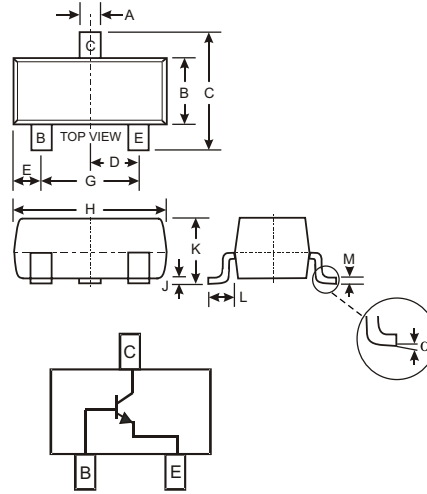


Features

- 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 100 μ A - 30 mA Range
- Also Available in Lead Free Version

Mechanical Data

- Case: SOT-23, Molded Plastic
- Case material - UL Flammability Rating 94V-0
- Moisture sensitivity: Level 1 per J-STD-020A
- Terminals: Solderable per MIL-STD-202, Method 208
- Also Available in Lead Free Plating (Matte Tin Finish). Please see Ordering Information, Note 4, on Page 2
- Terminal Connections: See Diagram
- Marking (See Page 2): K3Z
- Ordering & Date Code Information: See Page 2
- Weight: 0.008 grams (approx.)



SOT-23		
Dim	Min	Max
A	0.37	0.51
B	1.20	1.40
C	2.30	2.50
D	0.89	1.03
E	0.45	0.60
G	1.78	2.05
H	2.80	3.00
J	0.013	0.10
K	0.903	1.10
L	0.45	0.61
M	0.085	0.180
α	0°	8°
All Dimensions in mm		

Maximum Ratings @ T_A = 25°C unless otherwise specified

Characteristic	Symbol	MMBTH24	Unit
Collector-Base Voltage	V _{CBO}	40	V
Collector-Emitter Voltage	V _{CEO}	40	V
Emitter-Base Voltage	V _{EBO}	4.0	V
Collector Current - Continuous (Note 1)	I _C	50	mA
Power Dissipation (Note 1)	P _d	300	mW
Thermal Resistance, Junction to Ambient (Note 1)	R _{θJA}	417	°C/W
Operating and Storage and Temperature Range	T _j , T _{STG}	-55 to +150	°C

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}	40	—	V	I _C = 1mA, I _B = 0
Collector-Base Breakdown Voltage	V _{(BR)CBO}	40	—	V	I _C = 100 μ A, I _E = 0
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	4.0	—	V	I _E = 10 μ A, I _C = 0
Collector Cutoff Current	I _{CBO}	—	100	nA	V _{CB} = 30V, 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}	30	—	—	I _C = 8mA, V _{CE} = 10.0V
Collector-Emitter Saturation Voltage	V _{CE(SAT)}	—	0.5	V	I _C = 4mA, I _B = 400 μ 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	400	—	MHz	V _{CE} = 10V, f = 100MHz, I _C = 8mA
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	R _b 'C _c	—	9	ps	I _C = 4mA V _{CB} = 10V, f = 31.8MHz

Note: 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>.

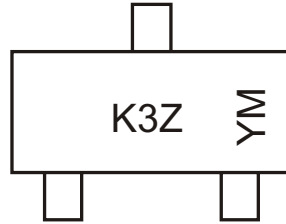
2. Short duration test pulse used to minimize self-heating effect.

Ordering Information (Note 3)

Device	Packaging	Shipping
MMBTH24-7	SOT-23	3000/Tape & Reel

- Notes: 3. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.
 4. For Lead Free version (with Lead Free terminal finish) part number, please add "-F" suffix to part number above.
 Example: MMBTH24-7-F.

Marking Information



K3Z = Product Type Marking Code
 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
Code	J	K	L	M	N	P	R	S	T	U	V	W

