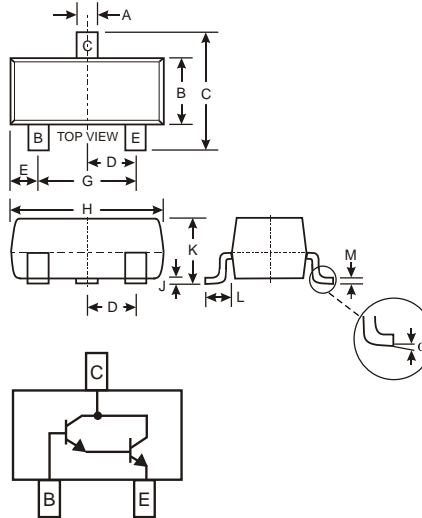


### Features

- Epitaxial Planar Die Construction
- Ideal for Low Power Amplification and Switching
- High Current Gain
- **Lead Free/RoHS Compliant (Note 3)**

### 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 3): K6R
- Ordering & Date Code Information: See Page 3
- 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<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CB0</sub>	80	V
Collector-Emitter Voltage	V <sub>CEO</sub>	80	V
Emitter-Base Voltage	V <sub>EBO</sub>	12	V
Collector Current - Continuous	I <sub>C</sub>	500	mA
Power Dissipation (Note 1)	P <sub>d</sub>	300	mW
Thermal Resistance, Junction to Ambient (Note 1)	R <sub>JA</sub>	417	°C/W
Operating and Storage and Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

### Electrical Characteristics @ T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Min	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 2)</b>					
Collector-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	80		V	I <sub>C</sub> = 100µA, I <sub>E</sub> = 0
Emitter-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	12		V	I <sub>E</sub> = 100µA, I <sub>C</sub> = 0
Collector-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	80		V	I <sub>C</sub> = 100µA, I <sub>B</sub> = 0
Collector Cutoff Current	I <sub>CB0</sub>		100	nA	V <sub>CB</sub> = 60V, I <sub>E</sub> = 0
	I <sub>CES</sub>		500	nA	V <sub>CE</sub> = 10V
Emitter Cutoff Current	I <sub>EBO</sub>		100	nA	V <sub>EB</sub> = 10V, I <sub>C</sub> = 0
<b>ON CHARACTERISTICS (Note 2)</b>					
DC Current Gain	h <sub>FE</sub>	10,000 10,000			I <sub>C</sub> = 10mA, V <sub>CE</sub> = 5.0V I <sub>C</sub> = 100mA, V <sub>CE</sub> = 5.0V
Collector-Emitter Saturation Voltage	V <sub>CE(SAT)</sub>		1.5	V	I <sub>C</sub> = 100mA, I <sub>B</sub> = 100µA
Base-Emitter Saturation Voltage	V <sub>BE(SAT)</sub>		2.0	V	I <sub>C</sub> = 100mA, V <sub>CE</sub> = 5.0V
<b>SMALL SIGNAL CHARACTERISTICS</b>					
Output Capacitance	C <sub>obo</sub>	8.0 Typical		pF	V <sub>CB</sub> = 10V, f = 1.0MHz, I <sub>E</sub> = 0
Input Capacitance	C <sub>ibo</sub>	15 Typical		pF	V <sub>EB</sub> = 0.5V, f = 1.0MHz, I <sub>C</sub> = 0
Current Gain-Bandwidth Product	f <sub>T</sub>	125		MHz	V <sub>CE</sub> = 5.0V, I <sub>C</sub> = 10mA, f = 100MHz

Notes: 1. Device mounted on FR-4 PCB, 1.6x1.6x0.06 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.

