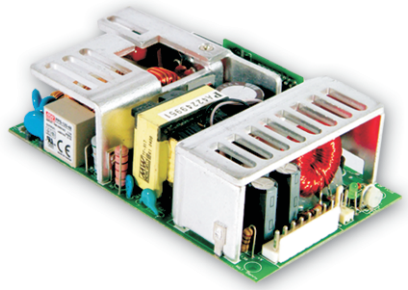
JAMECO ELECTRONICS **Jameco SKU Number: 2105498**

MEAN WELL

125W Single Output with PFC Function

PPS-125 series



■ Features :

- Universal AC input / Full range
- Built-in active PFC function
- Protections: Short circuit / Overload / Over voltage
- PWM control and regulated
- High power density 6.117W/inch^3
- Built-in remote sense function
- LED indicator for power on
- 100% full load burn-in test
- 125W with 18CFM FAN
- 5"x3" compact size
- 3 years warranty

SPECIFICATION

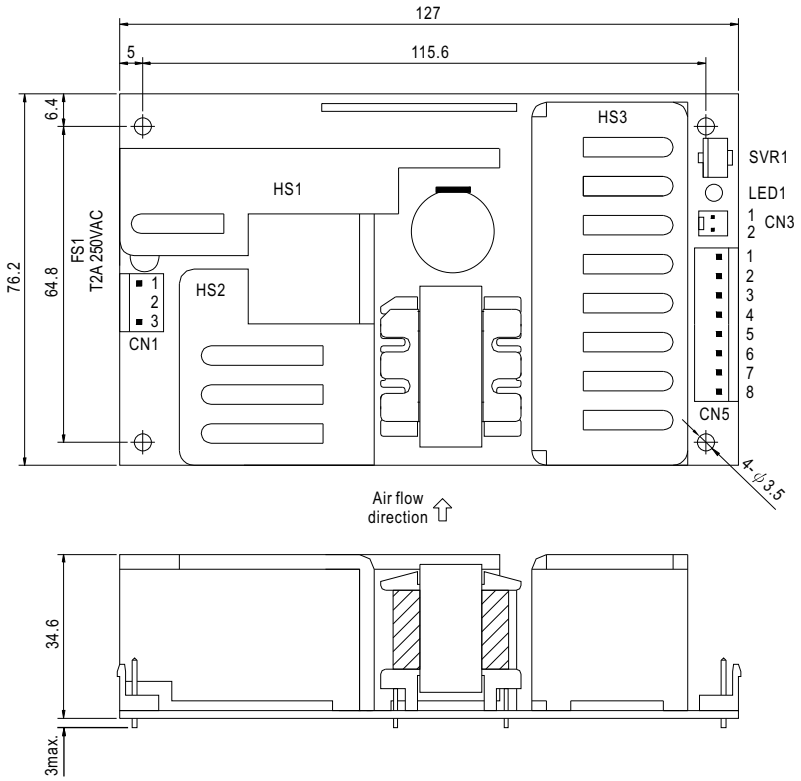
MODEL		PPS-125-3.3	PPS-125-5	PPS-125-12	PPS-125-13.5	PPS-125-15	PPS-125-24	PPS-125-27	PPS-125-48
OUTPUT	DC VOLTAGE	3.3V	5V	12V	13.5V	15V	24V	27V	48V
	RATED CURRENT	20A	20A	8.5A	7.5A	6.7A	4.2A	3.8A	2.1A
	CURRENT RANGE (convection)	0 ~ 20A	0 ~ 20A	0 ~ 8.5A	0 ~ 7.5A	0 ~ 6.7A	0 ~ 4.2A	0 ~ 3.8A	0 ~ 2.1A
	CURRENT RANGE (18CFM FAN)	0 ~ 25A	0 ~ 25A	0 ~ 10.5A	0 ~ 9.3A	0 ~ 8.4A	0 ~ 5.2A	0 ~ 4.6A	0 ~ 2.6A
	RATED POWER (convection)	66W	100W	102W	101.25W	100.5W	100.8W	102.6W	100.8W
	RATED POWER (18CFM FAN)	82.5W	125W	126W	125.55W	126W	124.8W	124.2W	124.8W
	RIPPLE & NOISE (max.) Note.2	100mVp-p	100mVp-p	100mVp-p	100mVp-p	100mVp-p	150mVp-p	150mVp-p	250mVp-p
	VOLTAGE ADJ. RANGE	3.13 ~ 3.46V	4.75 ~ 5.25V	11.40 ~ 12.60V	12.82 ~ 14.17V	14.25 ~ 15.75V	22.80 ~ 25.20V	25.65 ~ 28.35V	45.60 ~ 50.40V
	VOLTAGE TOLERANCE Note.3	±2.0%	±2.0%	±2.0%	±2.0%	±2.0%	±1.0%	±1.0%	±1.0%
	LINE REGULATION	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
	LOAD REGULATION	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%
	SETUP, RISE TIME	1000ms, 30ms/230VAC 2000ms, 30ms/115VAC at full load							
	HOLD UP TIME (Typ.)	24ms/230VAC 24ms/115VAC at full load							
INPUT	VOLTAGE RANGE	90 ~ 264VAC 127 ~ 370VDC							
	FREQUENCY RANGE	47~63Hz							
	POWER FACTOR (Typ.)	PF>0.93/230VAC PF>0.98/115VAC at full load							