Month	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

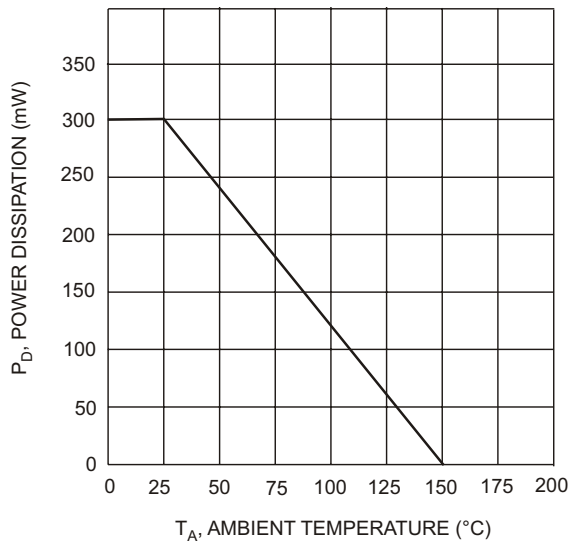


Fig. 1, Max Power Dissipation vs Ambient Temperature

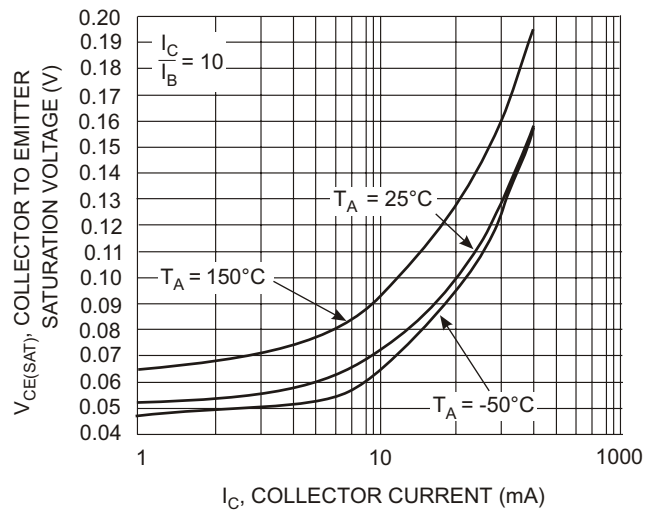


Fig. 2 Collector Emitter Saturation Voltage vs. Collector Current

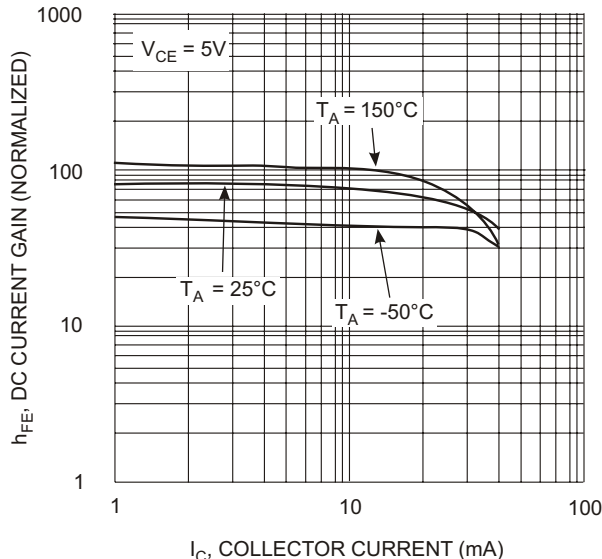


Fig. 3, DC Current Gain vs. Collector Current

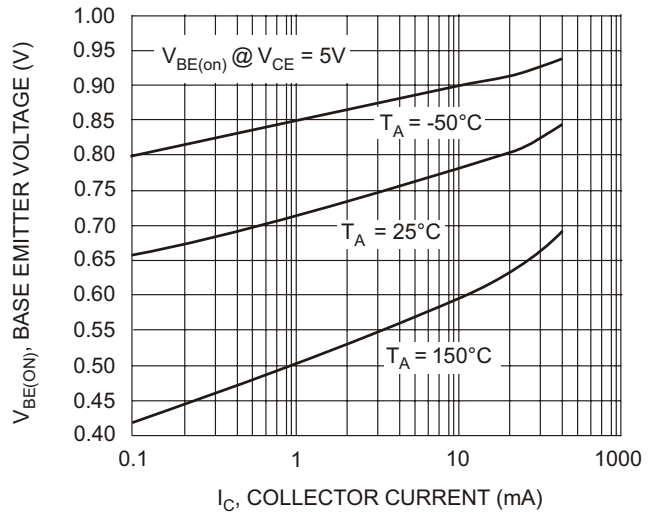


Fig. 4 Base Emitter Voltage vs. Collector Current

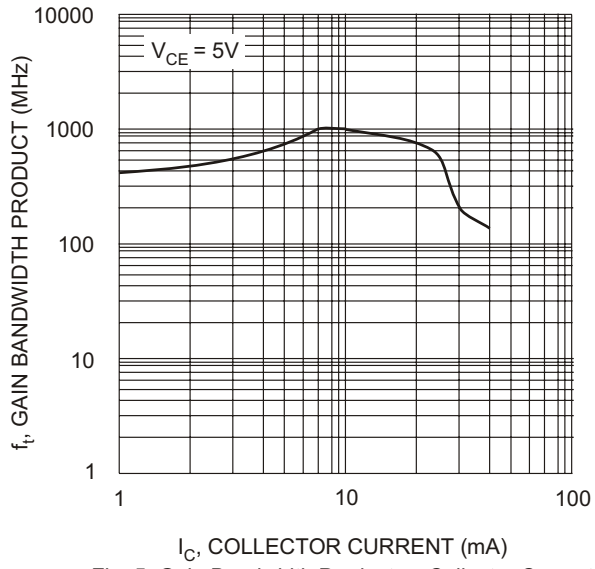


Fig. 5, Gain Bandwidth Product vs Collector Current