

25C D ■ 8235605 0004072 4 ■ SIEG

PNP Germanium RF Transistor

AF 239 S

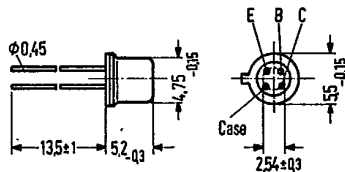
SIEMENS AKTIENGESELLSCHAFT

for output, mixer, and oscillator stages up to 900 MHz

T-31-07

AF 239 S is a germanium PNP mesa transistor in TO 72 case (18 A 4 DIN 41876). The leads are electrically insulated from the case.

Type	Ordering code
AF 239 S	Q62701-F51



Approx. weight 0.4 g

Dimensions in mm

Maximum ratings

Collector-emitter voltage

$-V_{CEO}$

15

V

Collector-emitter voltage

$-V_{CES}$

20

V

Emitter-base voltage

$-V_{EBO}$

0.3

V

Collector current

$-I_C$

10

mA

Emitter current

I_E

11

mA

Base current

$-I_B$

1

mA

Junction temperature

T_j

90

°C

Storage temperature range

T_{stg}

-30 to +75

°C

Total power dissipation ($T_{amb} \leq 45^\circ\text{C}$)

P_{tot}

60

mW

Thermal resistance

Junction to ambient air

R_{thJA}

≤ 750

K/W

Junction to case

R_{thJC}

≤ 400

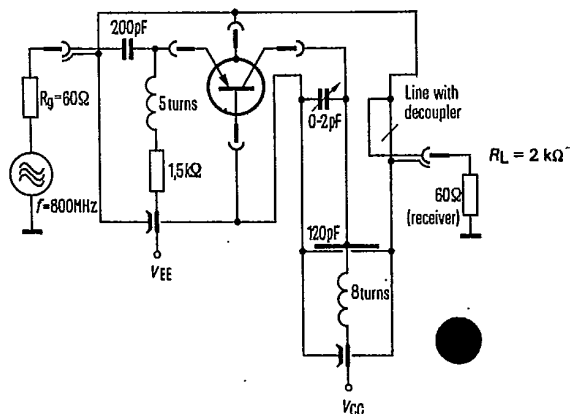
K/W

Static characteristics ($T_{amb} = 25^\circ\text{C}$)

$-V_{CE}$ V	I_C mA	$-I_B$ μA	h_{FE} I_C/I_B	$-V_{BE}$ mV
10	2	40	50 (>10)	350
5	5	110	45	400

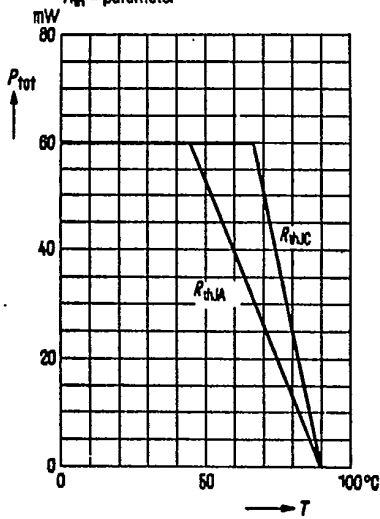
Collector cutoff current ($-V_{CES} = 20\text{ V}$)Collector cutoff current ($-V_{CEO} = 15\text{ V}$)Emitter cutoff current ($-V_{EBO} = 0.3\text{ V}$)