	EFFICIENCY (Typ.)	70%	79%	80%	80%	80%	83%	83%	84%
	AC CURRENT (Typ.) 115VAC	1.2A	1.7A						
	AC CURRENT (Typ.) 230VAC	0.6A	0.75A						
	INRUSH CURRENT (Typ.)	COLD START 24A/230VAC							
	LEAKAGE CURRENT	<2mA / 240VAC							
PROTECTION	OVERLOAD	130 ~ 160% rated output power							
		Protection type : Fold back current limiting, recovers automatically after fault condition is removed							
	OVER VOLTAGE	3.63 ~ 4.45V	5.5 ~ 6.75V	13.8 ~ 16.2V	15.5 ~ 20.25V	17.25 ~ 20.25V	27.6 ~ 32.4V	31.05 ~ 36.45V	57.6 ~ 67.2V
		Protection type : Hiccup mode, recovers automatically after fault condition is removed							
ENVIRONMENT	WORKING TEMP.	-20 ~ +70℃ (Refer to output load derating curve)							
	WORKING HUMIDITY	20 ~ 90% RH non-condensing							
	STORAGE TEMP., HUMIDITY	-40 ~ +85℃, 10 ~ 95% RH							
	TEMP. COEFFICIENT	±0.05%/℃ (0 ~ 50℃)							
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes							
SAFETY & EMC (Note 4)	SAFETY STANDARDS	UL60950-1, TUV EN60950-1 approved							
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:1.5KVAC O/P-FG:0.5KVAC							
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25℃/ 70% RH							
	EMI CONDUCTION & RADIATION	Compliance to EN55022 (CISPR22) Class B							
	HARMONIC CURRENT	Compliance to EN61000-3-2,-3							
	EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204, EN55024, light industry level, criteria A							
OTHERS	MTBF	111.7Khrs min. MIL-HDBK-217F (25℃)							
	DIMENSION	127*76.2*34.6mm (L*W*H)							
	PACKING	0.37Kg; 36pcs/14.3Kg/0.79CUFT							

NOTE

1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature.
2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
3. Tolerance : includes set up tolerance, line regulation and load regulation.
4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.
5. Heat Sink HS1,HS2 & HS3 can not be shorted.

