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BLACK MAGIC TELEPHONE RINGING GENERATOR -- SINE WAVE MODEL <NNS>

=====OPERATING CHARACTERISTICS=====

Specification		----Value----		Remark	Note
Input Voltage	(Vdc)	24	48	24 V unit operate: 18-36 V (<24 V with reduced power output) 48 V unit operate: 36-72 V (<48 V with reduced power output) Custom input voltages 12-60 available on special order	
Idle current	(mA)	110	60		
Output Voltage	(Vrms)	-----86-----		Custom output voltages available on special order ⁽¹⁾	
Output power	(W)	20	25	Intermittent duty	
Output Frequency	(Hz)	---20±0.5---		Special order: selectable 16, 16.7, 17, 20, 25, 30, 50, 60 ⁽¹⁾	
Load Regulation	(%)	-----±7-----			
THD	(%)	-----<7.5-----			
Efficiency	(%)	58	63	Full load efficiency 58-75% depending on input voltage	
Shutdown at load	(Ω)	300	250	Goes into "hiccup" mode	
Operating temperature	(° C)	-10-->+60			
Storage temperature	(° C)	-10-->+85			
Hi-pot test	(600 Vac)	Input --> output Input --> heatsink Output--> heatsink			

=====NOTES=====

- (1) Part numbering system: SNvvVVFF-T where vv is input voltage; VV is rms output voltage; FF is output frequency; and -T is termination (S=screw; P=pin). For voltage selectable model (75 or 86 V) code characters 5-6 as SV; for frequency selectable model code characters 7-8 as SF.
- (2) Positive input is connected to case through a 1,000 pF capacitor.
- (3) NOT PROTECTED AGAINST REVERSE POLARITY.
- (4) Output is protected against short circuits and transient overvoltages. May require conditioning for highly inductive loads.
- (5) Output will pass d.c. (e.g. ring-trip bias) when powered.

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=====PHYSICAL CHARACTERISTICS=====

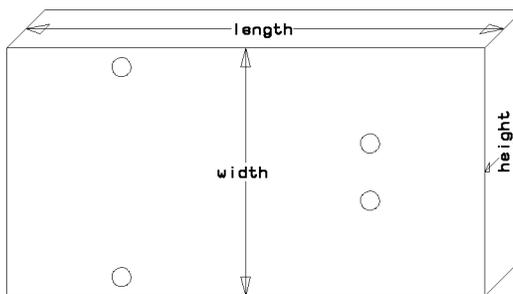
Weight: 300 grams (10.5 oz)

Dimensions:

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Dimensions mm (in)		
Height	18	(0.71)
Width	63	(2.50)
Length	115	(4.50)

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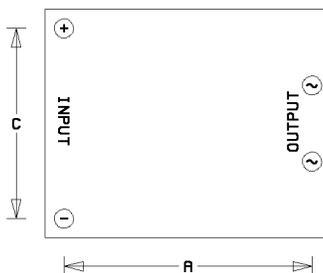
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Mounting hold i.d. is 4.0 mm (5/32 in) in exact center of unit. Caution: maximum torque to be applied to retaining screw is one-third foot-pound.

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Terminations mm (in)		
A	66.0	(2.6)
B	15.2	(0.6)
C	53.3	(2.1)

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bottom view
(terminal side)

