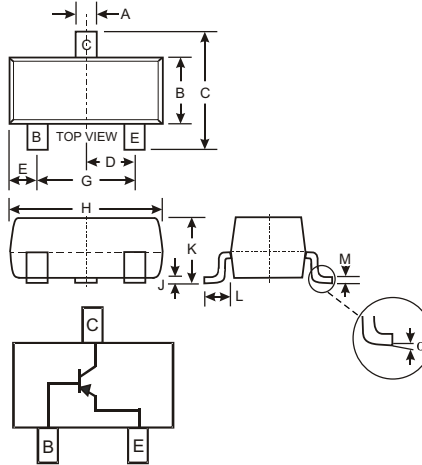


Features

- Epitaxial Planar Die Construction
- Complementary NPN Type Available (MMBT5551)
- Ideal for Medium Power Amplification and Switching
- Lead Free/RoHS Compliant (Note 2)

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).
- Marking (See Page 2): K4M
- 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
	0	8
All Dimensions in mm		

Maximum Ratings @ T_A = 25 C unless otherwise specified

Characteristic	Symbol	MMBT5401	Unit
Collector-Base Voltage	V _{CBO}	-160	V
Collector-Emitter Voltage	V _{CEO}	-150	V
Emitter-Base Voltage	V _{EB0}	-5.0	V
Collector Current - Continuous (Note 1)	I _C	-200	mA
Power Dissipation (Note 1)	P _d	300	mW
Thermal Resistance, Junction to Ambient (Note 1)	R _{JA}	417	C/W
Operating and Storage and Temperature Range	T _J , T _{STG}	-55 to +150	C

- 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. No purposefully added lead.

Electrical Characteristics @ T_A = 25 C unless otherwise specified

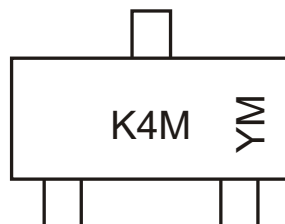
Characteristic	Symbol	Min	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 3)					
Collector-Base Breakdown Voltage	V _{(BR)CBO}	-160		V	I _C = -100 A, I _E = 0
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	-150		V	I _C = -1.0mA, I _B = 0
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	-5.0		V	I _E = -10 A, I _C = 0
Collector Cutoff Current	I _{CBO}		-50	nA A	V _{CB} = -120V, I _E = 0 V _{CB} = -120V, I _E = 0, T _A = 100 C
Emitter Cutoff Current	I _{EBO}		-50	nA	V _{EB} = -3.0V, I _C = 0
ON CHARACTERISTICS (Note 3)					
DC Current Gain	h _{FE}	50 60 50	240		I _C = -1.0mA, V _{CE} = -5.0V I _C = -10mA, V _{CE} = -5.0V I _C = -50mA, V _{CE} = -5.0V
Collector-Emitter Saturation Voltage	V _{CE(SAT)}		-0.2 -0.5	V	I _C = -10mA, I _B = -1.0mA I _C = -50mA, I _B = -5.0mA
Base-Emitter Saturation Voltage	V _{BE(SAT)}		-1.0	V	I _C = -10mA, I _B = -1.0mA I _C = -50mA, I _B = -5.0mA
SMALL SIGNAL CHARACTERISTICS					
Output Capacitance	C _{obo}		6.0	pF	V _{CB} = -10V, f = 1.0MHz, I _E = 0
Small Signal Current Gain	h _{fe}	40	200		V _{CE} = -10V, I _C = -1.0mA, f = 1.0kHz
Current Gain-Bandwidth Product	f _T	100	300	MHz	V _{CE} = -10V, I _C = -10mA, f = 100MHz
Noise Figure	NF		8.0	dB	V _{CE} = -5.0V, I _C = -200 A, R _S = 10 Ω f = 1.0kHz

Ordering Information (Note 4)

Device	Packaging	Shipping
MMBT5401-7-F	SOT-23	3000/Tape & Reel

- Notes: 3. Short duration test pulse used to minimize self-heating effect.
4. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

