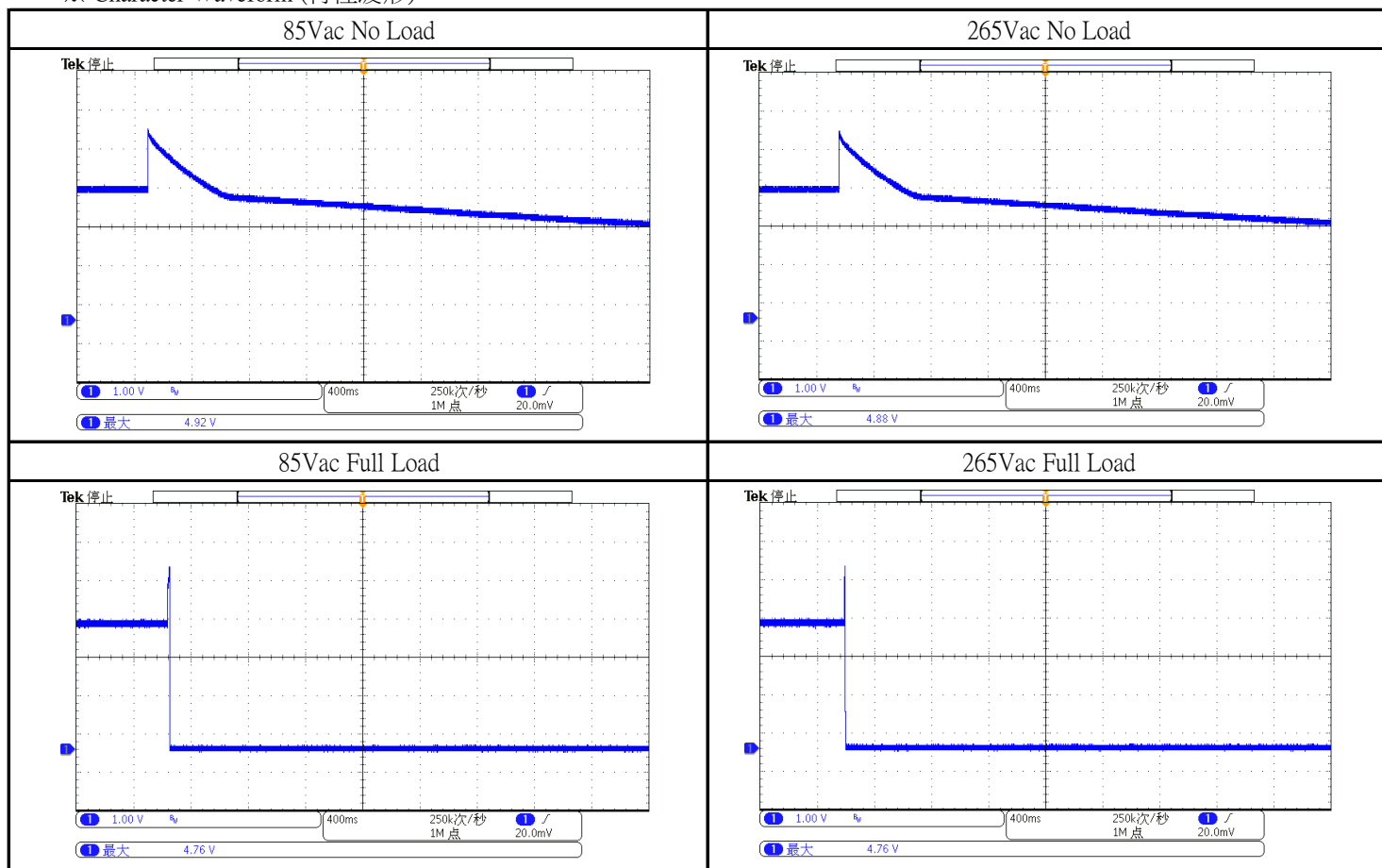
※ Character Condition(特性條件):

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	4.92V	4.88V	4.76V	4.76V

※ Character Waveform (特性波形):



1-4.Over-Current Protection(過電流保護特性)