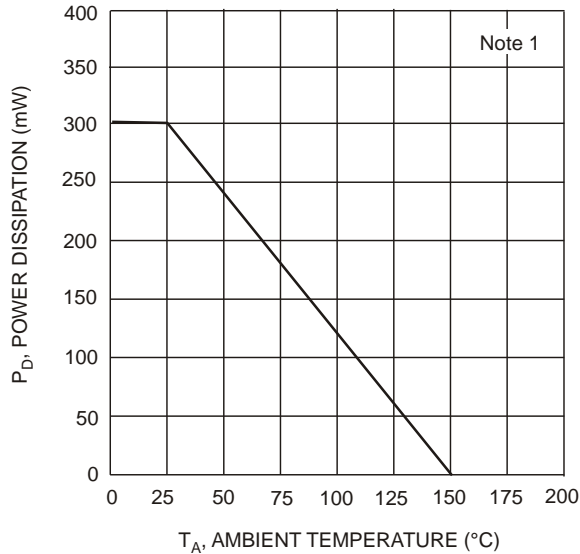


Fig. 1, Max Power Dissipation vs Ambient Temperature

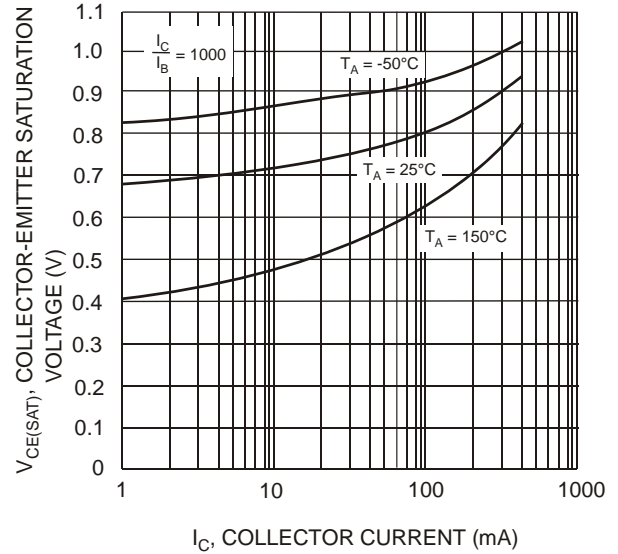


Fig. 2 Typical Collector-Emitter Saturation Voltage vs. Collector Current

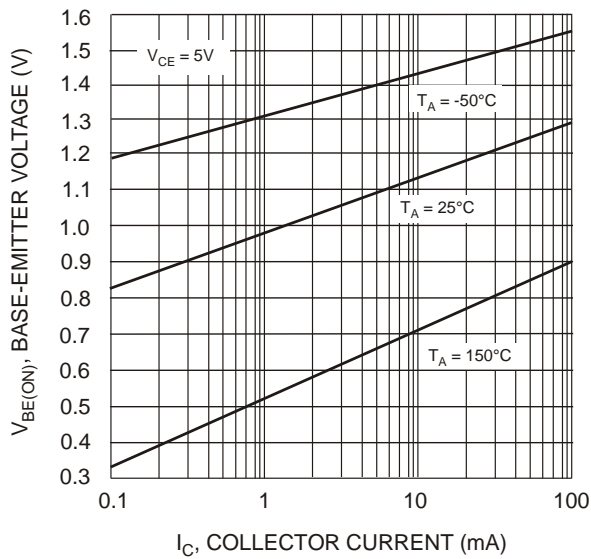


Fig. 3 Typical Base-Emitter Voltage vs. Collector Current

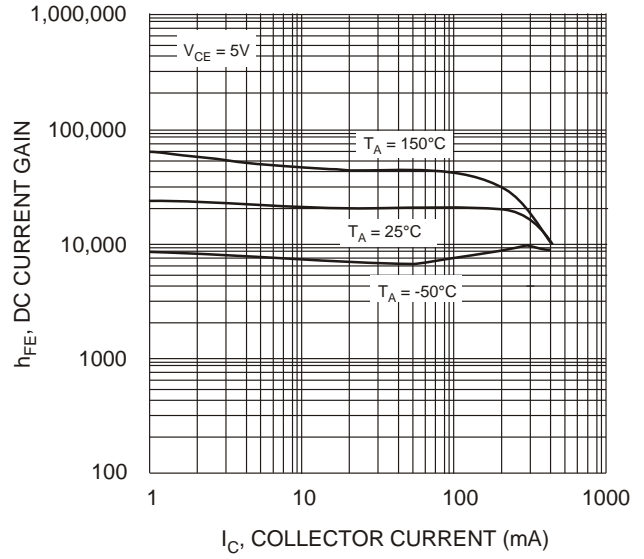


Fig. 4 Typical DC Current Gain vs. Collector Current

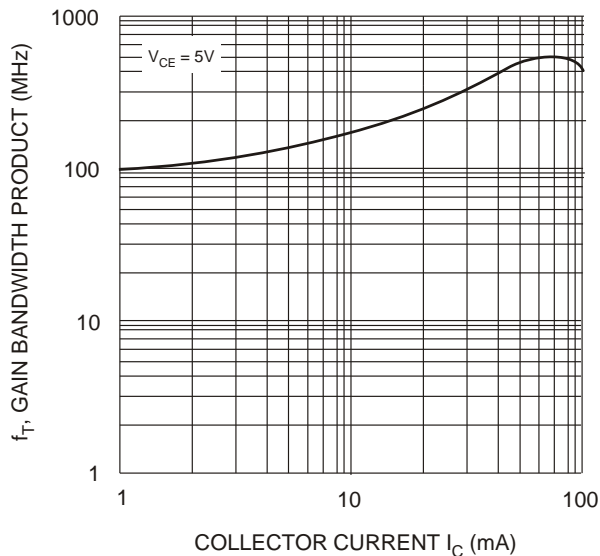


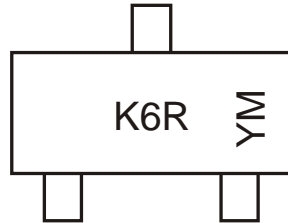
Fig. 5 Typical Gain Bandwidth Product vs. Collector Current

## Ordering Information (Note 4)

Device	Packaging	Shipping
MMBTA28-7-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



K6R = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year ex: T = 2006  
 M = Month ex: 9 = September

### Date Code Key

Year	2006	2007	2008	2009	2010	2011	2012
Code	T	U	V	W	X	Y	Z

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

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