SWG30 SERIES

DC/AC single output ring generator

[2 YEAR WARRANTY]

- 30VA of ringer output power
- Short circuit protection
- Operating temperature up to 70°C
- Internal sine wave reference
- Remote ON/OFF control

Measuring just 4.00 x 4.00 x 0.63 inches, the SWG30 design maximizes efficiency, typically 80% at full load. Operating from any input voltage in the range 40 to 60VDC, the SWG30 features indefinite short circuit protection and overcurrent protection features, and has a high MTBF of 300,000 hours (calculated in accordance with MIL-HDBK-217F) to ensure reliable operation. A remote on/off control feature facilitates easy systems integration. The SWG30 ring generator has a typical input current of 780mA, and a maximum output current of 400mA rms, (260mA peak DC current). The series features line and load regulation of 1% and at full load the maximum output ripple is typically less than 5V peak-to-peak. The unit has a wide operating temperature range of 0°C to +70°C and the black coated copper case material meets flammability standard UL94V-0. The SWG30 has an isolation voltage of 500VDC and an internal sine-wave reference oscillator.

SPECIFICATION

All specifications are typical at nominal input, full load at 25°C unless otherwise stated

OUTPUT SPECIFICATIONS		
Nominal voltage		75VAC, 85VAC, 95VAC
Voltage accuracy		±3.0%
Load regulation (static)	No load to full load	±1.0%
Line regulation		±1.0%
Load impedance	SWG30-48S75C01 SWG30-48S85C01 SWG30-48S90C01 Capacitive load (See Note 2)	188Ω 284Ω 270Ω 30VA
Output frequency		25Hz, ±2Hz
Maximum output current		See table
Output ripple and noise	Full load	5V pk-pk
Output ripple frequency	Full load	240kHz, nominal
Total harmonic distortion		5.0% max.
Voltage range		±3V
DC offset		±2V max.
INPUT SPECIFICATIONS		
Input voltage range	48VDC nominal	40 to 60VDC
Input current		1.1A max. @ 40VDC
Input filter		Pi network
Input undervoltage (output clipped)	48VDC input model	38VDC max.
Reference input impedance		Internal sine-wave reference oscillator
Remote ON/OFF		(See Note 4)

INPUT NOISE SPECIFICATIONS		
Conducted noise	VDE0871, FCC part 15 (Note 7) Level A	
GENERAL SPECIFICATIONS		
Efficiency	Resistive load	See table
Isolation voltage		500VDC
Switching frequency	Fixed	120kHz, typical
Case material		Black coated copper
Material flammability		UL94V-0
Weight		230g (8.12oz)
MTBF	Demonstrated	300,000 hours
ENVIRONMENTAL SPECIFICATIONS		
Thermal performance	Operating temperature ambient (See Note 1)	0°C to +70°C Derate 2.5%/°C after 50°C, under Free air convection cooled
	Non-operating Cooling	–40°C to +85°C Free air convection cooled
Relative humidity	Non-condensing	10% to 95% RH

30VA DC/AC ring generator

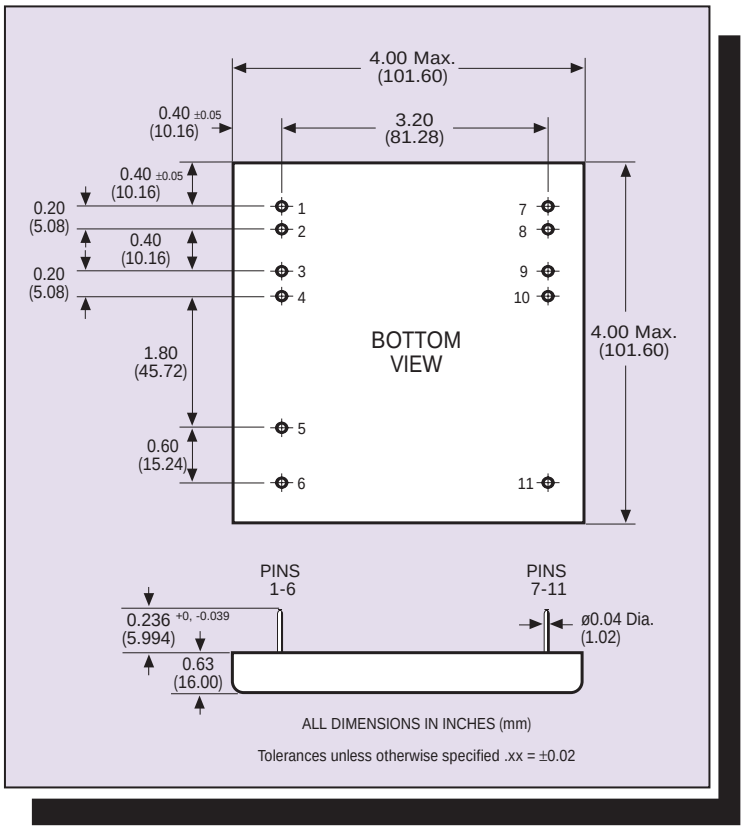
INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT FREQUENCY	OUTPUT CURRENT (RMS)	PEAK OUTPUT DC CURRENT (5)	TYPICAL EFF. (MIN)	MODEL NUMBER (4)
48VDC	75VAC	25Hz	400mA	260mA	75%	SWG30-48S75C01
48VDC	85VAC	25Hz	350mA	160mA	70%	SWG30-48S85C01
48VDC	90VAC	25Hz	333mA	180mA	70%	SWG30-48S90C01

