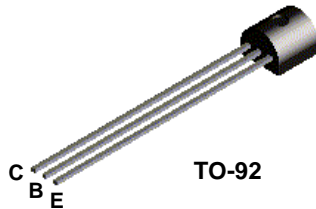
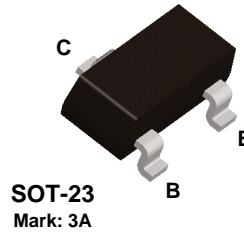


MPSH24



MMBTH24



NPN RF Transistor

This device is designed for common-emitter low noise amplifier and mixer applications with collector currents in the 100 μ A to 20 mA range to 300 MHz, and low frequency drift common-base VHF oscillator applications with high output levels for driving FET mixers. Sourced from Process 47. See MPSH11 for characteristics.

Absolute Maximum Ratings*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V _{CEO}	Collector-Emitter Voltage	30	V
V _{CBO}	Collector-Base Voltage	40	V
V _{EBO}	Emitter-Base Voltage	4.0	V
I _C	Collector Current - Continuous	50	mA
T _J , T _{stg}	Operating and Storage Junction Temperature Range	-55 to +150	°C

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES:

- 1) These ratings are based on a maximum junction temperature of 150 degrees C.
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations

Thermal Characteristics

TA = 25°C unless otherwise noted

Symbol	Characteristic	Max		Units
		MPSH24	*MMBTH24	
P _D	Total Device Dissipation	625	225	mW
	Derate above 25°C	5.0	1.8	mW/°C
R _{θJC}	Thermal Resistance, Junction to Case	83.3		°C/W
R _{θJA}	Thermal Resistance, Junction to Ambient	200	556	°C/W

*Device mounted on FR-4 PCB 1.6" X 1.6" X 0.06."

NPN RF Transistor

(continued)

Electrical Characteristics

TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
OFF CHARACTERISTICS					
$V_{(BR)CEO}$	Collector-Emitter Sustaining Voltage*	$I_C = 1.0 \text{ mA}, I_B = 0$	30		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 100 \text{ } \mu\text{A}, I_E = 0$	40		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10 \text{ } \mu\text{A}, I_C = 0$	4.0		V
I_{CBO}	Collector Cutoff Current	$V_{CB} = 15 \text{ V}, I_E = 0$		50	nA
ON CHARACTERISTICS					
h_{FE}	DC Current Gain	$I_C = 8.0 \text{ mA}, V_{CE} = 10 \text{ V}$	30		
SMALL SIGNAL CHARACTERISTICS					
f_T	Current Gain - Bandwidth Product	$I_C = 8.0 \text{ mA}, V_{CE} = 10 \text{ V},$ $f = 100 \text{ MHz}$	400		MHz
C_{cb}	Collector-Base Capacitance	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1.0 \text{ MHz}$		0.36	pF

*Pulse Test: Pulse Width $\leq 300 \text{ } \mu\text{s}$, Duty Cycle $\leq 2.0\%$

MPSSH24 / NMBTH24