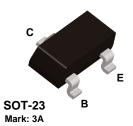


#### Discrete POWER & Signal **Technologies**

# 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
$V_{CEO}$	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

<sup>\*</sup>These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

#### **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
$R_{\theta JC}$	Thermal Resistance, Junction to Case	83.3		°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	200	556	°C/W

<sup>\*</sup>Device mounted on FR-4 PCB 1.6" X 1.6" X 0.06."

<sup>1)</sup> 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

# NPN RF Transistor (continued)

# **Electrical Characteristics**

TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
OEE CHA	RACTERISTICS				
V <sub>(BR)CEO</sub>	Collector-Emitter Sustaining Voltage*	$I_C = 1.0 \text{ mA}, I_B = 0$	30		V
V <sub>(BR)CBO</sub>	Collector-Base Breakdown Voltage	$I_C = 100 \mu\text{A}, I_E = 0$	40		V
V <sub>(BR)EBO</sub>	Emitter-Base Breakdown Voltage	$I_E = 10 \mu A, I_C = 0$	4.0		V
I <sub>CBO</sub>	Collector Cutoff Current	$V_{CB} = 15 \text{ V}, I_{E} = 0$		50	nA
ON CHAF	RACTERISTICS				
h <sub>FE</sub>	DC Current Gain	$I_C = 8.0 \text{ mA}, V_{CE} = 10 \text{ V}$	30		
		$I_C = 8.0 \text{ mA}, V_{CE} = 10 \text{ V}$	30		
	DC Current Gain	$I_C = 8.0 \text{ mA}, V_{CE} = 10 \text{ V}$ $I_C = 8.0 \text{ mA}, V_{CE} = 10 \text{ V},$ $f = 100 \text{ MHz}$	30		MHz

<sup>\*</sup>Pulse Test: Pulse Width  $\leq$  300  $\mu$ s, Duty Cycle  $\leq$  2.0%