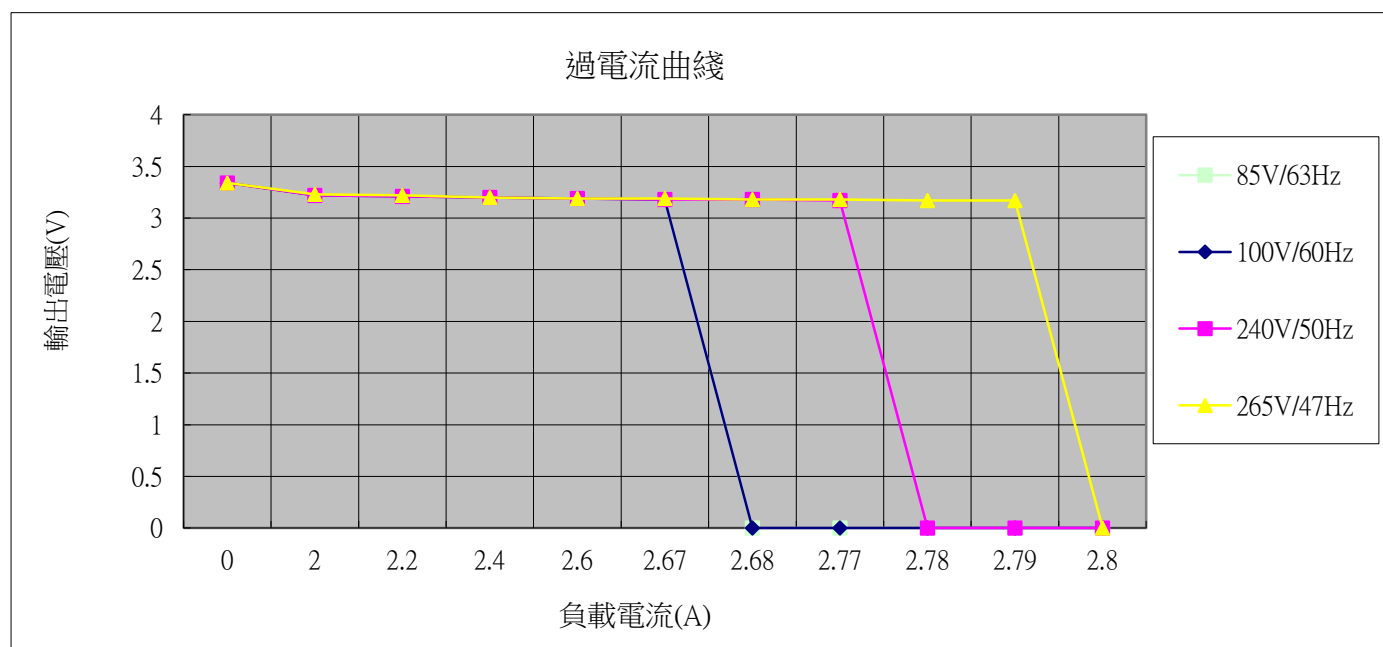
※ Character Condition(特性條件):

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	2.68A	2.68A	2.78A	2.8A

I/P	85V/63Hz										
Voltage(V)	3.34	3.22	3.21	3.2	3.19	3.18	0	0	0	0	0
Current(A)	0	2	2.2	2.4	2.6	2.67	2.68	2.77	2.78	2.79	2.8
I/P	100V/60Hz										
Voltage(V)	3.34	3.22	3.21	3.2	3.19	3.18	0	0	0	0	0
Current(A)	0	2	2.2	2.4	2.6	2.67	2.68	2.77	2.78	2.79	2.8
I/P	240V/50Hz										
Voltage(V)	3.34	3.22	3.21	3.2	3.19	3.18	3.18	3.17	0	0	0
Current(A)	0	2	2.2	2.4	2.6	2.67	2.68	2.77	2.78	2.79	2.8
I/P	265V/47Hz										
Voltage(V)	3.34	3.23	3.22	3.2	3.19	3.19	3.18	3.18	3.17	3.17	0
Current(A)	0	2	2.2	2.4	2.6	2.67	2.68	2.77	2.78	2.79	2.8



1-5. Dynamic ripple Character(動態負載特性)