■ Mechanical Specification

Unit:mm



AC Input Connector (CN1) : JST B3P-VH or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	AC/L	JST VHR or equivalent	JST SVH-21T-P1.1 or equivalent
2	No Pin		
3	AC/N		

DC Output Connector (CN5) : JST B8P-VH or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1~4	-V	JST VHR or equivalent	JST SVH-21T-P1.1 or equivalent
5~8	+V		

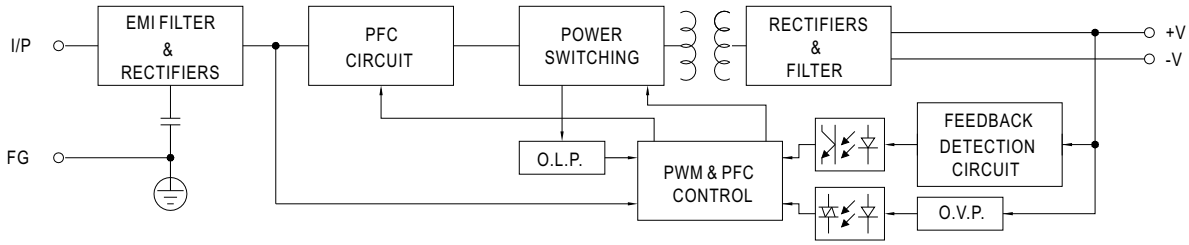
Remote Sense(CN3) : Molex 5045-02 or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	RS+	Molex 5051 or equivalent	Molex 4809 or equivalent
2	RS-		

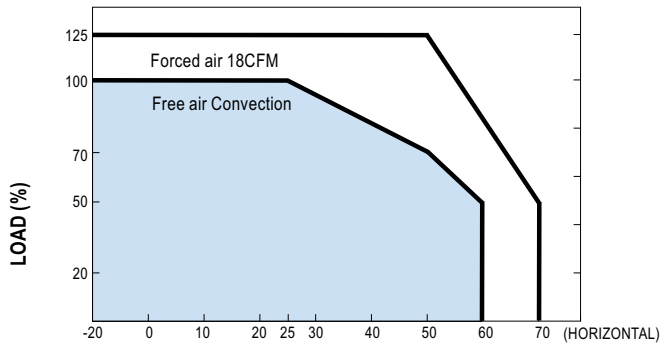
⚠ HS1, HS2 & HS3 can not be shorted

■ Block Diagram

fosc : 100KHz

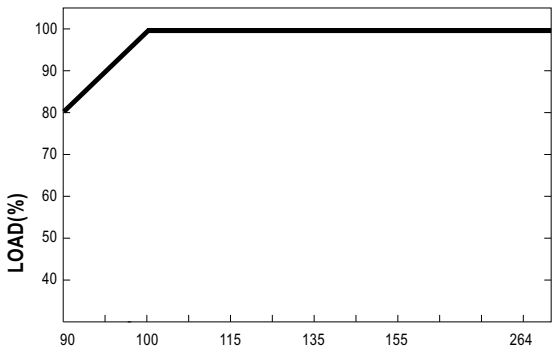


■ Derating Curve



AMBIENT TEMPERATURE (℃)

