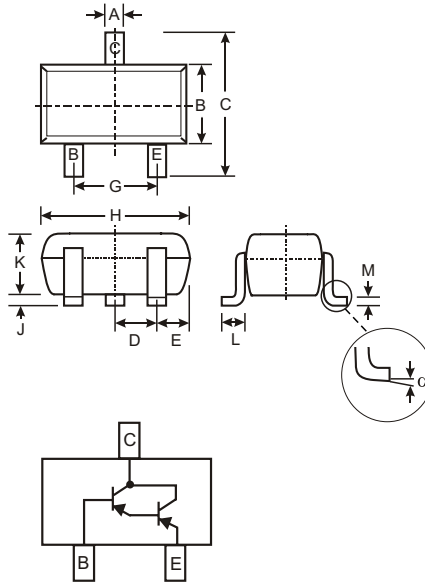


### Features

- Epitaxial Planar Die Construction
- Complementary NPN Types Available (MMSTA13/MMSTA14)
- Ultra-Small Surface Mount Package
- Ideal for Medium Power Amplification and Switching
- High Current Gain

### 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
- MMSTA63 Marking K2E, K3E (See Page 2)
- MMSTA64 Marking K3E (see Page 2)
- 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	MMSTA63	MMSTA64	Unit
Collector-Base Voltage	$V_{CB0}$	-30		V
Collector-Emitter Voltage	$V_{CE0}$	-30		V
Emitter-Base Voltage	$V_{EB0}$	-10		V
Collector Current - Continuous (Note 1)	$I_C$	-500		mA
Power Dissipation (Note 1)	$P_d$	200		mW
Thermal Resistance, Junction to Ambient (Note 1)	$R_{\theta JA}$	625		K/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>.

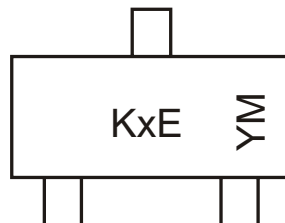
**Electrical Characteristics** @  $T_A = 25^\circ\text{C}$  unless otherwise specified

Characteristic	Symbol	Min	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 2)</b>					
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-30	—	V	$I_C = -100\mu\text{A}$ , $V_{BE} = 0\text{V}$
Collector Cutoff Current	$I_{CBO}$	—	-100	nA	$V_{CB} = -30\text{V}$ , $I_E = 0$
Emitter Cutoff Current	$I_{EBO}$	—	-100	nA	$V_{EB} = -10\text{V}$ , $I_C = 0$
<b>ON CHARACTERISTICS (Note 2)</b>					
DC Current Gain	MMSTA63 MMSTA64 MMSTA63 MMSTA64 $h_{FE}$	5,000 10,000 10,000 20,000	—	—	$I_C = -10\text{mA}$ , $V_{CE} = -5.0\text{V}$ $I_C = -10\text{mA}$ , $V_{CE} = -5.0\text{V}$ $I_C = -100\text{mA}$ , $V_{CE} = -5.0\text{V}$ $I_C = -100\text{mA}$ , $V_{CE} = -5.0\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	—	-1.5	V	$I_C = -100\text{mA}$ , $I_B = -100\mu\text{A}$
Base- Emitter Saturation Voltage	$V_{BE(SAT)}$	—	-2.0	V	$I_C = -100\text{mA}$ , $V_{CE} = -5.0\text{V}$
<b>SMALL SIGNAL CHARACTERISTICS</b>					
Current Gain-Bandwidth Product	$f_T$	125	—	MHz	$V_{CE} = -5.0\text{V}$ , $I_C = -10\text{mA}$ , $f = 100\text{MHz}$

**Ordering Information** (Note 3)

Device	Packaging	Shipping
MMSTA63-7	SOT-323	3000/Tape & Reel
MMSTA647	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**


KxE = Product Type Marking Code, e.g. K2E = MMSTA63  
 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