

SEMICONDUCTOR CIRCUITS

Standard for Safety — Medical & Dental Equipment

UL544

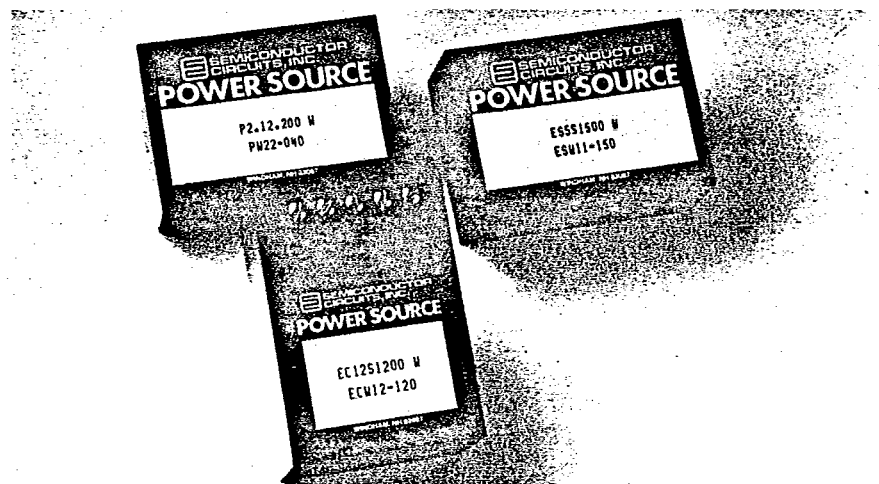
- PATIENT CONTACT RATED (W DESIGNATOR)
- 2500 Vac BREAKDOWN
- FARADAY-SHIELDED TRANSFORMERS

The UL544 Series consists of more than 250 power supply models which have met the stringent requirements for Patient Contact rating as defined by Underwriters Laboratories, Inc., under UL544; STANDARD for SAFETY — MEDICAL and DENTAL EQUIPMENT. All models are recognized and listed accordingly under File E50975 of the U.L. Component Recognition Program. These units are based upon standard, reliable, product families which are specifically modified to meet the severe demands of UL544. All models utilize a Faraday shielded power transformer which holds AC leakage current down to well below the 10 μ A maximum. Effective isolation techniques give these units a higher-than-required Voltage Breakdown rating of 2500 Vac (min).

Options available include:

The "OV" clamp type over voltage protection set at $6.2 \pm 5\%$ Vdc for 5 Vout 1 Adc models. Add suffix "OV".

The "C" crowbar type over voltage protection is set at $6.2 \pm 5\%$ Vdc for 5 Vout greater than 1 Adc models. Add suffix "C".



Applications:

High voltage breakdown and low leakage current make these units ideally suited for medical and patient contact applications. Portable ultrasound scanners, electrocardiograph monitoring systems and microprocessor controlled blood analyzers are just a few of the many applications utilizing UL544 units. Although Underwriters Laboratories maintains strict requirements to insure the safety of such equipment, UL544 recognized units are not limited to these applications. These units are also being incorporated in computer interface systems, copying machines (color analysis), and other applications requiring a high degree of isolation.

General Specifications

Input Voltage and Frequency
105-125Vac — 50 to 440Hz

Ripple and Noise (PARD)
CM, P, PA Series: 1 mV RMS
ES, EA, EC Series: 7 mV RMS

Temperature Coefficient
0.02 %/°C (Typ)

Operating Temperature Range
-25°C to +71°C (No Derating)

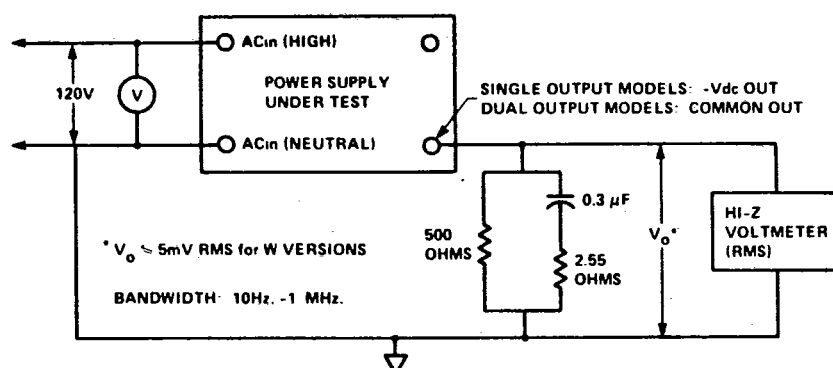
Storage Temperature Range
-40°C to +85°C

Short Circuit Protection
CM, P, PA Series: Current Limiting
ES, EA, EC Series: Power Foldback

Input to Output Isolation
2500 Volts RMS (Patient Contact Rated)

AC Leakage Current
10 μ Amps (Patient Contact Rated)

