

NPN HIGH FREQUENCY TRANSISTOR

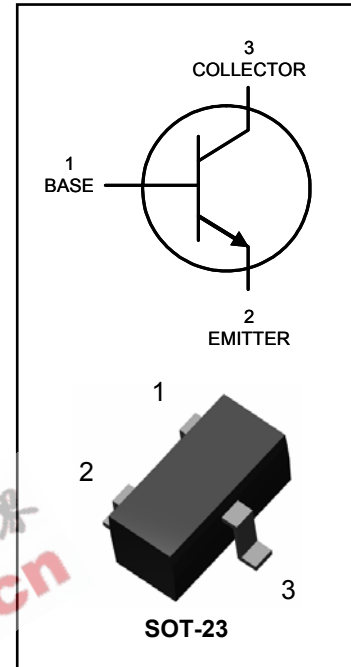
This device is designed for VHF/UHF amplifier applications and high output VHF oscillators.

SPECIFICATION FEATURES

- Guaranteed Minimum Current Gain-Bandwidth Product of 650 MHz
- Collector Currents up to 50mA
- Industry Standard SOT-23 Package

APPLICATIONS

- Low Noise VHF/UHF Amplifiers and Mixers
- Low Frequency Drift, High Output Oscillators



MAXIMUM RATINGS $T_J = 25^\circ\text{C}$

Rating	Symbol	Value	Units
Collector-Emitter Voltage	V_{CE0}	25	V
Collector-Base Voltage	V_{CB0}	30	V
Emitter-Base Voltage	V_{EB0}	3.0	V
Collector Current - Continuous (Note 1)	I_C	50	mA
Power Dissipation (Note 1)	P_D	225	mW
Operating Temperature Range	T_J	-55 to 150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to 150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

CHARACTERISTIC	Symbol	Value	Units
Thermal Resistance - Junction to Ambient (Note 1)	$R_{th JA}$	556	$^\circ\text{C}/\text{W}$

Note 1: Device mounted on FR-5 board 1.0 x 0.75 x 0.062 in. with recommended minimum pad layout



MMBTH10

ELECTRICAL CHARACTERISTICS (T_J = 25°C, unless otherwise noted)

OFF CHARACTERISTICS

Parameter	Symbol	Conditions	Min	Typical	Max	Units
Collector-Emitter Breakdown Voltage	V _{(BR)CE0}	I _C = 1.0 mA, I _B = 0	25	-	-	V
Collector-Base Breakdown Voltage	V _{(BR)CB0}	I _C = 100 μA, I _E = 0	30	-	-	V
Emitter-Base Breakdown Voltage	V _{(BR)EB0}	I _E = 10 μA, I _C = 0	3.0	-	-	V
Collector Cutoff Current	I _{CB0}	V _{CB} = 25 V, I _E = 0	-	-	100	nA
Emitter Cutoff Current	I _{EB0}	V _{EB} = 2.0 V, I _C = 0	-	-	100	nA

ON CHARACTERISTICS

Parameter	Symbol	Conditions	Min	Typical	Max	Units
DC Current Gain	h _{FE}	I _C = 4.0 mA, V _{CE} = 10 V	60	180	-	-
Collector-Emitter Saturation Voltage	V _{CE(sat)}	I _C = 4.0 mA, I _B = 0.4 mA	-	-	0.5	V
Base-Emitter On Voltage	V _{BE}	I _C = 4.0 mA, V _{CE} = 10 V	-	-	0.95	V

