

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

Characteristic	Symbol	Min	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 5)</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 5)</b>					
DC Current Gain	MMSTA13 MMSTA14 MMSTA13 MMSTA14	$h_{FE}$	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>					
Output Capacitance	$C_{obo}$	8.0 Typical		pF	$V_{CB} = 10\text{V}$ , $f = 1.0\text{MHz}$ , $I_E = 0$
Input Capacitance	$C_{ibo}$	15 Typical		pF	$V_{EB} = 0.5\text{V}$ , $f = 1.0\text{MHz}$ , $I_C = 0$
Current Gain-Bandwidth Product	$f_T$	125	—	MHz	$V_{CE} = 5.0\text{V}$ , $I_C = 10\text{mA}$ , $f = 100\text{MHz}$

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

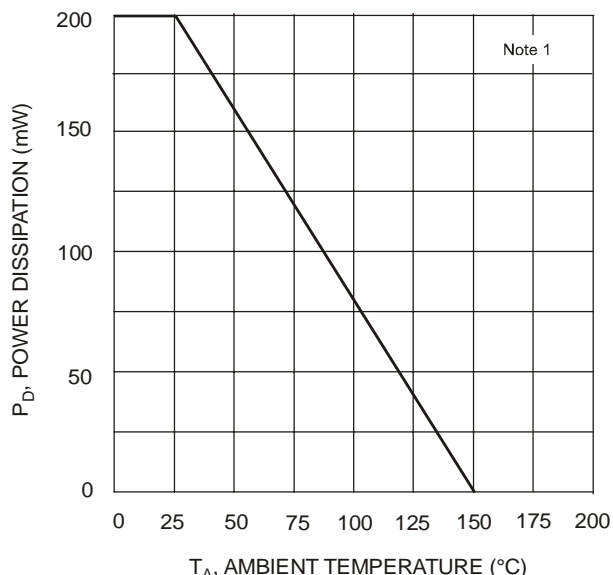


Fig. 1, Max Power Dissipation vs. Ambient Temperature

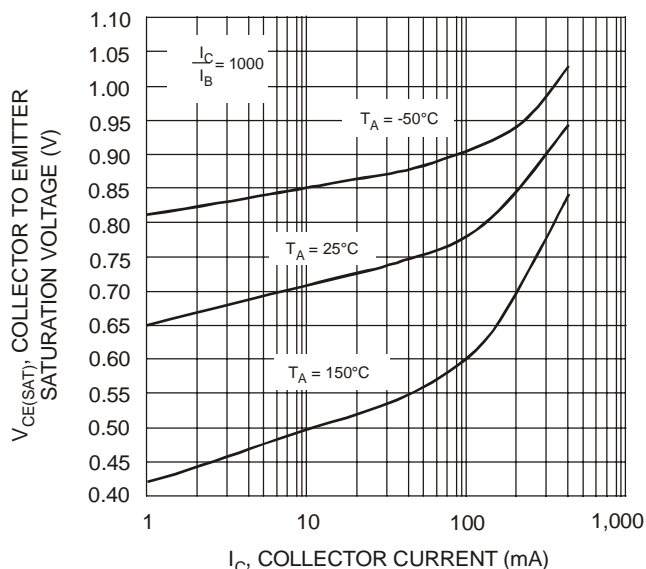


Fig. 2, Collector Emitter Saturation Voltage vs. Collector Current

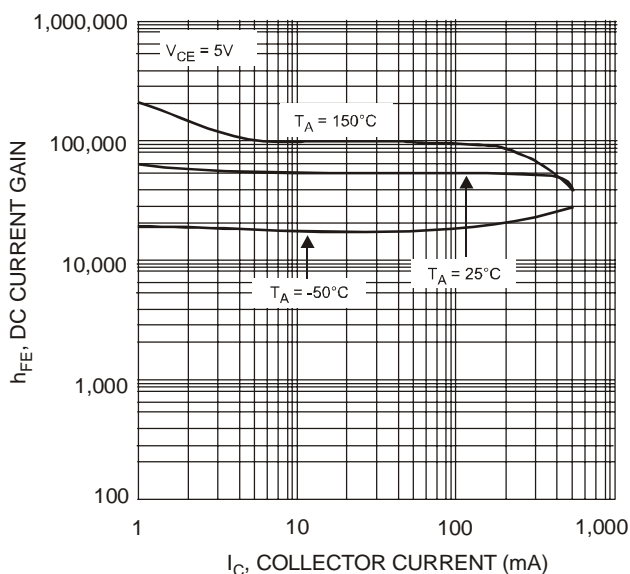


Fig. 3, DC Current Gain vs. Collector Current

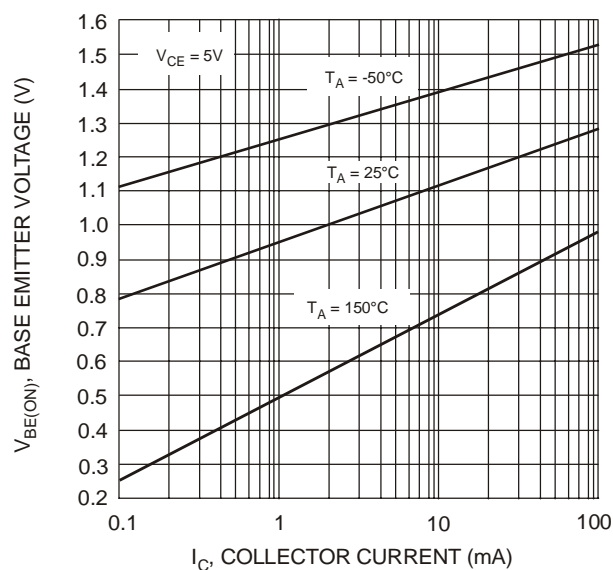
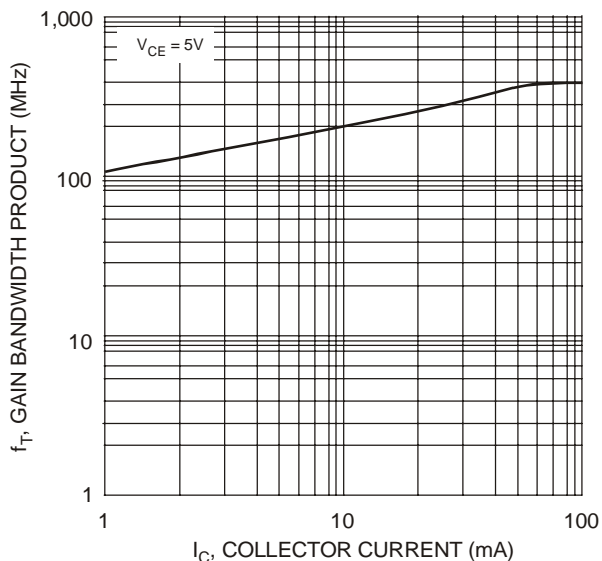


Fig. 4, Base Emitter Voltage vs. Collector Current

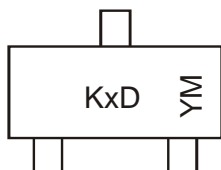


## Ordering Information (Note 4 & 6)

Device	Packaging	Shipping
MMSTA13-7-F	SOT-323	3000/Tape & Reel
MMSTA14-7-F	SOT-323	3000/Tape & Reel

Notes: 6. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

## Marking Information



KxD = Product Type Marking Code, e.g., K2D = MMSTA13  
 YM = Date Code Marking  
 Y = Year ex: N = 2002  
 M = Month ex: 9 = September

### Date Code Key

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Code	L	M	N	P	R	S	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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