



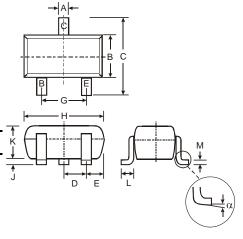
MMSTA63/MMSTA64

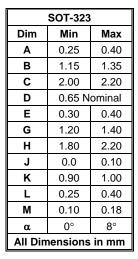
Features

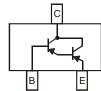
- **Epitaxial Planar Die Construction**
- Complementary NPN Types Available (MMSTA13/MMSTA14)
- Ultra-Small Surface Mount Package
- Ideal for Medium Power Amplification and Switching
- High Current Gain
- Lead Free/RoHS Compliant (Note 2)
- "Green" Device (Note 3 and 4)

Mechanical Data

- Case: SOT-323
- Case Material: Molded Plastic, "Green" Molding Compound, Note 4. 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).
- MMSTA63 Marking K2E, K3E, See Page 3
- MMSTA64 Marking K3E, See Page 3
- Ordering & Date Code Information: See Page 3
- Weight: 0.006 grams (approximate)







Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CBO}	-30	V
Collector-Emitter Voltage	V _{CEO}	-30	V
Emitter-Base Voltage	V _{EBO}	-10	V
Collector Current - Continuous	Ic	-500	mA
Power Dissipation (Note 1)	Pd	200	mW
Thermal Resistance, Junction to Ambient (Note 1)	$R_{ heta JA}$	625	°C/W
Operating and Storage Temperature Range	T _j , T _{STG}	-55 to +150	°C

Notes:

- 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.
- Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php
- Product manufactured with Date Code 0627 (week 27, 2006) and newer are built with Green Molding Compound. Product manufactured prior to Date Code 0627 are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants.

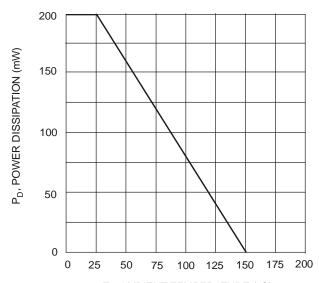


Electrical Characteristics @T_A = 25°C unless otherwise specified

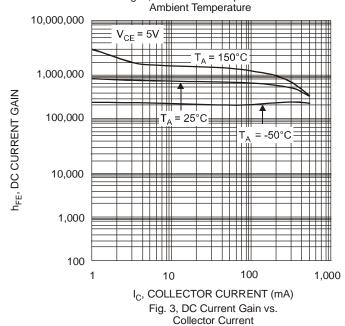
Characteristic		Symbol	Min	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 5)						
Collector-Emitter Breakdown Voltage		V _{(BR)CEO}	-30	_	V	$I_C = -100 \mu A V_{BE} = 0 V$
Collector Cutoff Current		I _{CBO}	_	-100	nA	$V_{CB} = -30V, I_{E} = 0$
Emitter Cutoff Current		I _{EBO}		-100	nA	$V_{EB} = -10V, I_{C} = 0$
ON CHARACTERISTICS (Note 5)						
DC Current Gain	MMSTA63 MMSTA64 MMSTA63 MMSTA64		5,000 10,000 10,000 20,000	_	_	I _C = -10mA, V _{CE} = -5.0V I _C = -10mA, V _{CE} = -5.0V I _C = -100mA, V _{CE} = -5.0V I _C = -100mA, V _{CE} = -5.0V
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	$I_C = -100 \text{mA}, V_{CE} = -5.0 \text{V}$
SMALL SIGNAL CHARACTERISTICS						
Current Gain-Bandwidth Product		f _T	125	_	MHz	$V_{CE} = -5.0V$, $I_{C} = -10mA$, $f = 100MHz$

Notes:

5. Short duration pulse test used to minimize self-heating effect.

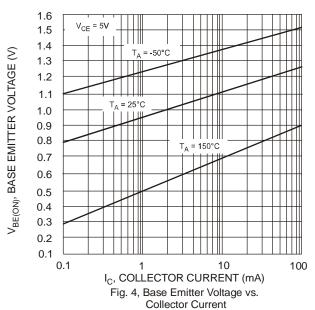


T_A, AMBIENT TEMPERATURE (°C) Fig. 1, Max Power Dissipation vs.

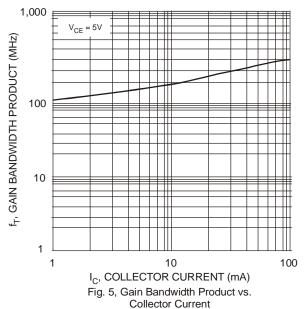


1.20 1.15 1.10 V_{CE(SAT)}, COLLECTOR TO EMITTER SATURATION VOLTAGE (V) 1.05 1.00 0.95 T_A = -50°C 0.90 0.85 0.80 T_A = 25°C 0.75 0.70 0.65 0.60 = 150°C 0.55 0.50 0.45 0.40 1 100 10 1,000

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





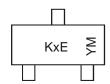


Ordering Information (Note 4 & 6)

Device	Packaging	Shipping
MMSTA63-7-F	SOT-323	3000/Tape & Reel
MMSTA64-7-F	SOT-323	3000/Tape & Reel

6. 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	2010	2011	2012
Code	J	K	L	М	Ν	Р	R	S	Т	U	V	W	X	Υ	Z

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	0	N	D

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