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BLACK MAGIC TELEPHONE RINGING GENERATOR--MICRO SQUARE WAVE MODEL LNU-BMR

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

| Specification | | ----Value---- | | Remark |
|--|-------------------------|----------------|-----|---|
| Input voltage | (V _{dc}) | 5 | 12 | 5 V unit operate: 4.5-5.5 V 12 V unit operate: 11-13 V Custom voltages 3-15 available on special order |
| >INPUT NOT PROTECTED AGAINST REVERSE POLARITY< | | | | |
| Idle current | (mA) | ~135 | ~85 | |
| Output voltage | (V _{rms}) | -----86----- | | Custom voltages available on special order |
| Output power | (W) | 5 | 5 | Intermittent duty |
| Output frequency | (Hz) | ---20± 0.5--- | | Custom frequencies available on special order |
| Load regulation | (%) | -----± 15----- | | |
| Efficiency | (%) | ~50/~75/~80 | | At loads 1 W/3 W/5 W |
| Operating temp. | (° C) | -10-->+70 | | Wider temperature range available on special order |
| Storage temp. | (° C) | -10-->+85 | | |
| Hi-pot test | (1500 V _{dc}) | Input-->output | | |

=====NOTES=====

- (1) Part numbering system: LNvvVVFF where vv is input voltage; VV is rms output voltage; FF is output frequency.
- (2) Standard models are encapsulated in epoxy resin UL-rated 94V-0. Applications requiring lower temperatures or rapid rates of temperature change may be well served by Tracon 3143 which may be ordered as part number LWvvVVFF. CEL does not warrant merchantability or fitness for a particular use of any encapsulant but will be pleased to furnish "on approval" samples for customer testing against his exact requirement.
- (3) Output may be filtered to reduce potentially interfering harmonics. Standard units provide two-state (±) output. To facilitate filtering with physically small components, three-state output (+/0/-) units are available with a 10% zero-state output ("dead time"). Refer to CEL publication *Telecom Design Tricks* and to Datasheet "Appropriate Wave-Shaping Filters for Micro and Mini Black Magic Telephone Ringing Generators".
- (4) Output is *NOT PROTECTED* against shorts; circuit must have series resistance of at least 300 Ω, normally part of ring-trip circuit. If the latter's current sensing resistor is less than 300 Ω, additional resistance must be added. Output is protected against transient overvoltages by internal zener clamp. Highly inductive loads may require conditioning.
- (5) Output will pass d.c. ring-trip bias only when unit is powered.

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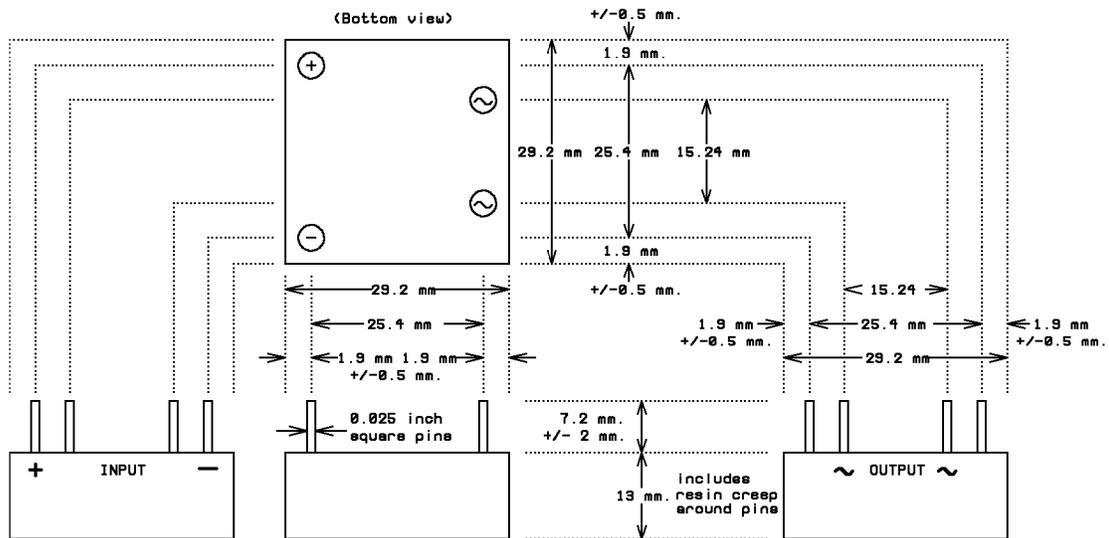
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 PHYSICAL CHARACTERISTICS AND MECHANICAL SPECIFICATIONS

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

Dimensions mm (in)

| ===== | ===== |
|--------------------|---------------------------|
| Dimensions | Terminal spacing |
| Height 12.7 (0.50) | Output 15.24 (0.6) |
| Width 29.2 (1.15) | Input 25.40 (1.0) |
| Length 29.2 (1.15) | ===== |
| ===== | Weight: 20 grams (0.7 oz) |

=====MECHANICAL SPECIFICATIONS=====



/NUBMR95.PIX

=====CONSTRUCTION AND MOUNTING=====

Black Magic Micro square-wave ringing generators are monolithically encapsulated in water-proof epoxy rated UL 94V-0 with terminals as 0.025 inch square pins. Units are intended for direct solder-down to pcb or they may be socketed with receptacles e.g. any receptacle using Mill-Max clips #16 or #47.

LNUSPEC.DOC-2 11-15-99