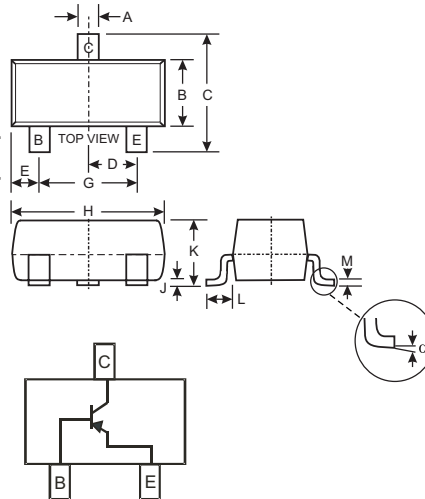


Features

- Epitaxial Planar Die Construction
- Complementary NPN Types Available (MMBTA05 / MMBTA06)
- Ideal for Medium Power Amplification and Switching
- **Lead Free/RoHS Compliant (Note 3)**
- **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-020C
- Terminal Connections: See Diagram
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- MMBTA55 Marking (See Page 2): K2H
- MMBTA56 Marking (See Page 2): K2G
- Ordering & Date Code Information: See Page 2
- Weight: 0.008 grams (approximate)



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	MMBTA55	MMBTA56	Unit
Collector-Base Voltage	V _{CBO}	-60	-80	V
Collector-Emitter Voltage	V _{CEO}	-60	-80	V
Emitter-Base Voltage	V _{EBO}	-4.0		V
Collector Current - Continuous (Note 1)	I _C	-500		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-Base Breakdown Voltage	MMBTA55 MMBTA56 V _{(BR)CBO}	-60 -80	—	V	I _C = -100μA, I _E = 0
Collector-Emitter Breakdown Voltage	MMBTA55 MMBTA56 V _{(BR)CEO}	-60 -80	—	V	I _C = -1.0mA, I _B = 0
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	-4.0	—	V	I _E = -100μA, I _C = 0
Collector Cutoff Current	MMBTA55 MMBTA56 I _{CBO}	—	-100	nA	V _{CB} = -60V, I _E = 0 V _{CB} = -80V, I _E = 0
Collector Cutoff Current	MMBTA55 MMBTA56 I _{CEx}	—	-100	nA	V _{CE} = -60V, I _{BO} = 0V V _{CE} = -80V, I _{BO} = 0V
ON CHARACTERISTICS (Note 2)					
DC Current Gain	h _{FE}	100	—	—	I _C = -10mA, V _{CE} = -1.0V I _C = -100mA, V _{CE} = -1.0V
Collector-Emitter Saturation Voltage	V _{CE(SAT)}	—	-0.25	V	I _C = -100mA, I _B = -10mA
Base-Emitter Saturation Voltage	V _{BE(SAT)}	—	-1.2	V	I _C = -100mA, V _{CE} = -1.0V
SMALL SIGNAL CHARACTERISTICS					
Current Gain-Bandwidth Product	f _T	50	—	MHz	V _{CE} = -1.0V, I _C = -100mA, f = 100MHz

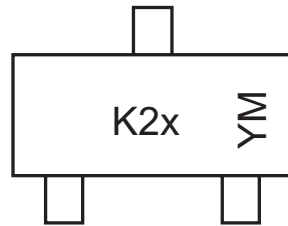
- Notes: 1. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch; pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.
2. Short duration test pulse used to minimize self-heating effect.
3. No purposefully added lead.

Ordering Information (Note 4)

Device	Packaging	Shipping
MMBTA55-7-F MMBTA56-7-F	SOT-23	3000/Tape & Reel

Notes: 4. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information

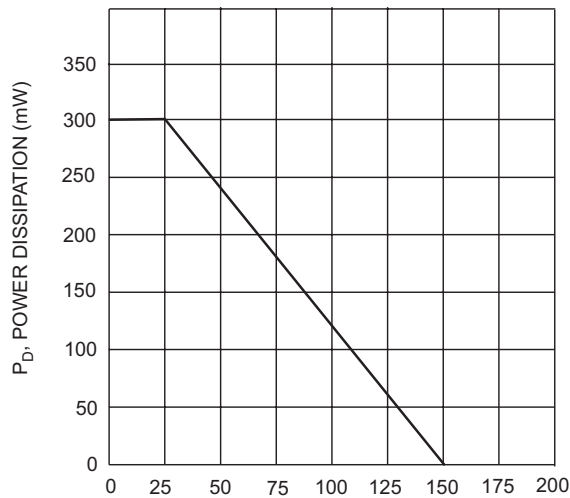


K2x = Product Type Marking Code, ex: K2H = MMBTA55
 YM = Date Code Marking
 Y = Year ex: N = 2002
 M = Month ex: 9 = September