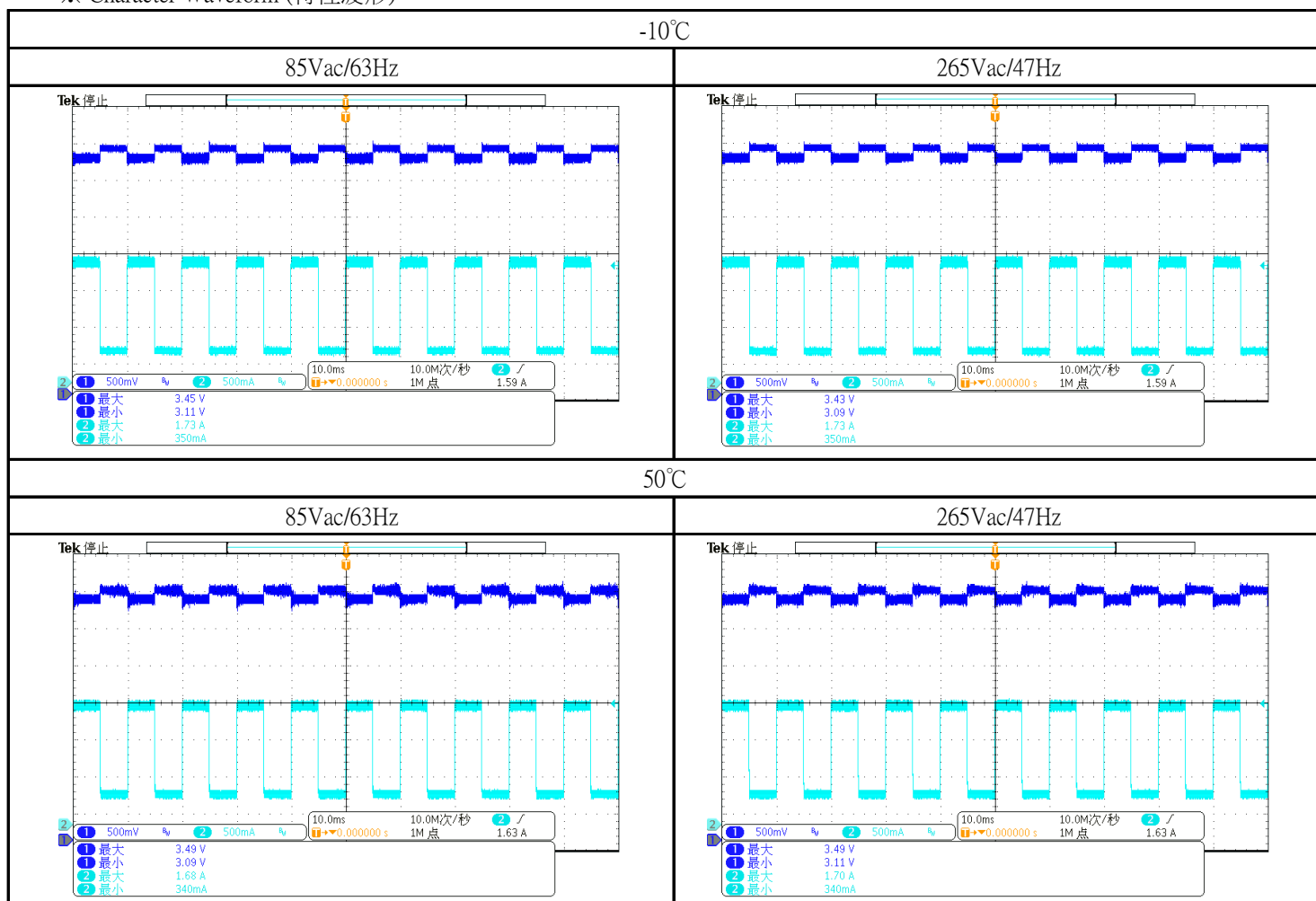
※ Character Condition(特性條件):

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	3.45V	3.11V	3.43V	3.09V
50°C	3.49V	3.09V	3.49V	3.11V