■ Output Derating VS Input Voltage



INPUT VOLTAGE (V) 60Hz

MODEL：PPS-125-5V

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1: 100 mVp-p (Max)	I/P: 230 VAC O/P:FULL LOAD Ta:25℃	V1: 8 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1: 4.75 V~ 5.25 V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25℃	4.53V~5.58 V/ 230 VAC 4.53V~5.58 V/ 115 VAC	P
3	OUTPUT VOLTAGE TOLERANCE	V1: +2 %~ -2 % (Max)	I/P: 264 VAC / 100 VAC O/P:FULL/ 0 % LOAD Ta:25℃	V1: 0.2%~ -0.2%	P
4	LINE REGULATION	V1: +0.5%~ -0.5 % (Max)	I/P: 264 VAC ~ 100 VAC O/P:FULL LOAD Ta:25℃	V1: 0 %~0%	P
5	LOAD REGULATION	V1: +1 %~ -1 % (Max)	I/P: 230 VAC O/P:FULL ~MIN LOAD Ta:25℃	V1:0.2 %~ -0.2 %	P
6	SET UP TIME	230 VAC/ 1000 ms (Max) 115 VAC/ 2000 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25℃	230 VAC/430 ms 115 VAC/972 ms	P
7	RISE TIME	230 VAC/ 30 ms (Max) 115 VAC/ 30 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25℃	230 VAC/ 19 ms 115 VAC/ 18 ms	P
8	HOLD UP TIME	230 VAC/ 20 ms(TYP) 115 VAC/ 20 ms(TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25℃	230 VAC/ 28ms 115 VAC/ 28 ms	P
9	OVER/UNDERSHOOT TEST	< ±5%	I/P: 230 VAC O/P:FULL LOAD Ta:25℃	TEST: ＜5 %	P
10	DYNAMIC LOAD	V1: 1000 mVp-p	I/P: 230 VAC O/P:FULL /Min LOAD 90%DUTY/1KHZ Ta:25℃	99mVp-p	P

INPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	264 VAC~ 90 VAC	I/P:TESTING O/P:FULL LOAD Ta:25℃	63 V~ 264 V	P
			I/P: LOW-LINE-3V= 87 V HIGH-LINE+15%= 300 V O/P:FULL/MIN LOAD ON: 30 Sec . OFF: 30 Sec 10MIN (AC POWER ON/OFF NO DAMAGE)	TEST: OK	
2	INPUT FREQUENCY RANGE	47 HZ ~ 63 HZ NO DAMAGE OSC	I/P: 264 VAC ~ 100 VAC O/P:FULL~MIN LOAD Ta:25℃	TEST: OK	P
3	POWER FACTOR	0.93/ 230 VAC(TYP) 0.98/ 115 VAC(TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25℃	PF= 0.98 / 230 VAC PF= 1 / 115 VAC	P
4	EFFICIENCY	79 % (TYP)	I/P: 230 VAC O/P:FULL LOAD Ta:25℃	80.8%	P
5	INPUT CURRENT	230 V/ 0.75 A(TYP) 115 V/ 1.7 A (TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25℃	I = 0.58 A/ 230 VAC I = 1.14 A/ 115 VAC	P
6	INRUSH CURRENT	230V/ 40 A(TYP) COLD START	I/P: 230 VAC O/P:FULL LOAD Ta:25℃	I = 20 A/ 230 VAC	P
7	LEAKAGE CURRENT	< 2 mA / 240 VAC	I/P:254 VAC O/P:Min LOAD Ta:25℃	L-FG: 1.05 mA N-FG: 1.05 mA	P

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	130 %~ 160 %	I/P: 230 VAC I/P: 115 VAC O/P:TESTING Ta:25℃	134%/ 230 VAC 136%/ 115 VAC Hiccup Mode	P
2	OVER VOLTAGE PROTECTION	CH1: 5.5 V~ 6.75 V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25℃	6.24V/ 230 VAC 6.24V/ 115 VAC Hiccup Model	P
3	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 264 VAC O/P: FULL LOAD Ta:25℃	NO DAMAGE Hiccup Mode	P

ENVIRONMENT TEST

<table>
<tr><th>NO</th><th>TEST ITEM</th><th>SPECICATION</th><th>TEST CONDITION</th><th>RESULT</th><th>VERDICT</th></tr>
<tr><td>1</td><td>TEMPERATURE RISE TEST</td><td colspan="3">MODEL：PPS-125-5 WITH FAN 17.8CFM
1. ROOM AMBIENT BURN-IN：2 HRS
I/P: 230 VAC O/P: 125% LOAD Ta= 27.2 ℃
2. HIGH AMBIENT BURN-IN：3 HRS
I/P: 230 VAC O/P: 125% LOAD Ta=51.6 ℃

