TRANSISTOR DATA SHEET
WESTERN ELECTRIC GA-52609 TRANSISTOR

DESCRIPTION

The GA-52609 is an n-p-n alloy junction transistor in a hermetically sealed can. It is designed for audio and carrier frequency transmission applications, but is also suitable for some switching applications.

GENERAL CHARACTERISTICS

Mechanical Data

Mounting position - - - - - - - - - - - - - - - - - - - - Any

Socket - - - - - - - - - - - - - - - - - - - - - - - - - - See Note 1 on page 2

Power Dissipation Characteristic

Internal temperature drop, collector junction to can - - - - - - - - - - - - 0.4°C per mw
ABSOLUTE MAXIMUM RATINGS

Current
Interrmtent to any electrode
300 ma
Continuous to any electrode
50 ma

Voltage
Collector to base
+30 v
Emitter to base
+20 v
Total Dissipation
50 mw
Ambient Temperature
85 °C

ELECTRICAL CHARACTERISTICS (at 25°C)

Small Signal Parameters
(Ie=1 ma; Vc=4.5V) Min. Mode Max.

Short Circuit Current Multiplication Ratio
\( \alpha_N \) or \(-H_{21}\) .96* -- .998*

Short Circuit Current Multiplication Ratio of Inverted Transistor \( \alpha_1 \) -- .8 --

Short Circuit Input Impedance \( H_{11} \) -- 31 -- ohms

Open Circuit Feedback Voltage Ratio \( H_{12} \) -- 17x10^-5 --

Open Circuit Output Admittance \( H_{22} \) -- .38 \( \mu \)mho

Collector Capacitance
(Ie = 0; Vc = 4.5V) \( C_c \) -- 33 50* \( \mu \)f
(Ie = 0; Vc = 15V) \( C_c \) -- 19 -- \( \mu \)f

Cut-off Frequency of Alpha
(Ie = -1 mA; Vc = 4.5V) \( f_{ac} \) 2* 3 -- mc

Noise Figure at 1000 cps
(Ie = -1mA; Vc=4.5V; Rg=1000 ohms) \( NF \) -- 7 -- db

Other Parameters

Collector Current with Open Emitter
(Ie = 0; Vc = 15V) \( I_c \) -- 4 8* \( \mu \)A
(Ie = 0; Vc = 30V) \( I_c \) -- 6 -- \( \mu \)A
(Ie = 0; Vc = 15V; 55°C) \( I_c \) -- 42 75* \( \mu \)A
(Ie = 0; Ic = 30 \( \mu \)A) \( V_c \) 30* 43 -- v

Emitter Current with Open Collector
(Ic = 0; Ve = 10V) \( I_e \) -- 2.8 6* \( \mu \)A
(Ic = 0; Ie = 20 \( \mu \)A) \( V_e \) 20* 45 -- v
ELECTRICAL CHARACTERISTICS (Cont'd.)

<table>
<thead>
<tr>
<th>Min.</th>
<th>Mode</th>
<th>Max.</th>
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<tbody>
<tr>
<td>I_{cR}</td>
<td>3.3</td>
<td>μA</td>
</tr>
<tr>
<td>I_{eR}</td>
<td>.9</td>
<td>μA</td>
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Emitter Floating Potential
(V_{cb} = 30V; I_{e} = 0)

V_{ef} | .07 | .16* v |

R_{b} Test
(I_{c} = 20 ma forward; I_{e} = 0)

V_{eb} | .6 | 4* v |

*Indicates manufacturer's test limits.

NOTES:

1. Leads may be cut off for socket mounting or soldered by taking precaution to protect transistor, by providing a heat sink between solder joint and can.

2. Not all may hold simultaneously.

3. At ambient temperature not greater than 60°C.

4. H_{21} is essentially constant with ambient temperature between 20°C to 95°C.
Vc - Ic CHARACTERISTICS
AMBIENT TEMPERATURE OF 25°C

FIG. 3

FIG. 4

FIG. 5

FIG. 6