

# AF 239

## GERMANIUM MESA PNP

### UHF PREAMPLIFIER

The AF 239 is a germanium mesa PNP transistor in a Jedec TO-72 metal case. It is particularly designed as preamplifier mixer and oscillator up to 900 MHz.

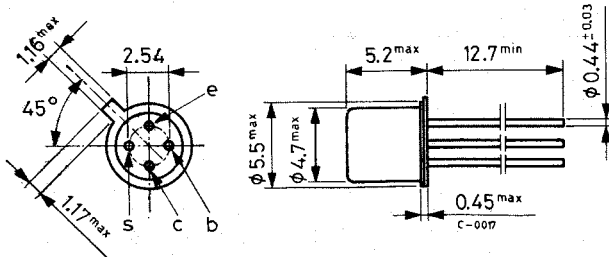
### ABSOLUTE MAXIMUM RATINGS

$V_{CES}$	Collector-emitter voltage ( $V_{BE} = 0$ )	-20 V
$V_{CEO}$	Collector-emitter voltage ( $I_B = 0$ )	-15 V
$V_{EBO}$	Emitter-base voltage ( $I_C = 0$ )	-0.3 V
$I_C$	Collector current	-10 mA
$P_{tot}$	Total power dissipation at $T_{amb} \leq 45^\circ\text{C}$	60 mW
	at $T_{case} \leq 66^\circ\text{C}$	60 mW
$T_{stg}$	Storage temperature	-30 to 75 $^\circ\text{C}$
$T_j$	Junction temperature	90 $^\circ\text{C}$

### MECHANICAL DATA

Dimensions in mm

Shield lead connected to case



TO-72

# AF 239

## THERMAL DATA

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

## ELECTRICAL CHARACTERISTICS ( $T_{case} = 25\text{ °C}$ unless otherwise specified)

Parameter	Test conditions	Min.	Typ.	Max.	Unit
$I_{CES}$	Collector cutoff current ( $V_{BE} = 0$ ) $V_{CE} = -20\text{ V}$			-8	$\mu\text{A}$
$I_{CEO}$	Collector cutoff current ( $I_B = 0$ ) $V_{CE} = -15\text{ V}$			-500	$\mu\text{A}$
$I_{EBO}$	Emitter cutoff current ( $I_C = 0$ ) $V_{EB} = -0.3\text{ V}$			-100	$\mu\text{A}$
$V_{BE}$	Base-emitter voltage $I_C = -2\text{ mA}$ $V_{CE} = -10\text{ V}$ $I_C = -5\text{ mA}$ $V_{CE} = -5\text{ V}$	-350		-400	mV mV
$h_{FE}$	DC current gain $I_C = -2\text{ mA}$ $V_{CE} = -10\text{ V}$ $I_C = -5\text{ mA}$ $V_{CE} = -5\text{ V}$	10	30		— —
$f_T$	Transition frequency $I_C = -2\text{ mA}$ $V_{CE} = -10\text{ V}$ $f = 100\text{ MHz}$		700		MHz
$-C_{re}$	Reverse capacitance $I_C = -2\text{ mA}$ $V_{CE} = -10\text{ V}$ $f = 450\text{ kHz}$		0.23		pF
NF	Noise figure $I_C = -2\text{ mA}$ $V_{CE} = -10\text{ V}$ $R_g = 60\ \Omega$ $f = 800\text{ MHz}$		5	6	dB
$G_{bb}$	Power gain $I_C = -2\text{ mA}$ $V_{CE} = -10\text{ V}$ $R_L = 2\text{ k}\Omega$ $f = 800\text{ MHz}$	11	14		dB