$-I_{CES}$	0.5 (<8)	μA
$-I_{CEO}$	<500	μA
$-I_{EBO}$	<100	μA

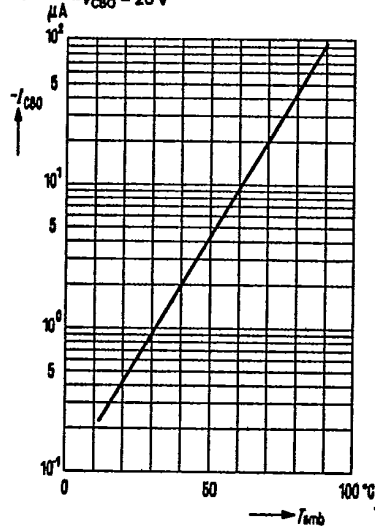
Dynamic characteristics ($T_{amb} = 25^\circ\text{C}$)Transition frequency ($-I_C = 2\text{ mA}$; $-V_{CE} = 10\text{ V}$; $f = 100\text{ MHz}$) f_T 780 MHzReverse transfer capacitance
($-I_C = 2\text{ mA}$; $-V_{CE} = 10\text{ V}$; $f = 450\text{ kHz}$) $-C_{12e}$ 0.2 pF**Power gain**Operating point: $-I_C = 2\text{ mA}$; $-V_{CE} = 10\text{ V}$ ($f = 800\text{ MHz}$; $R_L = 500\ \Omega$) G_{pb} 12.5 dB($f = 800\text{ MHz}$; $R_L = 2\text{ k}\Omega$) G_{pb} 15 (>12.5) dB($f = 900\text{ MHz}$; $R_L = 500\ \Omega$) G_{pb} 12 dB**Noise figure**($f = 800\text{ MHz}$; $R_g = 60\ \Omega$) NF <5 dB($f = 900\text{ MHz}$; $R_g = 60\ \Omega$) NF <6 dB**Test circuit for power gain and noise figure at $f = 800\text{ MHz}$** 

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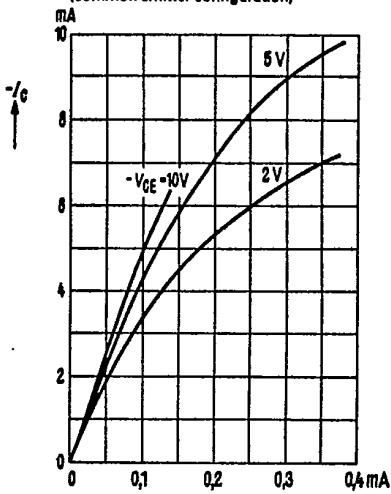
Total perm. power dissipation
versus temperature $P_{tot} = f(T)$;
 R_{th} = parameter



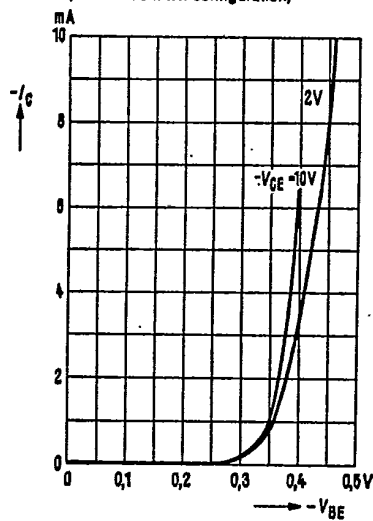
Collector cutoff current
versus temperature $I_{CBO} = f(T_{amb})$;
 $-V_{CBO} = 20V$



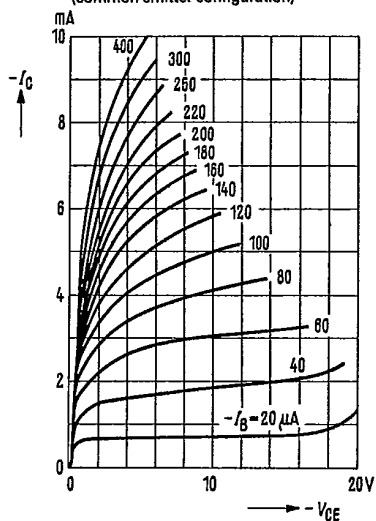
Collector current $I_C = f(V_{BE})$
 V_{CE} = parameter
(common emitter configuration)



Collector current $I_C = f(V_{BE})$
 V_{CE} = parameter
(common emitter configuration)



Output characteristics $I_C = f(V_{CE})$
 I_B = parameter
(common emitter configuration)



Output characteristics $I_C = f(V_{CB})$
 I_E = parameter
(common base configuration)