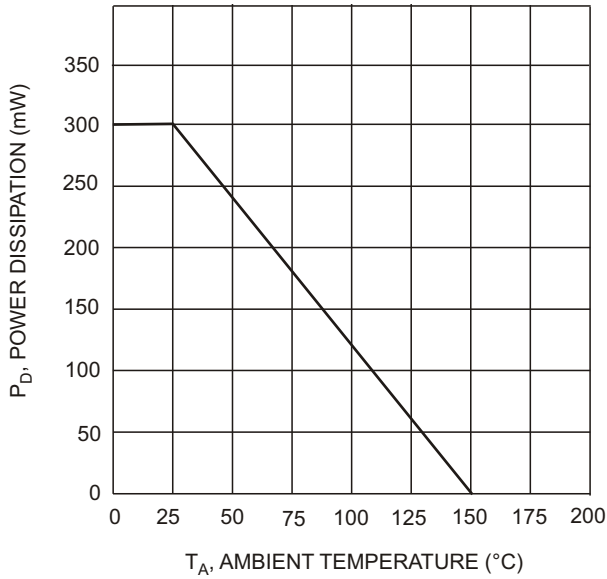
Marking Information



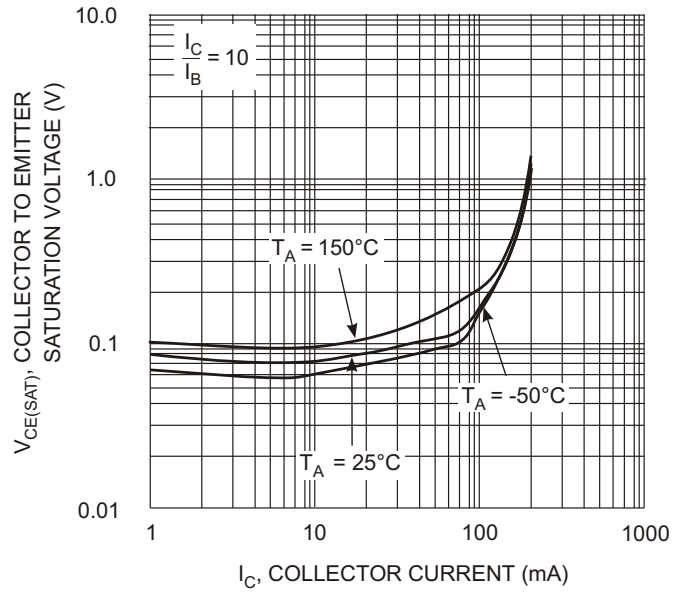
K4M = Product Type Marking Code
YM = Date Code Marking
Y = Year ex: N = 2002
M = Month ex: 9 = September

Date Code Key

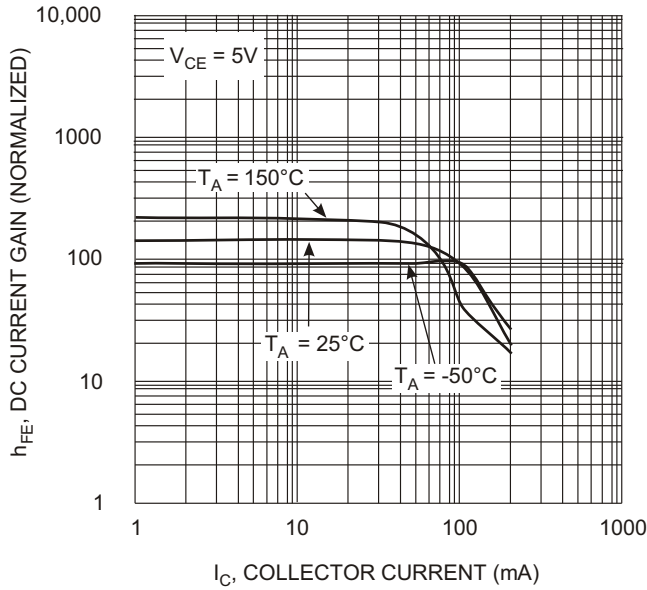
Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Code	J	K	L	M	N	P	R	S	T	U	V	W
Month	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D



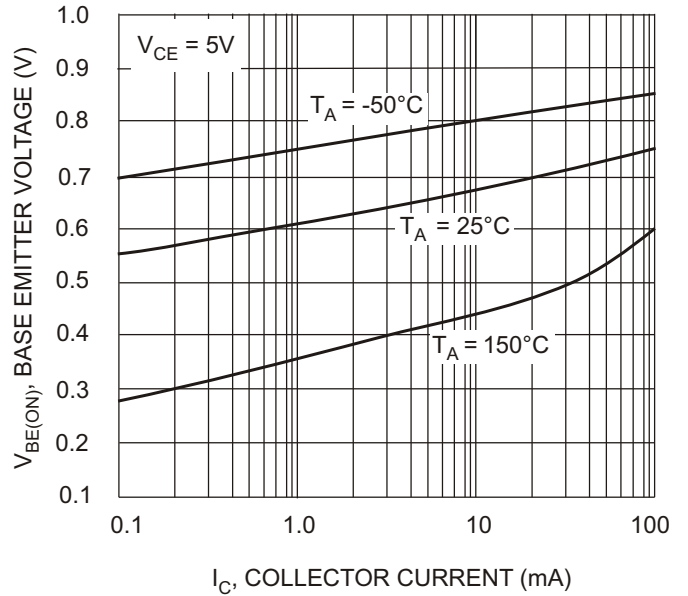
T_A , AMBIENT TEMPERATURE (°C)
Fig. 1, Max Power Dissipation vs Ambient Temperature



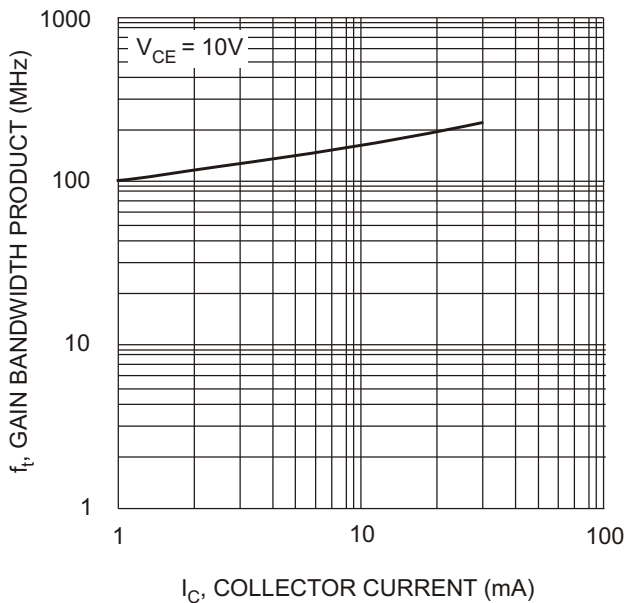
I_C , COLLECTOR CURRENT (mA)
Fig. 2, Collector Emitter Saturation Voltage vs. Collector Current



I_C , COLLECTOR CURRENT (mA)
Fig. 3, DC Current Gain vs. Collector Current



I_C , COLLECTOR CURRENT (mA)
Fig. 4, Base Emitter Voltage vs. Collector Current



I_C , COLLECTOR CURRENT (mA)
Fig. 5, Gain Bandwidth Product vs Collector Current

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