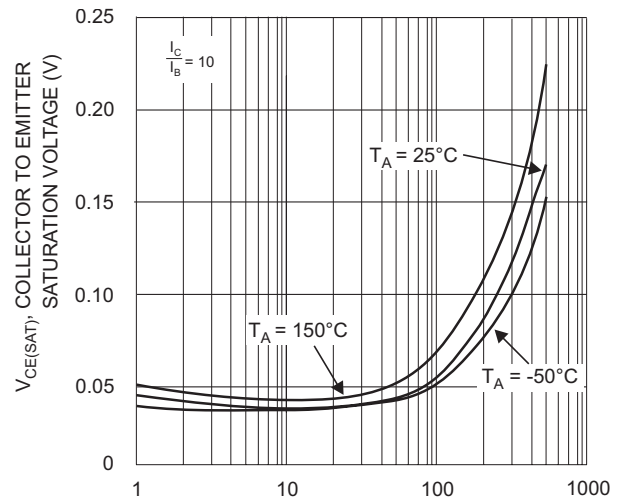
Date Code Key

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



T_A, AMBIENT TEMPERATURE (°C)
 Fig. 1, Max Power Dissipation vs Ambient Temperature



I_C, COLLECTOR CURRENT (mA)
 Fig. 2, Collector Emitter Saturation Voltage vs. Collector Current

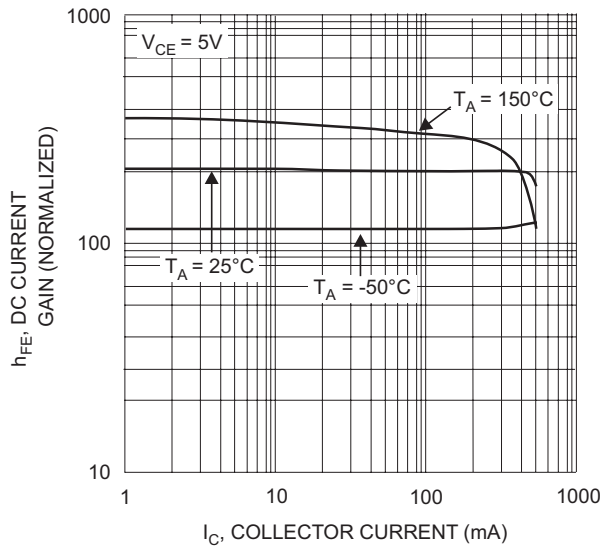


Fig. 3, DC Current Gain vs Collector Current

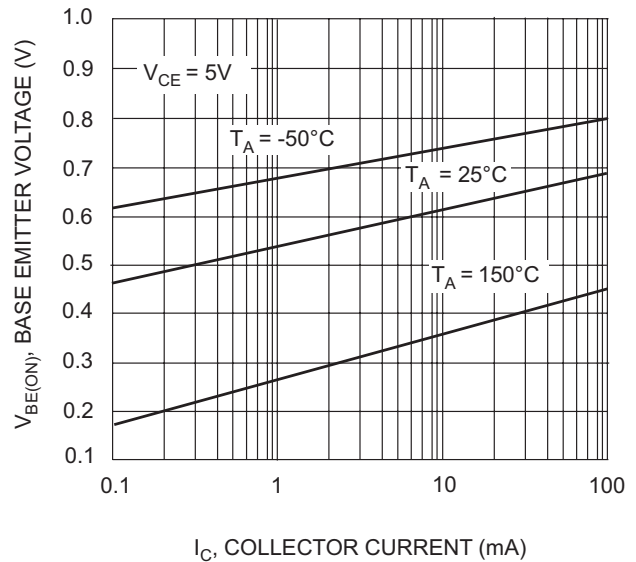


Fig. 4 Base Emitter Voltage vs. Collector Current

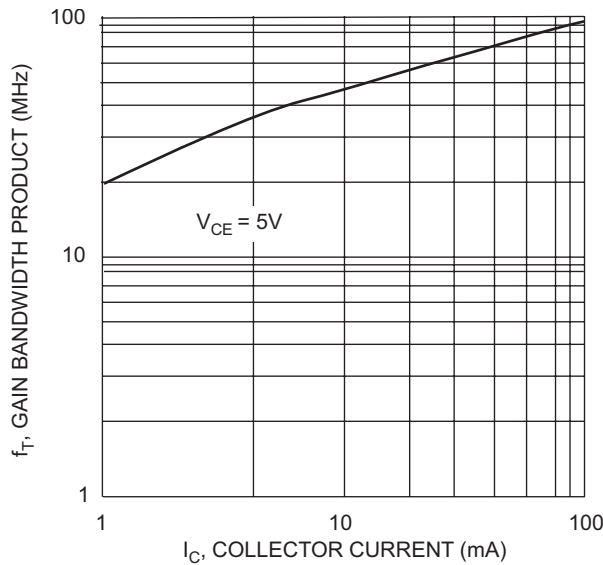


Fig. 5 Gain Bandwidth Product vs. Collector Current

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