※ 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 (%)	0.03W	0.07W
10%	0.2A	0.86	0.660	76.74%	0.95	0.660	69.47%		
25%	0.5A	2.08	1.650	79.33%	2.17	1.650	76.04%		
50%	1.0A	4.17	3.280	78.66%	4.25	3.280	77.18%		
75%	1.5A	6.27	4.880	77.83%	6.33	4.880	77.09%		
100%	2.0A	8.41	6.450	76.69%	8.44	6.460	76.54%		
Average				78.13%			76.71%		

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)	0.001	0.002
	Input Power (W)	0.017	0.096
Input change with full load			
Full Load		Input Condition	
		85V/63Hz	265Vac/47Hz
	Input Current (A)	0.167	0.077
	Input Power (W)	8.198	8.135

1-8.Inrush Current (浪涌電流)

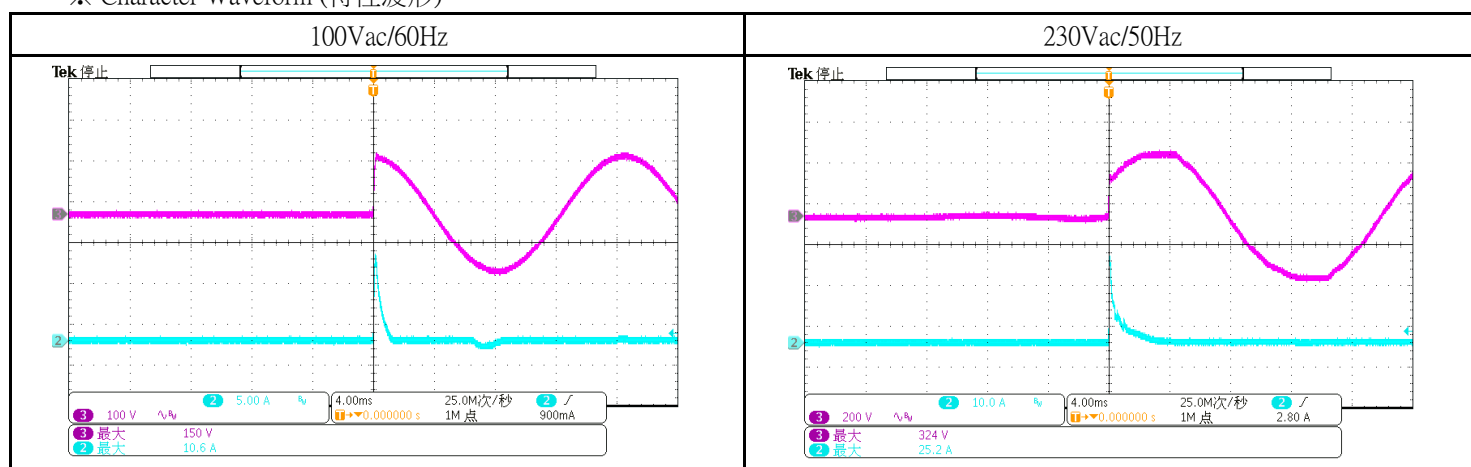
※ Character Condition(特性條件):

1	I/P Voltage(Vac)(輸入電壓)	100Vac/230Vac
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		
I/P \ O/P I(A)	Full Load	Full Load
	100Vac/60Hz	230Vac/50Hz
Character Result	10.6A	25.2A

※ Character Waveform (特性波形):



1-9.Turn On Delay(開機爬升延遲時間)

