AF 139

GERMANIUM MESA PNP

UHF AMPLIFIER

The AF 139 is a germanium mesa PNP transistor in a Jedec TO-72 metal case. It is particularly designed for use in prestages as well as in mixer and oscillator stages up to 860 MHz.

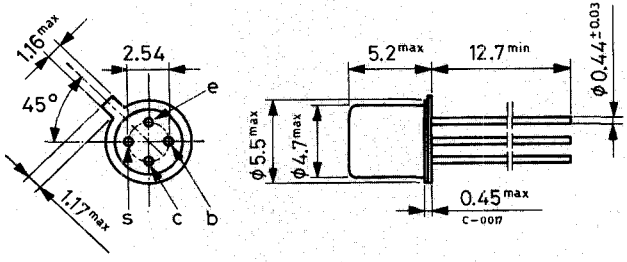
ABSOLUTE MAXIMUM RATINGS

V_{CBO}	Collector-base voltage ($I_E = 0$)	-22 V
V_{CEO}	Collector-emitter voltage ($I_B = 0$)	-15 V
V_{EBO}	Emitter-base voltage ($I_C = 0$)	-0.3 V
I_E	Emitter current	11 mA
I_C	Collector current	-10 mA
P_{tot}	Total power dissipation at $T_{amb} \leq 45$ °C	60 mW
	at $T_{case} \leq 66$ °C	60 mW
T_{stg}	Storage temperature	-30 to 75 °C
T_j	Junction temperature	90 °C

MECHANICAL DATA

Dimensions in mm

Shield lead connected to case



TO-72

AF 139

THERMAL DATA

$R_{th\ j\text{-}case}$	Thermal resistance junction-case	max	400	°C/W
$R_{th\ j\text{-}amb}$	Thermal resistance junction-ambient	max	750	°C/W

ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

Parameter		Test conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector cutoff current (I_E = 0)	V_{CB} = -22 V			-8	μA
I_{CEO}	Collector cutoff current (I_B = 0)	V_{CE} = -15 V			-500	μA
I_{EBO}	Emitter cutoff current (I_C = 0)	V_{EB} = -0.3 V			-100	μA
h_{FE}	DC current gain	I_C = -1.5 mA V_{CE} = -12 V	10	50		—
f_T	Transition frequency	I_C = -1.5 mA V_{CE} = -12 V f = 100 MHz		550		MHz
$-C_{re}$	Reverse capacitance	I_C = -1.5 mA V_{CE} = -12 V f = 100 kHz		0.25		pF
NF	Noise figure	I_C = -1.5 mA V_{CE} = -12 V R_g = 60 Ω f = 800 MHz		7	8.2	dB
$r_{bb'}C_{b'c}$	Feedback time constant	I_C = -1.5 mA V_{CE} = -12 V f = 2.5 MHz		3		ps
G_{pb}	Power gain	I_C = -1.5 mA V_{CE} = -12 V R_L = 1.4 kΩ f = 800 MHz	9	11		dB