<table>
<tr><th>NO</th><th>Position</th><th>P/N</th><th>ROOM AMBIENT Ta=27.2℃</th><th>HIGH AMBIENT Ta=51.6℃</th></tr>
<tr><td>1</td><td>BD1</td><td>RS606M 6A/800V 150℃</td><td>57.2℃</td><td>89.4℃</td></tr>
<tr><td>2</td><td>D1</td><td>IN5406 3A/600V 150℃</td><td>50.6℃</td><td>81.8℃</td></tr>
<tr><td>3</td><td>L1</td><td>TR-341 130℃</td><td>56.9℃</td><td>88.9℃</td></tr>
<tr><td>4</td><td>Q2</td><td>2SK2850 6A/900V 150℃</td><td>44.0℃</td><td>76.2℃</td></tr>
<tr><td>5</td><td>D4</td><td>HER208 2A/1KV 150℃</td><td>35.7℃</td><td>65.3℃</td></tr>
<tr><td>6</td><td>C40</td><td>22U/35V ST 105℃</td><td>55.4℃</td><td>85.7℃</td></tr>
<tr><td>7</td><td>T1 COIL</td><td>TF-887 LS 130℃</td><td>54.2℃</td><td>82.6℃</td></tr>
<tr><td>8</td><td>T1 CORE</td><td>TF-887 LS 130℃</td><td>52.7℃</td><td>80.4℃</td></tr>
<tr><td>9</td><td>C20</td><td>100U/25V 105℃ KY</td><td>50.9℃</td><td>81.3℃</td></tr>
<tr><td>10</td><td>D3</td><td>HFA08TB60 8A/600V 150℃</td><td>59.5℃</td><td>91.8℃</td></tr>
<tr><td>11</td><td>C5</td><td>68U/400V 105℃ KMX</td><td>57.8℃</td><td>86.8℃</td></tr>
<tr><td>12</td><td>D100</td><td>S60SC4M 60A/40V 150℃</td><td>76.3℃</td><td>104.2℃</td></tr>
<tr><td>13</td><td>D101</td><td>S60SC4M 60A/40V 150℃</td><td>68.6℃</td><td>95.9℃</td></tr>
<tr><td>14</td><td>C102</td><td>2200U/6.3V 105℃ YXG</td><td>55.4℃</td><td>84.4℃</td></tr>
<tr><td>15</td><td>Q1</td><td>IRFP450 14A/500V 150℃</td><td>59.7℃</td><td>92.4℃</td></tr>
</table></td><td>P</td></tr>
<tr><td>2</td><td>OVER LOAD BURN-IN TEST</td><td>NO DAMAGE
1 HOUR (MIN)</td><td>I/P: 230 VAC
O/P: 135% LOAD with FAN
Ta:25℃</td><td>TEST：OK</td><td>P</td></tr>
<tr><td>3</td><td>LOW TEMPERATURE
TURN ON TEST</td><td>TURN ON AFTER 2 HOUR</td><td>I/P: 230VAC
O/P: 125% LOAD with FAN
Ta= -20 ℃</td><td>TEST：OK</td><td>P</td></tr>
<tr><td>4</td><td>HIGH HUMIDITY
HIGH TEMPERATURE
HIGH VOLTAGE
TURN ON TEST</td><td>AFTER 12 HOURS
IN CHAMBER ON
CONTROL 50 ℃
NO DAMAGE</td><td>I/P: 272 VAC
O/P:125% LOAD with FAN
Ta= 50 ℃
HUMIDITY= 95 %R.H</td><td>TEST：OK</td><td>P</td></tr>
<tr><td>5</td><td>TEMPERATURE
COEFFICIENT</td><td>± 0.05 %(0~50℃)</td><td>I/P: 230 VAC
O/P:125% LOAD with FAN</td><td>± 0.001 %(0~50℃)</td><td>P</td></tr>
<tr><td>6</td><td>VIBRATION TEST</td><td colspan="2">1 Carton & 1 Set Operating at I/P: 230 VAC NO LOAD
(1) Waveform: Sine Wave
(2) Frequency:10~500Hz
(3) Sweep Time:10min/sweep cycle
(4) Acceleration:2G
(5) Test Time:1 hour in each axis (X.Y.Z)
(6) Ta:25℃</td><td>TEST：OK</td><td>P</td></tr>
</table>