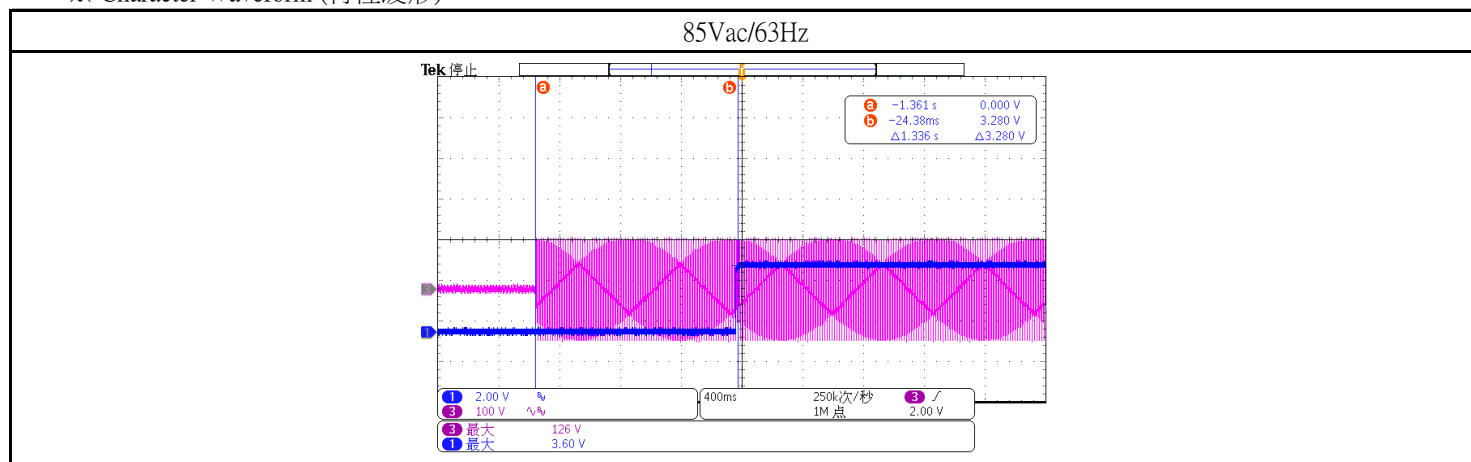
※ Character Condition(特性條件):

1	I/P Voltage(Vac)(輸入電壓)	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	1.336S

※ Character Waveform (特性波形):



2-1. Hold Up Time Character (保持時間)

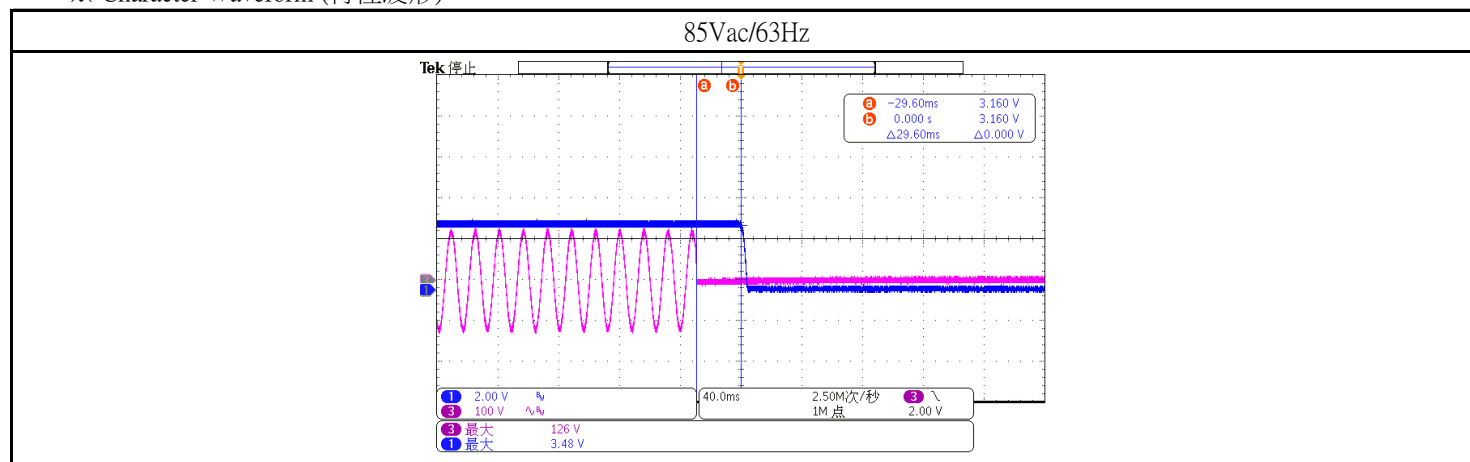
※ Character Condition(特性條件) :