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Construction and Mounting

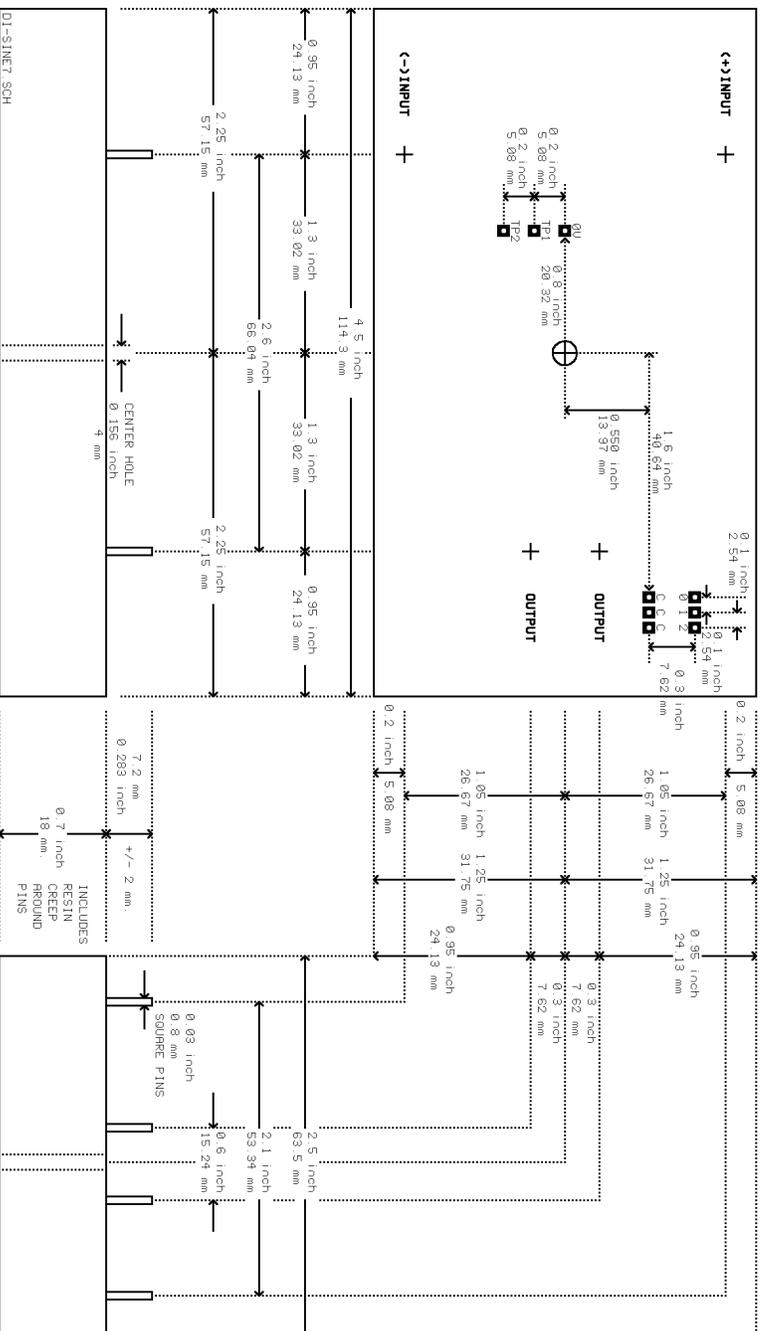
Units are silicone-encapsulated in a five-sided mild steel heatsink; all materials are UL-rated 94V-0 for flammability. Terminations are available as as 0.025" square pins (suffix p/n with -P) or 4-40 screw terminals (suffix p/n with -S). Due to their light weight, units may be held in place by any of the following methods: four pins (solder-down); screw terminals; double-sided tape; or retaining screw through center mounting hole.

As the heatsink is electrically grounded through an internal coupling capacitor, there should be no further need for electromagnetic emission control. A ground plane underneath the unit may be added if desired.

Cambridge Electronics Laboratories

Black Magic Telephone Ringing Generator -- Sine Wave Model <NNS> -- Mechanical Specification

TERMINAL SIDE



Truth table for
frequency settings
(frequency
selective model)

FREQ	DIP SETTING
16.0	000
16.7	001
17.0	010
20.0	011
25.0	100
30.0	101
50.0	110
60.0	111

NOTES: (1) Lay out pcb using center hole as reference; drill pcb for # 8 screw to allow tolerance. (2) Terminal location tolerance ±0.5 mm referenced to center mounting hole. (3) Case dimensions shown are maximum; actual size may be less but terminal locations referenced to center hole will not vary. (4) Vertical dimension includes resin creep around pins. Actual height can be less than 18 mm if manually trimmed. (5) Screw terminal version is identical to pin version except 4-40 screws are instead found at pin locations shown. Recommend to drill for #6 screw to allow for tolerance.