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# 2N3924
# 2N3926
# 2N3927

## SILICON PLANAR EPITAXIAL OVERLAY TRANSISTORS

The **2N3924** is an n-p-n overlay transistor in a TO-39 metal envelope with the collector connected to the case.
The **2N3926** and the **2N3927** are n-p-n overlay transistors in TO-60 metal envelopes with the emitter connected to the case.
The transistors are intended for v.h.f. transmitting applications.

### QUICK REFERENCE DATA

| | | | 2N3924 | 2N3926 | 2N3927 | |
|---|---|---|---|---|---|---|
| Collector-emitter voltage $-V_{BE}$ = 1,5 V | $V_{CEX}$ | max. | 36 | 36 | 36 | V |
| Collector-emitter voltage (open base) | $V_{CEO}$ | max. | 18 | 18 | 18 | V |
| Collector current (peak value) | $I_{CM}$ | max. | 1,5 | 3,0 | 4,5 | A |
| Total power dissipation up to $T_{mb}$ = 25 °C | $P_{tot}$ | max. | 7 | 11,6 | 23 | W |
| Junction temperature | $T_j$ | max. | 200 | 200 | 200 | °C |
| Transition frequency | | | | | | |
| $I_C$ = 100 mA; $V_{CE}$ = 13,5 V | $f_T$ | > | 250 | 250 | – | MHz |
| $I_C$ = 200 mA; $V_{CE}$ = 13,5 V | $f_T$ | > | – | – | 200 | MHz |

R.F. performance at $V_{CE}$ = 13,5 V; f = 175 MHz

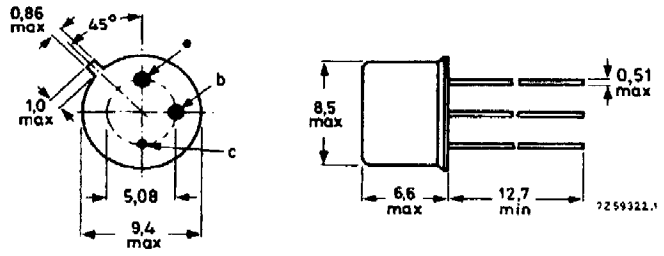
| type number | $P_O$ (W) | $P_i$ (W) | $\eta$ (%) |
|---|---|---|---|
| **2N3924** | 4 | < 1 | > 70 |
| **2N3926** | 7 | < 2 | > 70 |
| **2N3927** | 12 | < 4 | > 80 |

### MECHANICAL DATA

Dimensions in mm

Fig. 1a TO-39/1; collector connected to case.

**2N3924**




Maximum lead diameter is guaranteed only for 12,7 mm.

# 2N3924
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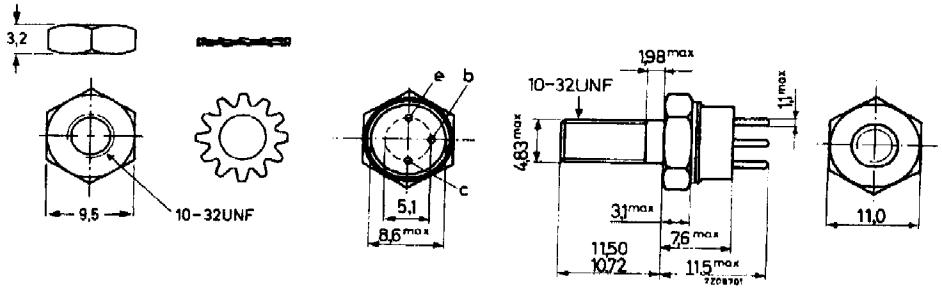
**MECHANICAL DATA** (continued)

Dimensions in mm

Fig. 1b TO-60 (**2N3926** and **2N3927**).

Emitter connected to case.
The top pins should not be bent.




