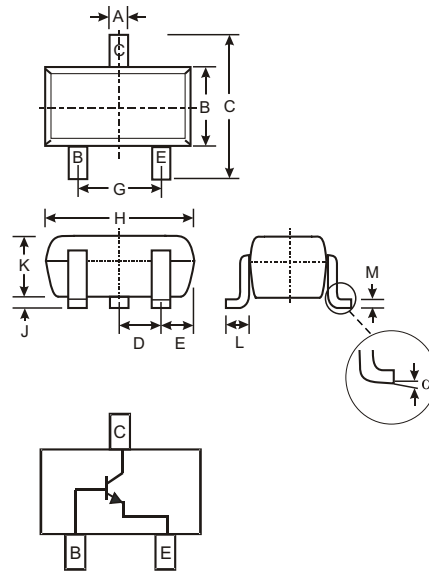


### Features

- Epitaxial Planar Die Construction
- Complementary PNP Type Available (MMSTA92)
- Ideal for Medium Power Amplification and Switching
- Ultra-Small Surface Mount Package

### Mechanical Data

- Case: SOT-323, Molded Plastic
- Case Material - UL Flammability Rating 94V-0
- Moisture sensitivity: Level 1 per J-STD-020A
- Terminals: Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Marking (See Page 2): K3M
- Ordering & Date Code Information: See Page 2
- Weight: 0.006 grams (approx.)



SOT-323		
Dim	Min	Max
A	0.25	0.40
B	1.15	1.35
C	2.00	2.20
D	0.65 Nominal	
E	0.30	0.40
G	1.20	1.40
H	1.80	2.20
J	0.0	0.10
K	0.90	1.00
L	0.25	0.40
M	0.10	0.18
$\alpha$	0°	8°
All Dimensions in mm		

### Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	MMSTA42	Unit
Collector-Base Voltage	$V_{CBO}$	300	V
Collector-Emitter Voltage	$V_{CEO}$	300	V
Emitter-Base Voltage	$V_{EBO}$	6.0	V
Collector Current (Note 1)	$I_C$	200	mA
Power Dissipation (Note 1)	$P_d$	200	mW
Thermal Resistance, Junction to Ambient (Note 1)	$R_{\theta JA}$	625	$^\circ\text{C}/\text{W}$
Operating and Storage and Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

Note: 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>.

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

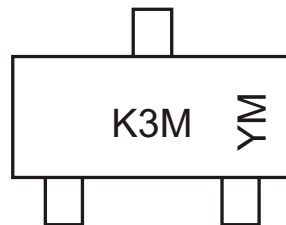
Characteristic	Symbol	Min	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 2)</b>					
Collector-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	300	—	V	I <sub>C</sub> = 100μA, I <sub>E</sub> = 0
Collector-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	300	—	V	I <sub>C</sub> = 1.0mA, I <sub>B</sub> = 0
Emitter-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	6.0	—	V	I <sub>E</sub> = 100μA, I <sub>C</sub> = 0
Collector Cutoff Current	I <sub>CBO</sub>	—	100	nA	V <sub>CB</sub> = 200V, I <sub>E</sub> = 0
Collector Cutoff Current	I <sub>EBO</sub>	—	100	nA	V <sub>CE</sub> = 6.0V, I <sub>C</sub> = 0
<b>ON CHARACTERISTICS (Note 2)</b>					
DC Current Gain	h <sub>FE</sub>	25 40 40	—	—	I <sub>C</sub> = 1.0mA, V <sub>CE</sub> = 10V I <sub>C</sub> = 10mA, V <sub>CE</sub> = 10V I <sub>C</sub> = 30mA, V <sub>CE</sub> = 10V
Collector-Emitter Saturation Voltage	V <sub>CE(SAT)</sub>	—	0.5	V	I <sub>C</sub> = 20mA, I <sub>B</sub> = 2.0mA
Base- Emitter Saturation Voltage	V <sub>BE(SAT)</sub>	—	0.9	V	I <sub>C</sub> = 20mA, I <sub>B</sub> = 2.0mA
<b>SMALL SIGNAL CHARACTERISTICS</b>					
Output Capacitance	C <sub>cb</sub>	—	3.0	pF	V <sub>CB</sub> = 20V, f = 1.0MHz, I <sub>E</sub> = 0
Current Gain-Bandwidth Product	f <sub>T</sub>	50	—	MHz	V <sub>CE</sub> = 20V, I <sub>C</sub> = 10mA, f = 100MHz

## Ordering Information (Note 3)

Device	Packaging	Shipping
MMSTA42-7	SOT-323	3000/Tape & Reel

- Notes: 2. Short duration test pulse used to minimize self-heating effect.  
3. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

## Marking Information



K3M = Product Type Marking Code  
YM = Date Code Marking  
Y = Year ex: N = 2002  
M = Month ex: 9 = September

### Date Code Key

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