



MMBTH10

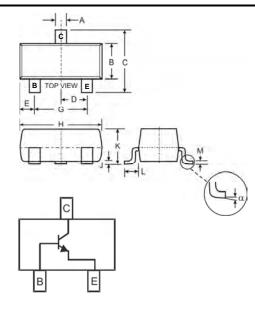
NPN SURFACE MOUNT VHF/UHF TRANSISTOR

Features

- Designed for VHF/UHF Amplifier Applications and High Output VHF Oscillators
- High Current Gain Bandwidth Product
- Ideal for Mixer and RF Amplifier Applications with collector currents in the 100µA 30 mA Range
- Lead, Halogen and Antimony Free, RoHS Compliant "Green" Device (Notes 3 and 4)
- Qualified to AEC-Q101 Standards for High Reliability

Mechanical Data

- Case: SOT-23
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- Marking Information: K3H, K3Y; See Page 3
- Ordering Information: See Page 3
- Weight: 0.008 grams (approximate)



SOT-23									
Dim	Min	Max							
Α	0.37	0.51							
В	1.20	1.40							
С	2.30	2.50							
D	0.89	1.03							
Е	0.45	0.60							
G	1.78	2.05							
н	2.80	3.00							
J	0.013	0.10							
к	0.903	1.10							
L	0.45	0.61							
М	0.085	0.180							
α	0°	8°							
All Dimensions in mm									

Maximum Ratings $@T_A = 25^{\circ}C$ unless otherwise specified

Characteristic	Symbol	Value	Unit		
Collector-Base Voltage	V _{CBO}	30	V		
Collector-Emitter Voltage	V _{CEO}	25	V		
Emitter-Base Voltage	V _{EBO}	3.0	V		
Collector Current - Continuous (Note 1)	I _C	50	mA		
Power Dissipation (Note 1)	PD	300	mW		
Thermal Resistance, Junction to Ambient (Note 1)	R _{0JA}	417	°C/W		
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	٥C		

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 2)					•
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	25	_	V	$I_{\rm C} = 1 {\rm mA}, \ I_{\rm B} = 0$
Collector-Base Breakdown Voltage	V _{(BR)CBO}	30	_	V	$I_{\rm C} = 100 \mu A, I_{\rm E} = 0$
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	3.0	_	V	$I_{E} = 10 \mu A, I_{C} = 0$
Collector Cutoff Current	I _{CBO}	_	100	nA	$V_{CB} = 25V, I_E = 0$
Emitter Cutoff Current	I _{EBO}	_	100	nA	$V_{EB} = 2V, I_{C} = 0$
ON CHARACTERISTICS (Note 2)					
DC Current Gain	h _{FE}	60	_	_	I _C = 4mA, V _{CE} = 10.0V
Collector-Emitter Saturation Voltage	V _{CE(SAT)}	_	0.5	V	$I_{C} = 4mA, I_{B} = 400\mu A$
Base-Emitter On Voltage	V _{BE(SAT)}	_	0.95	V	I _C = 4mA, V _{CE} = 10.0V
SMALL SIGNAL CHARACTERISTICS					•
Current Gain-Bandwidth Product	f _T	650	_	MHz	$V_{CE} = 10V, f = 100MHz, I_{C} = 4mA$
Collector-Base Capacitance	C _{CB}	_	0.7	pF	$V_{CB} = 10V, f = 1.0MHz, I_E = 0$
Collector-Base Feedback Capacitance	C _{RB}	_	0.65	pF	$V_{CB} = 10V, f = 1.0MHz, I_E = 0$
Collector-Base Time Constant	Rb'Cc		9	ps	V _{CB} = 10V, f = 31.8MHz, I _C = 4mA

Notes: 1. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch, pad layout as shown on Diodes Inc. suggested pad layout

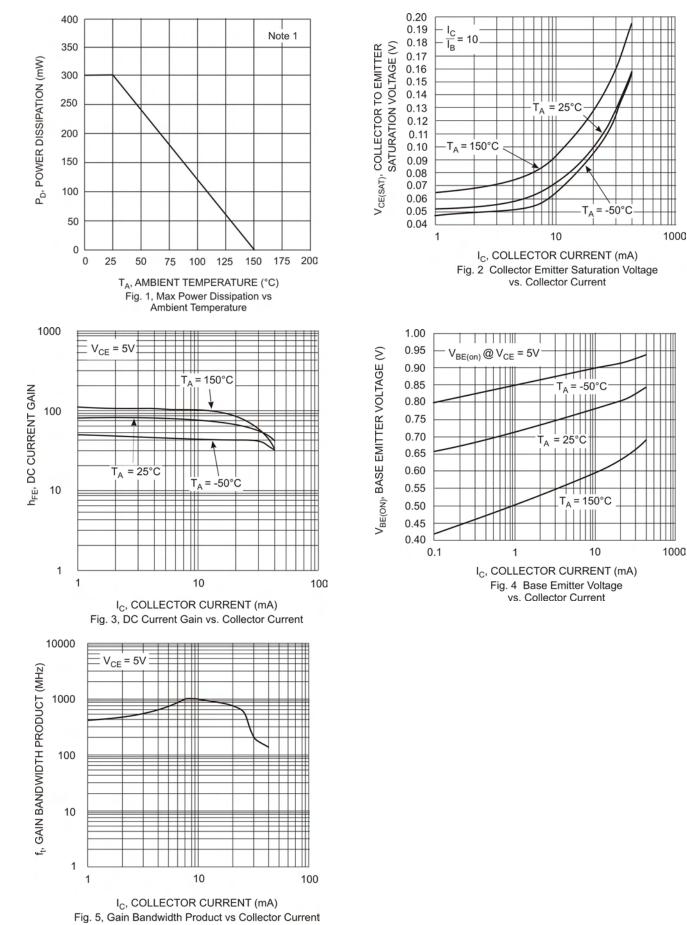
document AP02001, which can be found on our website at http://www.diodes.com/datasheets/ap02001.pdf.

2. Short duration pulse test used to minimize self-heating effect.

3. No purposefully added lead. Halogen and Antimony Free.

 Product manufactured with Data Code V9 (week 33, 2008) and newer are built with Green Molding Compound. Product manufactured prior to Date V9 are built with Non-Green Molding Compound and may contain Halogens or Sb₂O₃ Fire Retardants.





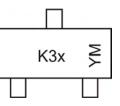


Ordering Information (Note 5)

Device	Packaging	Shipping
MMBTH10-7-F	SOT-23	3000/Tape & Reel

Notes: 5. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



K3x = Product Type Marking Code, e.g. K3H YM = Date Code Marking Y = Year ex: N = 2002 M = Month ex: 9 = September

Date Code Key

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Code	J	К	L	М	Ν	Р	R	S	Т	U	V	W	Х	Y	Z
Month	Jan	Fe	b I	Mar	Apr	Мау	Ju	n	Jul	Aug	Sep	Oc	t l	Vov	Dec
Code	1	2		3	4	5	6		7	8	9	0		Ν	D

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