



MMBTH24

NPN SURFACE MOUNT VHF/UHF TRANSISTOR

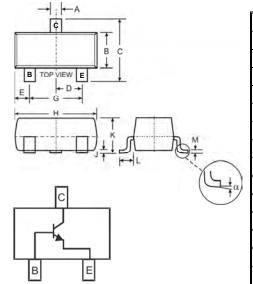
Features

- 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)

Mechanical Data

- Case: SOT-23 .
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- 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: See Page 3
- Ordering Information: See Page 3
- Weight: 0.008 grams (approximate)

Maximum Ratings @T_A = 25°C unless otherwise specified



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 3.00							
н	2.80								
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									

Characteristic	Symbol	Value	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)	Ic	50	mA		
Power Dissipation (Note 1)	Pd	300	mW		
Thermal Resistance, Junction to Ambient (Note 1)	R _{AJA}	417	°C/W		
Operating and Storage Temperature Range	T _i , 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	$I_{\rm C} = 1 {\rm mA}, I_{\rm B} = 0$					
Collector-Base Breakdown Voltage	V _{(BR)CBO}	40		V	$I_{C} = 100 \mu A, I_{E} = 0$					
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	4.0		V	$I_{E} = 10 \mu A, I_{C} = 0$					
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	$I_{C} = 4mA, I_{B} = 400\mu A$					
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	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	Rb'Cc		9	ps	I _C = 4mA, V _{CB} = 10V, f = 31.8MHz					

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 Notes: 1.

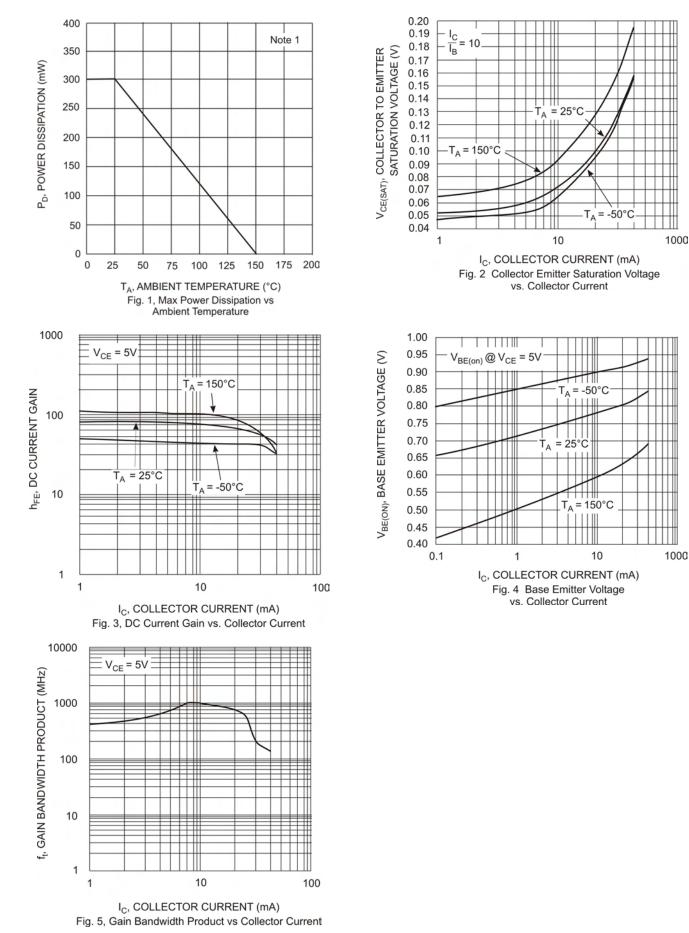
document AP02001, which can be found on our website at http://www.diodes.com/datasheets/ap02001.pdf.

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

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 Code 4 V9 are built with Non-Green Molding Compound and may contain Halogens or Sb₂O₃ Fire Retardants.





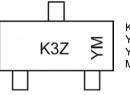


Ordering Information (Note 5)

Device	Packaging	Shipping			
MMBTH24-7-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



 $\begin{array}{l} \mathsf{K3Z}=\mathsf{Product}\ \mathsf{Type}\ \mathsf{Marking}\ \mathsf{Code}\\ \mathsf{YM}=\mathsf{Date}\ \mathsf{Code}\ \mathsf{Marking}\\ \mathsf{Y}=\mathsf{Year}\ \mathsf{ex:}\ \mathsf{N}=2002\\ \mathsf{M}=\mathsf{Month}\ \mathsf{ex:}\ 9=\mathsf{September} \end{array}$

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	lov	Dec
Code	1	2		3	4	5	6		7	8	9	0		Ν	D

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