Notes

1 The SWG30 can operate up to 70°C as long as the maximum case temperature does not exceed 85°C.
2 The output loading power factor should be greater than 0.85.
3 Measured under resistive load condition at nominal input voltage.
4 All models are available with the suffix '/P' e.g. **SWG30-48S75C01/P**. Models with the suffix '/P' have the same specifications as their corresponding models, except the remote on/off control logic is reversed.
5 Peak output DC current is the DC biased current flowing through the output. Maximum duration is 1 second.
6 FG pin (pin 5) must be connected to +Vin or -Vin (pins 3 or 4) directly or through a capacitor greater than 10µF.
7 To meet VDE0871 level A conducted noise, connect a capacitor with a value >47µF between (+Vin) and (-Vin).

PROTECTION	
Short circuit protection	Indefinite
Short circuit input current	48VDC, 120mA max.
Overvoltage protection	None
Overcurrent protection set point	600 to 650mA
Undervoltage protection	None

PIN CONNECTIONS	
PIN NUMBER	FEATURE
1	+ Vin
2	+ Vin
3	- Vin
4	- Vin
5	FG (6)
6	Remote ON/OFF
7	+ Vout
8	+ Vout
9	- Vout
10	- Vout
11	No Connection



MODEL (4)	REMOTE PIN CONNECTION	OUTPUT
SWG30-48SXXC01	Open Circuit	ON
	≤0.4V reference to -Vin	OFF
SWG30-48SXXC01/P	+Vin	ON
	Open Circuit	OFF

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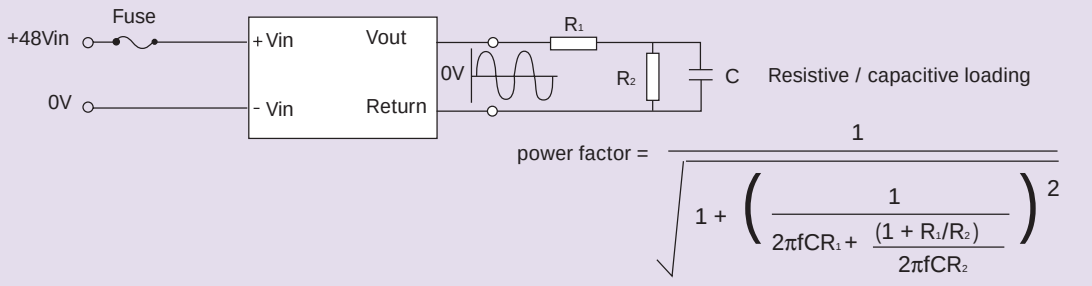
30VA
DC/AC ring generator

Application notes

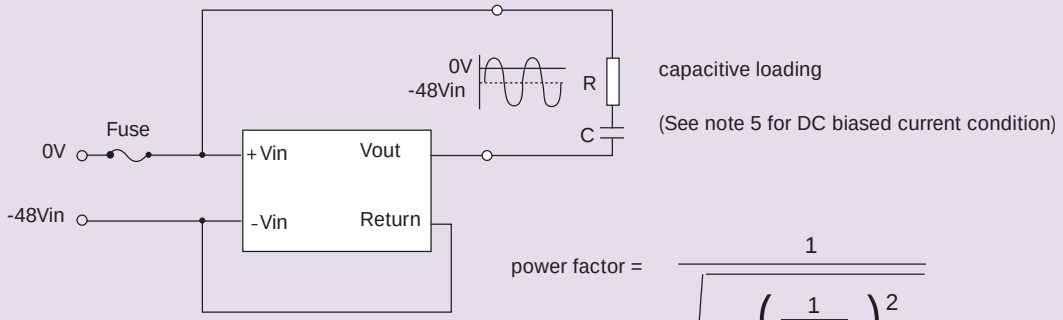
1 Examples of DC biased operation.

1.1 Non-biased operation.



$$\text{power factor} = \frac{1}{\sqrt{1 + \left(\frac{1}{2\pi f C R_1 + \frac{(1 + R_1/R_2)}{2\pi f C R_2}} \right)^2}}$$

1.2 Negative DC Biased operation.



$$\text{power factor} = \frac{1}{\sqrt{1 + \left(\frac{1}{2\pi f C R} \right)^2}}$$

1.3 Positive DC biased operation.