SAFETY TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	WITHSTAND VOLTAGE	I/P-O/P: 3 KVAC/min I/P-FG: 1.5 KVAC/min O/P-FG: 0.5 KVAC/min	I/P-O/P: 3.6 KVAC/min I/P-FG: 1.8 KVAC/min O/P-FG: 0.6 KVAC/min Ta:25℃	I/P-O/P: 0.9 mA I/P-FG: 6.8 mA O/P-FG: 0.3 mA NO DAMAGE	P
2	ISOLATION RESISTANCE	I/P-O/P:500VDC>100MΩ I/P-FG: 500VDC>100MΩ O/P-FG:500VDC>100MΩ	I/P-O/P: 500 VDC I/P-FG: 500 VDC O/P-FG: 500 VDC Ta:25℃	I/P-O/P: 22GΩ I/P-FG: 13G Ω O/P-FG: 27G Ω NO DAMAGE	P
3	APPROVAL	TUV: Certificate NO ：R50038987 UL: File NO ：E183223			P

E.M.C TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	HARMONIC	EN61000-3-2 CLASS A	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25℃	PASS	P
2	CONDUCTION	EN55022 CLASS B	I/P: 230 VAC (50HZ) O/P:FULL/50% LOAD Ta:25℃	PASS Test by certified Lab	P
3	RADIATION	EN55022 CLASS B	I/P: 230 VAC (50HZ) O/P:FULL LOAD Ta:25℃	PASS Test by certified Lab	P
4	E.S.D	EN61000-4-2 LIGHT INDUSTRY AIR:8KV / Contact:4KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25℃	CRITERIA A	P
5	E.F.T	EN61000-4-4 LIGHT INDUSTRY INPUT: 1KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25℃	CRITERIA A	P
6	SURGE	IEC61000-4-5 LIGHT INDUSTRY L-N :1KV L,N-PE:2KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25℃	CRITERIA A	P
7	Test by certified Lab & Test Report Prepare				

M.T.B.F & LIFE CYCLE CALCULATION

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	CAPACITOR LIFE CYCLE	SUPPOSE C 103 IS THE MOST CRITICAL COMPONENT WITH FAN I/P: 230VAC O/P:125% LOAD Ta=25 ℃ LIFE TIME=216593.8 HRS I/P: 230VAC O/P:125% LOAD Ta=50 ℃ LIFE TIME=27843.5 HRS			P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 111.7K HRS			P

COMPONENT STRESS TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor (D to S) or (C to E) **Peak Voltage**	Q 2 Rated 2SK2850 : 900 V 6 A	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2) Full Load (3)Output Short Ta:25℃	(1) 480 V (2) 724 V (3) 832 V	P
2	Diode Peak **Voltage**	D17 Rated ESAE83-004 :40 V 60 A	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2) Full Load (3)Output Short Ta:25℃	(1) 20.2V (2) 24.6 V (3) 21.0 V	P
3	Clamp Diode Peak **Voltage**	D4 Rated HER208 : 1K V 2 A	I/P:High-Line +3V = 267 V O/P: (1)Full Load (2) Dynamic Load 90%Duty/1KHz Ta:25℃	(1) 668 V (2) 772 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2003/10/20	RD SAMPLE	PASS	VINCENT TSENG	MAX LIN
2003/12/17	PRODUCT SAMPLE A311A38	PASS	VINCENT TSENG	MAX LIN
2004/3/18	PRODUCT SAMPLE A402D23	PASS	VINCENT TSENG	MAX LIN

2003/12/12 A50-F023