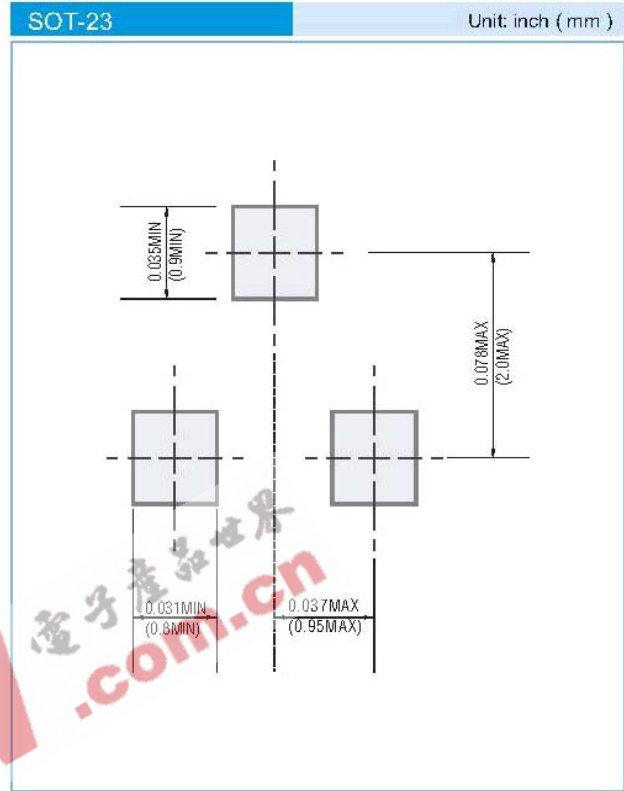
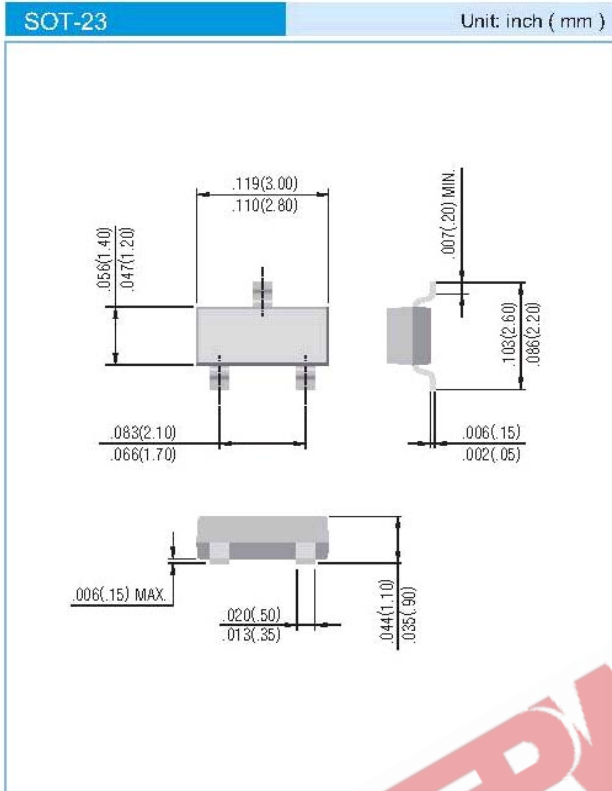
SMALL-SIGNAL CHARACTERISTICS

Parameter	Symbol	Conditions	Min	Typical	Max	Units
Current Gain - Bandwidth Product	f _T	I _C = 4.0 mA, V _{CE} = 10 V f = 1.0 MHz	650	-	-	MHz
Collector-Base Capacitance	C _{cb}	V _{CB} = 10 V, I _E = 0 f = 1.0 MHz	-	-	0.7	pF
Common-Base Feedback Capacitance	C _{rb}	V _{CB} = 10 V, I _E = 0 f = 1.0 MHz	-	-	0.65	pF
Collector-Base Time Constant	rb'C _c	I _C = 4.0 mA, V _{CB} = 10 V f = 31.8 MHz	-	-	9.0	ps



MMBTH10

PACKAGE LAYOUT AND SUGGESTED PAD DIMENSIONS



ORDERING INFORMATION

MMBTH10-T/R7 - 7 inch reel, 3K units per reel

MMBTH10-T/R13 - 13 inch reel, 12K units per reel

Copyright PanJit International, Inc 2005

The information presented in this document is believed to be accurate and reliable. The specifications and information herein are subject to change without notice. Pan Jit makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose. Pan Jit products are not authorized for use in life support devices or systems. Pan Jit does not convey any license under its patent rights or rights of others.