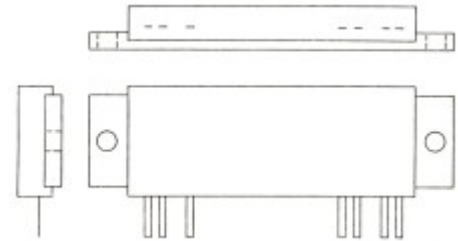


V.H.F POWER AMPLIFIER MODULES

BGY32, BGY33, BGY35, BGY36

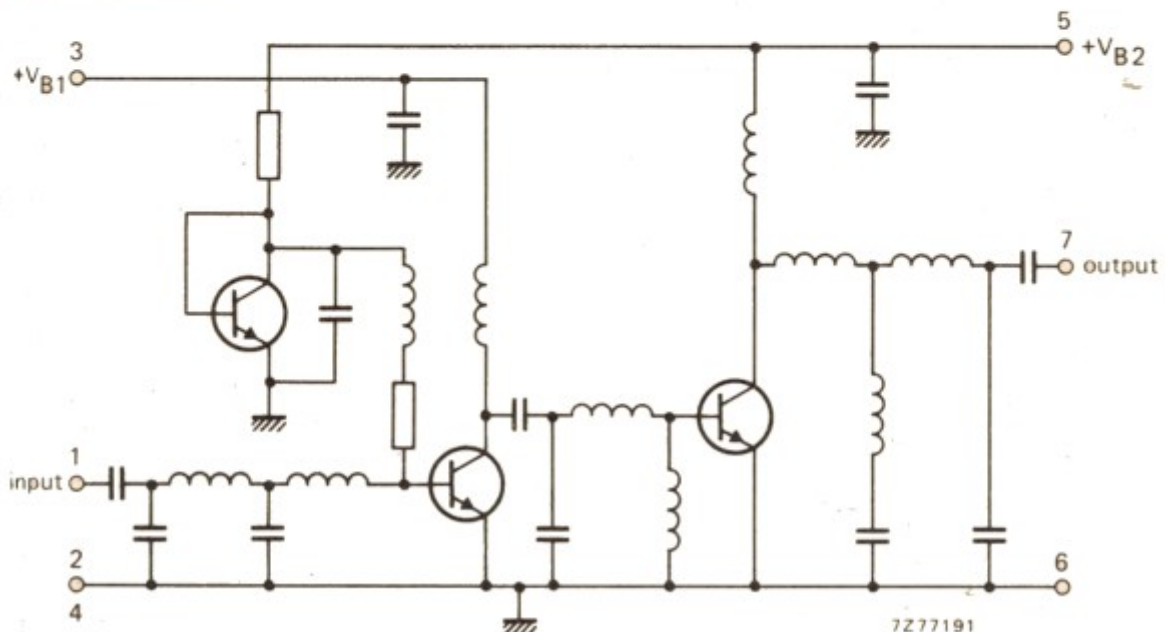
A range of broadband amplifier modules designed for mobile communication equipments, operating directly from 12V vehicle electrical systems. The devices will produce 18W output into a 50Ohm load. The modules consist of a two stage r.f. amplifier using npn transistor chips, together with lumped element matching components.



QUICK REFERENCE DATA

| type number | mode of operation | frequency range f (MHz) | nominal supply voltages $V_{B1} = V_{B2}$ (V) | drive power P_D (mW) | load power P_L (W) | nominal input impedance z_i (Ω) | nominal load impedance Z_L (Ω) |
|-------------|-------------------|-------------------------|---|------------------------|----------------------|--|---|
| BGY32 | c.w. | 68 to 88 | 12,5 | 100 | > 18 typ 23 | 50 | 50 |
| BGY33 | c.w. | 80 to 108 | 12,5 | 100 | > 18 typ 22 | 50 | 50 |
| BGY35 | c.w. | 132 to 156 | 12,5 | 150 | > 18 typ 22 | 50 | 50 |
| BGY36 | c.w. | 148 to 174 | 12,5 | 150 | > 18 typ 21 | 50 | 50 |