Torque on nut: min. 0,8 Nm ( 8 kg cm)
max. 1,7 Nm (17 kg cm)

Diameter of clearance hole in heatsink: 4,8 mm to 5,2 mm.

**PRODUCT SAFETY** **This device incorporates beryllium oxide, the dust of which is toxic. The device is entirely safe provided that the BeO disc is not damaged.**

**RATINGS**

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

| | | | | | |
|---|---|---|---|---|---|
| Collector-base voltage (open emitter) | $V_{CBO}$ | max. | | 36 | V |
| Collector-emitter voltage | | | | | |
| $I_C \leq 400$ mA; $-V_{BE} = 1,5$ V | $V_{CEX}$ | max. | | 36 | V |
| (open base); $I_C \leq 400$ mA | $V_{CEO}$ | max. | | 18 | V |
| Emitter-base voltage (open collector) | $V_{EBO}$ | max. | | 4 | V |
| | | | **2N3924** | **2N3926** | **2N3927** |
| Collector current | | | | | |
| d.c. | $I_C$ | max. | 0,5 | 1,0 | 1,5 A |
| peak value | $I_{CM}$ | max. | 1,5 | 3,0 | 4,5 A |
| Total power dissipation | | | | | |
| up to $T_{mb} = 25$ °C | $P_{tot}$ | max. | 7 | 11,6 | 23 W |
| Storage temperature | $T_{stg}$ | | | −65 to +200 | °C |
| Junction temperature | $T_j$ | max. | | 200 | °C |

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## THERMAL RESISTANCE

| | | | 2N3924 | 2N3926 | 2N3927 | |
|---|---|---|---|---|---|---|
| From junction to mounting base | $R_{th\ j\text{-}mb}$ | = | 25 | 15 | 7.5 | K/W |
| From mounting base to heatsink | $R_{th\ mb\text{-}h}$ | = | | 0.6 | 0.6 | K/W |

## CHARACTERISTICS

$T_j$ = 25 °C unless otherwise specified

| Collector cut-off current | | | 2N3924 | 2N3926 | 2N3927 | |
|---|---|---|---|---|---|---|
| $I_E$ = 0; $V_{CB}$ = 15 V | $I_{CBO}$ | < | 100 | 100 | 250 | μA |
| $I_E$ = 0; $V_{CB}$ = 15 V; $T_j$ = 150 °C | $I_{CBO}$ | < | 5 | 5 | 10 | mA |
| **Breakdown voltages** | | | | | | |
| $I_E$ = 0; $I_C$ = 250 μA | $V_{(BR)CBO}$ | > | 36 | 36 | 36 | V |
| $I_C$ up to 400 mA | | | | | | |
| $-V_{BE}$ = 1.5 V; $R_B$ = 33 Ω [1] | $V_{(BR)CEX}$ | > | 36 | 36 | 36 | V |
| $I_B$ = 0 [1] | $V_{(BR)CEO}$ | > | 18 | 18 | 18 | V |
| $I_C$ = 0; $I_E$ = 250 μA | $V_{(BR)EBO}$ | > | 4 | 4 | 4 | V |
| **Base-emitter voltage** | | | | | | |
| $I_C$ = 250 mA; $V_{CE}$ = 5 V | $V_{BE}$ | < | 1.5 | | | V |
| $I_C$ = 500 mA; $V_{CE}$ = 5 V | $V_{BE}$ | < | | 1.5 | | V |
| $I_C$ = 1000 mA; $V_{CE}$ = 5 V | $V_{BE}$ | < | | | 1.5 | V |
| **Saturation voltage** | | | | | | |
| $I_C$ = 250 mA; $I_B$ = 50 mA | $V_{CEsat}$ | < | 0.75 | | | V |
| $I_C$ = 500 mA; $I_B$ = 100 mA | $V_{CEsat}$ | < | | 0.75 | | V |
| $I_C$ = 1000 mA; $I_B$ = 200 mA | $V_{CEsat}$ | < | | | 1.0 | V |