Leakage Current Measurement Circuit



**SEMICONDUCTOR
CIRCUITS, INC.**

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UL544

Ordering Information

Output Voltage (Vdc)	Output Current (mA)	Regulation Line (%)	Load (%)	AC Pin Spacing Inches (mm)	Pkg. (Fig.)	Reference Catalog Page	New Model Number	Old Model Number
5V	1000	0.05	0.1	2.0 (51)	1-B	14, 15	PW11-100	P1.5.1000W
		0.05	0.1	2.2 (56)	1-B		PAW11-100 *	SP5905W**
		0.05	0.1	—	2-C		CMW11-100	CM5S1000W
5V	1500	0.15	0.15	2.0 (51)	1-B	12, 13	ESW11-150	ES5S1500W
		0.15	0.15	2.2 (56)	1-B		EAW11-150	EA5S1500W
		0.15	0.15	—	2-C		ECW11-150	EC5S1500W
5V	3000	0.15	0.15	2.0 (51)	1-C	12, 13	ESW11-300	ES5S3000W
		0.15	0.15	2.2 (56)	1-C		EAW11-300	EA5S3000W
		0.15	0.15	—	2-D		ECW11-300	EC5S3000W
12V	800	0.15	0.15	2.0 (51)	1-B	12, 13	ESW12-080	ES12S800W
		0.15	0.15	—	2-C		ECW12-080	EC12S800W
12V	1200	0.15	0.15	2.0 (51)	1-D	12, 13	ESW12-120	ES12S1200W
		0.15	0.15	—	2-D		ECW12-120	EC12S1200W
±12V	±100	0.01	0.05	2.0 (51)	1-A	14, 15	PW22-020	P2.12.100W
		0.01	0.05	2.0 (51)	1-B		PW22-040	P2.12.200W
		0.01	0.05	2.2 (56)	1-B		PAW22-040	SP5921W
±12V	±200	0.01	0.05	2.2 (56)	1-B	14, 15	CMW22-040	CM12D200W
		0.01	0.05	—	2-C			
		0.01	0.05	—	2-C			
±15V	±100	0.01	0.05	2.0 (51)	1-A	14, 15	PW23-020	P2.15.100W
		0.01	0.05	2.2 (56)	1-A		PAW23-020	SP5902-2W
		0.01	0.05	—	2-C			
±15V	±200	0.01	0.05	2.0 (51)	1-B	14, 15	PW23-040	P2.15.200W
		0.01	0.05	2.2 (56)	1-B		PAW23-040	SP5920W
		0.01	0.05	—	2-C		CMW23-040	CM15D200W

*Other versions available, please consult factory.

**Includes Clamp Type Over Voltage Protection Set at Approximately 6.5 Vdc

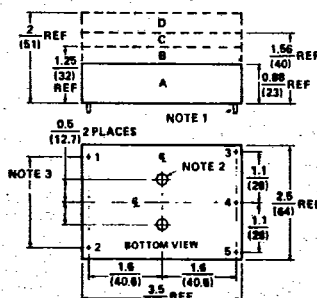
Socket Information: Standard PW, ESW use socket P/N #100013.

Standard PAW, EAW use socket P/N #100015.

For socket dimensional information refer to page 23

Dimensions and Connections

Fig. 1



CONNECTIONS (Fig. 1)

Single Outputs

2.0" AC Pin Spacing

- PIN
1. AC in high
 2. AC in neutral*
 3. - Vdc out
 4. Do Not Connect
 5. + Vdc out

Single Outputs

2.2" AC Pin Spacing

- PIN
1. AC in high
 2. AC in neutral*
 3. Do Not Connect
 4. - Vdc out
 5. + Vdc out

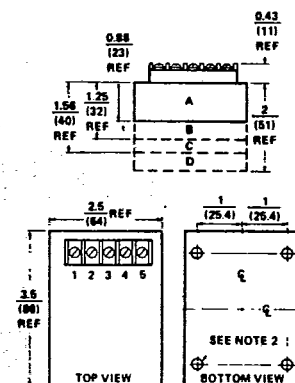
Dual Outputs

2.0" and 2.2" AC Pin Spacing

- PIN
1. AC in high
 2. AC in neutral*
 3. - Vdc out
 4. Common out
 5. + Vdc out

*Faraday Shield connected internally

Fig. 2



Connections (Fig. 2)

Single Output

TERM

1. AC in high
2. AC in neutral*
3. + Vdc out
4. Do Not Connect
5. - Vdc out

Dual Outputs

TERM

1. AC in high
2. AC in neutral*
3. + Vdc out
4. Common out
5. - Vdc out

Notes:

1. Five Pins 0.04 (1) Dia x 0.20 (5.1) Lg Min
2. Two Mounting Inserts No. 4-40 x 0.10 (2.5) Dp Min
3. See Pin Spacing in Ordering Information
4. All Dimensions are in Inches and (mm)

Specifications Subject to Change Without Notice.



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