CIRCUIT DIAGRAM

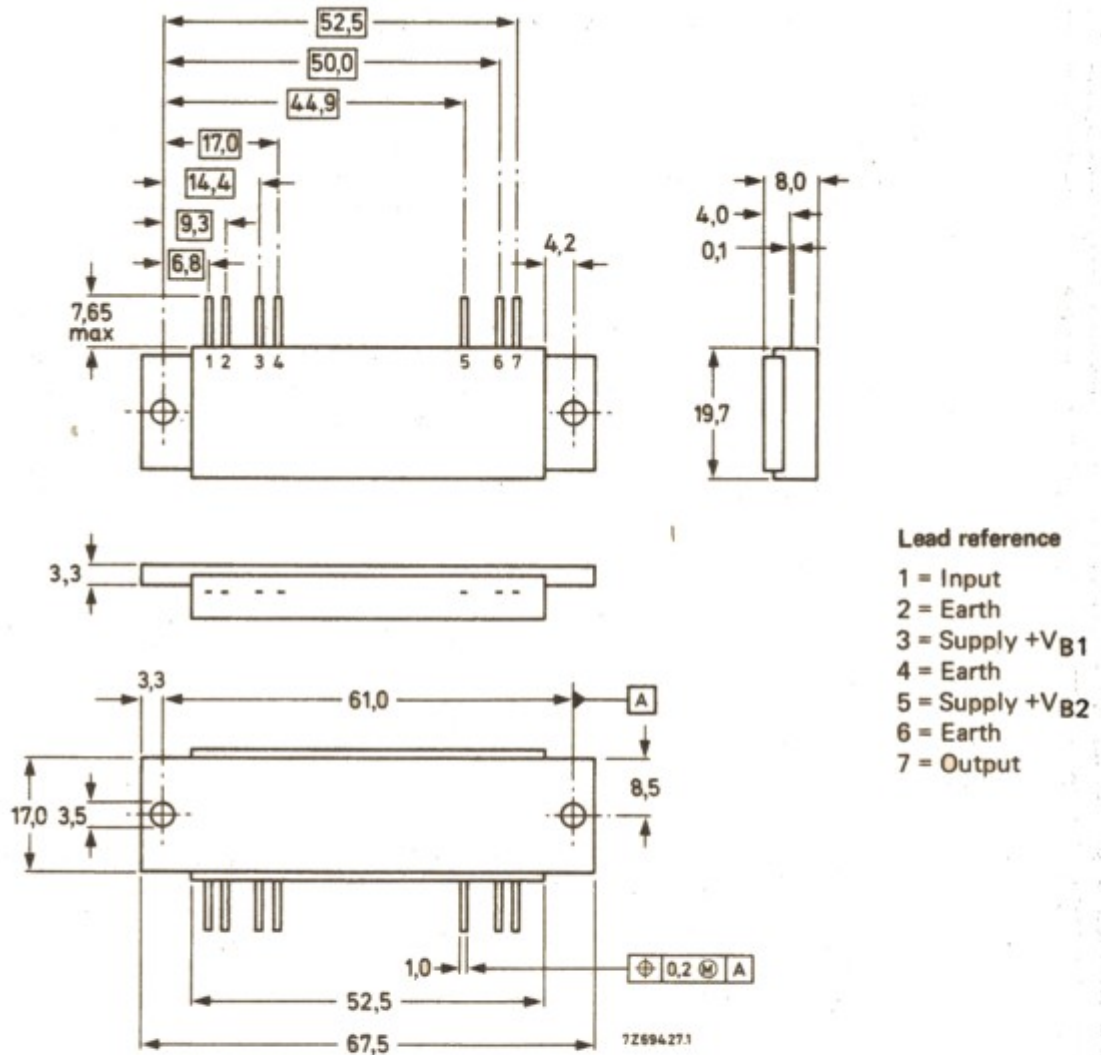


CAUTION These devices incorporate beryllium oxide, the dust of which is toxic. The devices are entirely safe provided that they are not dismantled.

