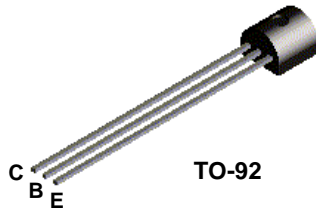


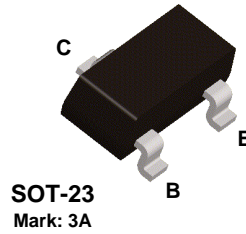


Discrete POWER & Signal Technologies

## MPSH24



## MMBTH24



### NPN RF Transistor

This device is designed for common-emitter low noise amplifier and mixer applications with collector currents in the 100  $\mu$ 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 <sub>CEO</sub>	Collector-Emitter Voltage	30	V
V <sub>CBO</sub>	Collector-Base Voltage	40	V
V <sub>EBO</sub>	Emitter-Base Voltage	4.0	V
I <sub>C</sub>	Collector Current - Continuous	50	mA
T <sub>J</sub> , T <sub>stg</sub>	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 <sub>D</sub>	Total Device Dissipation	625	225	mW
	Derate above 25°C	5.0	1.8	mW/°C
R <sub>θJC</sub>	Thermal Resistance, Junction to Case	83.3		°C/W
R <sub>θJA</sub>	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
<b>OFF CHARACTERISTICS</b>					
$V_{(BR)CEO}$	Collector-Emitter Sustaining Voltage*	$I_C = 1.0 \text{ mA}, I_B = 0$	30		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 100 \mu\text{A}, I_E = 0$	40		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10 \mu\text{A}, I_C = 0$	4.0		V
$I_{CBO}$	Collector Cutoff Current	$V_{CB} = 15 \text{ V}, I_E = 0$		50	nA
<b>ON CHARACTERISTICS</b>					
$h_{FE}$	DC Current Gain	$I_C = 8.0 \text{ mA}, V_{CE} = 10 \text{ V}$	30		
<b>SMALL SIGNAL CHARACTERISTICS</b>					
$f_T$	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  $\leq 300 \mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ 

MPSH24 / NMBTH24

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