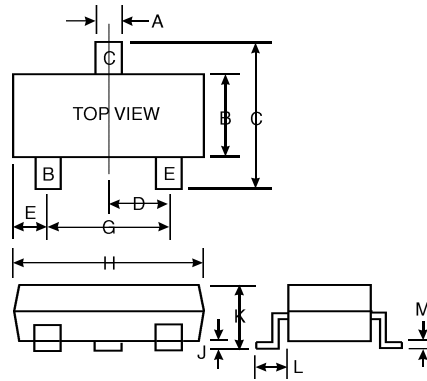


### Features

Epitaxial Planar Die Construction  
Complementary PNP Types Available  
(MMBTA63 / MMBTA64)  
Ideal for Medium Power Amplification and  
Switching  
High Current Gain

### Mechanical Data

Case: SOT-23, Molded Plastic  
Terminals: Solderable per MIL-STD-202,  
Method 208  
Terminal Connections: See Diagram  
MMBTA13 Marking: K2D, R1M  
MMBTA14 Marking: K3D, R1N  
Weight: 0.008 grams (approx.)



SOT-23		
Dim	Min	Max
A	0.37	0.51
B	1.19	1.40
C	2.10	2.50
D	0.89	1.05
E	0.45	0.61
G	1.78	2.05
H	2.65	3.05
J	0.013	0.15
K	0.89	1.10
L	0.45	0.61
M	0.076	0.178
All Dimensions in mm		

### Maximum Ratings @ T<sub>A</sub> = 25 C unless otherwise specified

Characteristic	Symbol	MMBTA13	MMBTA14	Unit
Collector-Base Voltage	V <sub>CB0</sub>	30		V
Collector-Emitter Voltage	V <sub>CEO</sub>	30		V
Emitter-Base Voltage	V <sub>EBO</sub>	10		V
Collector Current - Continuous (Note 1)	I <sub>C</sub>	300		mA
Power Dissipation (Note 1)	P <sub>d</sub>	350		mW
Thermal Resistance, Junction to Ambient (Note 1)	R <sub>JA</sub>	357		K/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
OFF CHARACTERISTICS (Note 2)					
Collector-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	30		V	I <sub>C</sub> = 100 A, V <sub>BE</sub> = 0V
Collector Cutoff Current	I <sub>CB0</sub>		100	nA	V <sub>CB</sub> = 30V, I <sub>E</sub> = 0
Emitter Cutoff Current	I <sub>EBO</sub>		100	nA	V <sub>EB</sub> = 10V, I <sub>C</sub> = 0
ON CHARACTERISTICS (Note 2)					
DC Current Gain	MMBTA13 MMBTA14 MMBTA13 MMBTA14 h <sub>FE</sub>	5,000 10,000 10,000 20,000			I <sub>C</sub> = 10mA, V <sub>CE</sub> = 5.0V I <sub>C</sub> = 10mA, V <sub>CE</sub> = 5.0V I <sub>C</sub> = 100mA, 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> = 100 A
Base- Emitter Saturation Voltage	V <sub>BE(SAT)</sub>		2.0	V	I <sub>C</sub> = 100mA, V <sub>CE</sub> = 5.0V
SMALL SIGNAL CHARACTERISTICS					
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

- Note:
- Valid provided that terminals are kept at ambient temperature.
  - Pulse test: Pulse width 300 s, duty cycle 2%.