► MECHANICAL DATA

Fig. 1 SOT-132.

Dimensions in mm



Mounting and soldering recommendations

To ensure good thermal transfer the module should be mounted using heatsink compound onto a heatsink with a flat surface; if an isolation washer is used heatsink compound should be used on both sides of the insulator. Burrs and thickening of the holes in the heatsink should be removed and 3 mm bolts tightened to torques of 0,5 Nm minimum.

Devices may be soldered directly into a circuit with a soldering iron at maximum iron temperature of 245 °C for 10 seconds at least 1 mm from the plastic.

CHARACTERISTICS

$T_h = 25\text{ }^\circ\text{C}$

Quiescent current

$V_{B1} = V_{B2} = 12,5\text{ V}; P_D = 0;$
 $R_S = R_L = 50\ \Omega$

| | | BGY32 | BGY33 | BGY35 | BGY36 |
|-----------|-----|-------|-------|-------|-------|
| I_{BQ1} | typ | 6 | 6 | 6 | 6 mA |
| I_{BQ2} | typ | 13 | 13 | 13 | 13 mA |

Frequency range

| | | | | | |
|-----|---|----|-----|-----|---------|
| f | > | 68 | 80 | 132 | 148 MHz |
| | < | 88 | 108 | 156 | 174 MHz |

Load power

$V_{B1} = V_{B2} = 12,5\text{ V}; R_S = R_L = 50\ \Omega$
 BGY32 and BGY33; $P_D = 100\text{ mW}$

| | | | | | |
|--------|-----|----|----|----|------|
| P_L | > | 18 | 18 | — | — W |
| | typ | 23 | 22 | — | — W |
| η | > | 40 | 40 | — | — % |
| | typ | 50 | 50 | — | — % |
| P_L | > | — | — | 18 | 18 W |
| | typ | — | — | 22 | 21 W |
| η | > | — | — | 40 | 40 % |
| | typ | — | — | 50 | 50 % |

BGY35 and BGY36; $P_D = 150\text{ mW}$

Harmonic output

Any single harmonic will be at least 25 dB down relative to carrier

Input VSWR with respect to 50 Ω

typ 1,5

Stability

The module is stable with load VSWR up to 3 (all phases) when operated with matched output power greater than 6 W.

Ruggedness

The modules are capable of withstanding load mismatch of up to 50 VSWR for short period overload conditions, with P_D , V_{B1} and V_{B2} at maximum values providing the combination does not result in the matched r.f. output power rating being exceeded.

APPLICATION INFORMATION

Supply

An electrolytic capacitor of 10 μF (25 V), in parallel with a polyester capacitor of 100 nF to earth, is recommended as decoupling arrangement for each power supply pin.

Power rating

In general it is recommended that the output power from the module under nominal design conditions should not exceed 23 W in order to provide adequate safety margin under fault conditions.

Gain control

Power output can be controlled by variation of the driver stage supply voltage V_{B1} . The supply required is a voltage regulator with a current rating of 0,75 A, and an output voltage range of 3 V to 12 V.

RATINGS

Limiting values in accordance with the Absolute Maximum System (IEC 134)

D.C. voltages (with respect to flange)

| | | | |
|-----------------------|-----------------------|-----|------|
| D.C. supply terminals | V_{B1} and V_{B2} | max | 15 V |
| R.F. input terminal | $\pm V_I$ | max | 25 V |
| R.F. output terminal | $\pm V_O$ | max | 25 V |

Power

| | | | |
|-----------------------------------|-------|-----|--------|
| Input drive power BGY32 and BGY33 | P_D | max | 200 mW |
| Input drive power BGY35 and BGY36 | P_D | max | 300 mW |
| Load power | P_L | max | 30 W |

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