1	I/P Voltage(Vac)(輸入電壓)	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) :

Hold up time	
I/P	85Vac/63Hz
Character Result	29.6mS

※ 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	71.0V
85~0Vac Input	
O/P	Full Load
Brown out	72.0V

2-3. Over Shoot(過沖特性)

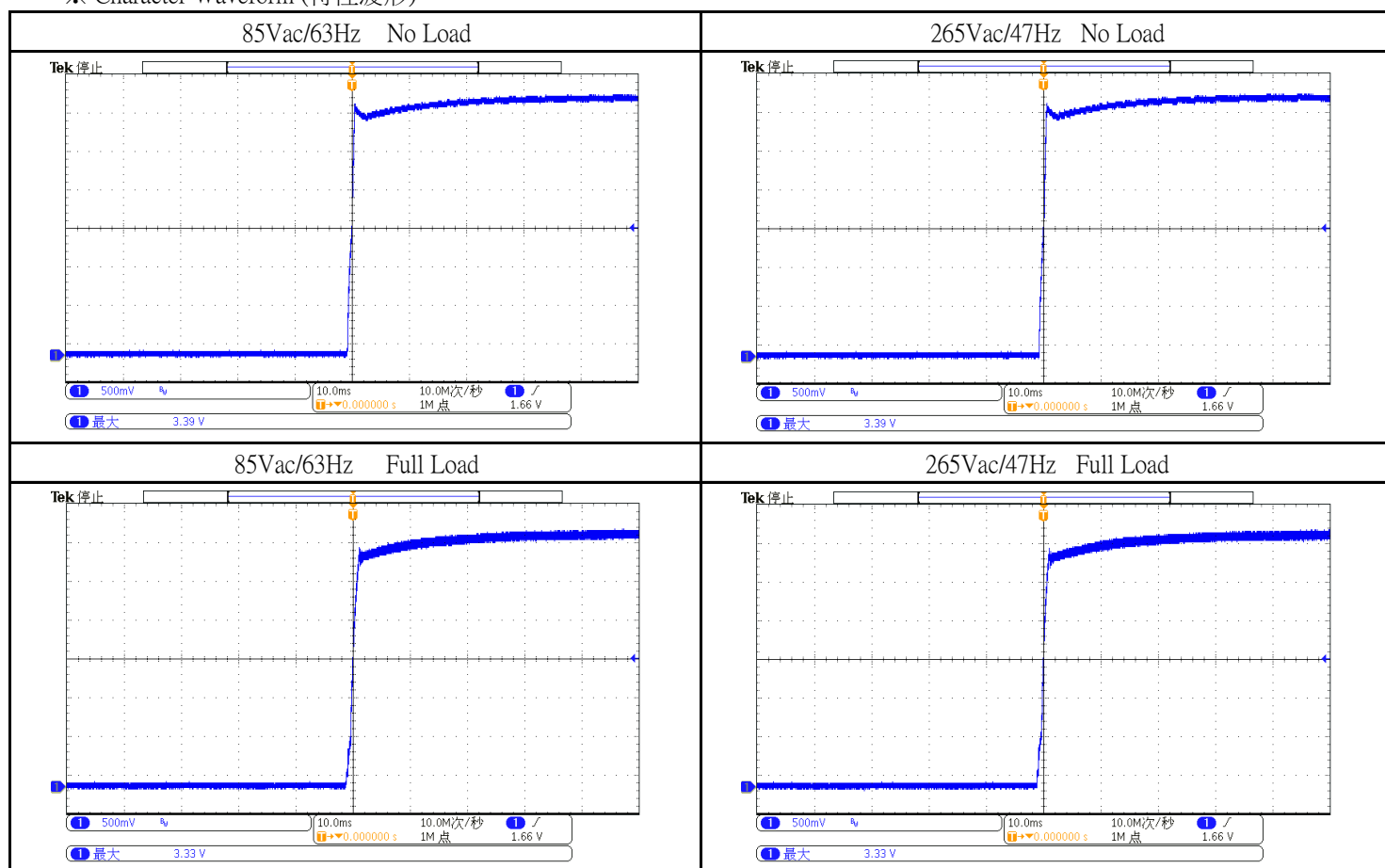
※ Character Condition(特性條件):

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	3.39V	3.39V	3.33V	3.33V

※ Character Waveform (特性波形):



2-4.Under Shoot(下冲特性)

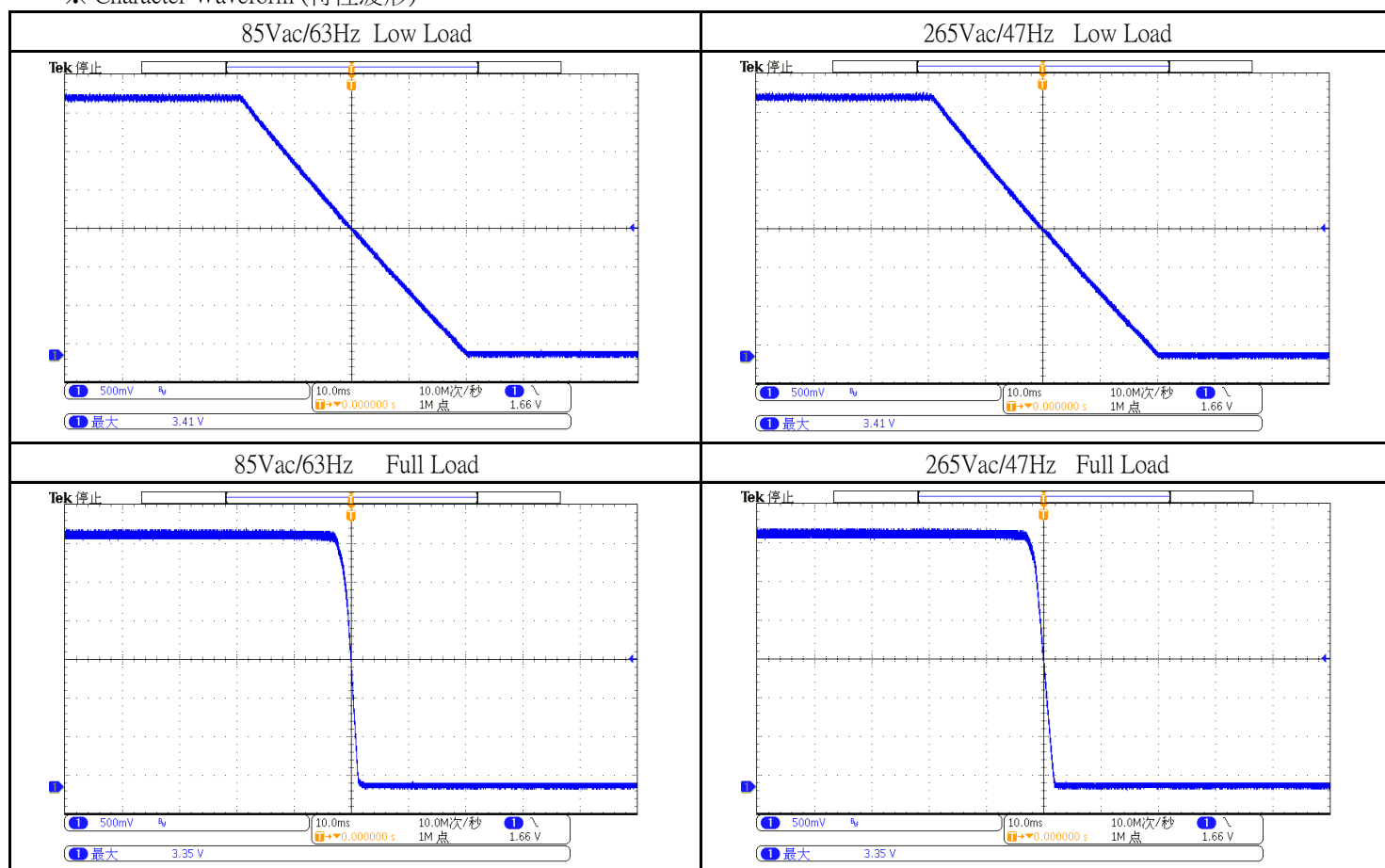
※ Character Condition(特性條件):

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	3.41V	3.41V	3.35V	3.35V

※ 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	0.077	-	0.078	-	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.