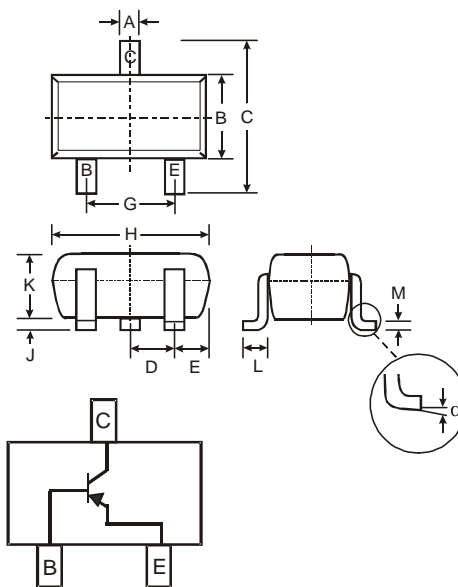


Features

- Epitaxial Planar Die Construction
- Complementary NPN Type Available (MMSTA05/MMSTA06)
- Ideal for Low Power Amplification and Switching
- Ultra-Small Surface Mount Package
- **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).
- MMSTA55 Marking K2H, K2G (See Page 3)
- MMSTA56 Marking K2G (See Page 3)
- Ordering & Date Code Information: See Page 3
- Weight: 0.006 grams (approximate)



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
α	0°	8°
All Dimensions in mm		

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	MMSTA55	MMSTA56	Unit
Collector-Base Voltage	V _{CBO}	-60	-80	V
Collector-Emitter Voltage	V _{CEO}	-60	-80	V
Emitter-Base Voltage	V _{EBO}	-4.0		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 _{θJA}	625		°C/W
Operating and Storage Temperature Range	T _j , T _{STG}	-55 to +150		°C

- Notes:
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>.
 2. No purposefully added lead.
 3. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
 4. 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-Base Breakdown Voltage	MMSTA55 MMSTA56 $V_{(BR)CBO}$	-60 -80	—	V	$I_C = -100\mu A$, $I_E = 0$
Collector-Emitter Breakdown Voltage	MMSTA55 MMSTA56 $V_{(BR)CEO}$	-60 -80	—	V	$I_C = -1.0mA$, $I_B = 0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-4.0	—	V	$I_E = -100\mu A$, $I_C = 0$
Collector Cutoff Current	MMSTA55 MMSTA56 I_{CBO}	—	-100	nA	$V_{CB} = -60V$, $I_E = 0$ $V_{CB} = -80V$, $I_E = 0$
Collector Cutoff Current	MMSTA55 MMSTA56 I_{CEX}	—	-100	nA	$V_{CE} = -60V$, $I_{BO} = 0V$ $V_{CE} = -80V$, $I_{BO} = 0V$
ON CHARACTERISTICS (Note 5)					
DC Current Gain	h_{FE}	100	—	—	$I_C = -10mA$, $V_{CE} = -1.0V$ $I_C = -100mA$, $V_{CE} = -1.0V$
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	—	-0.25	V	$I_C = -100mA$, $I_B = -10mA$
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	—	-1.2	V	$I_C = -100mA$, $V_{CE} = -1.0V$
SMALL SIGNAL CHARACTERISTICS					
Current Gain-Bandwidth Product	f_T	50	—	MHz	$V_{CE} = -1.0V$, $I_C = -100mA$, $f = 100MHz$

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

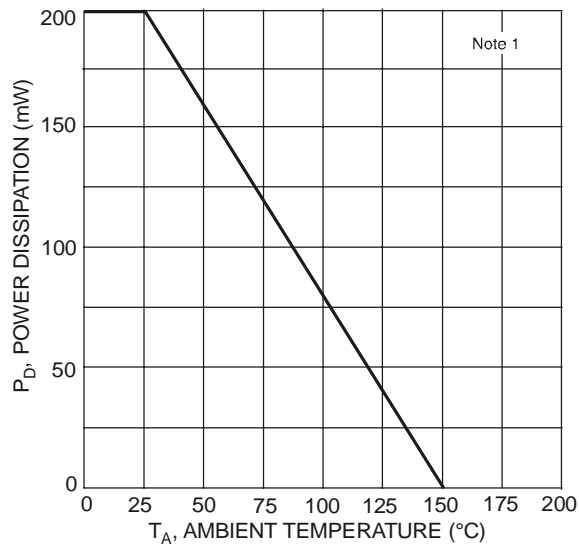


Fig. 1, Max Power Dissipation vs. Ambient Temperature

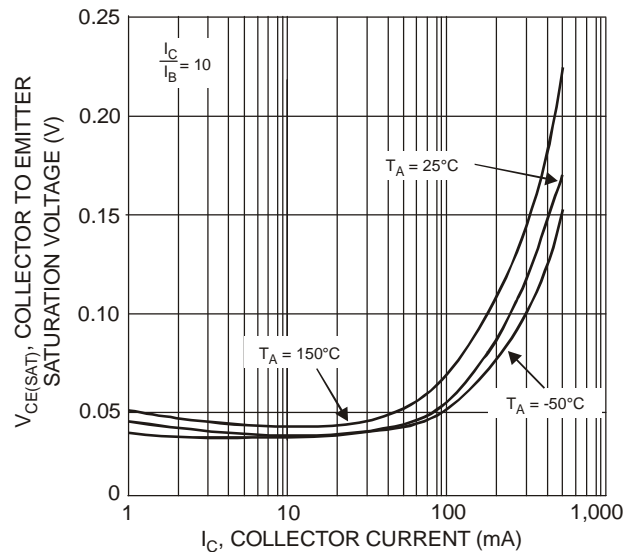


Fig. 2, Collector Emitter Saturation Voltage vs. Collector Current

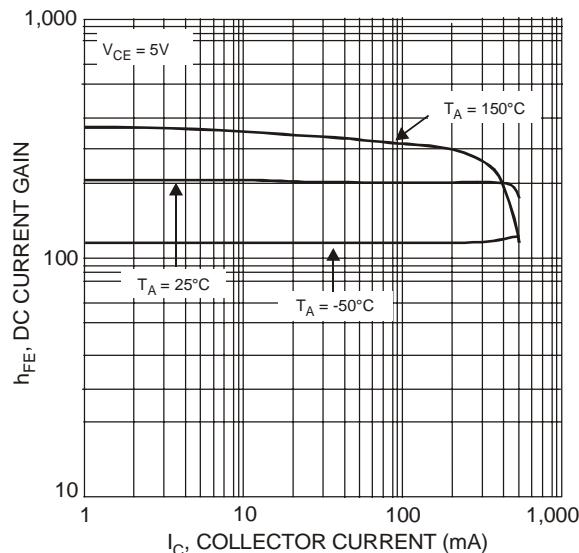


Fig. 3, DC Current Gain vs. Collector Current

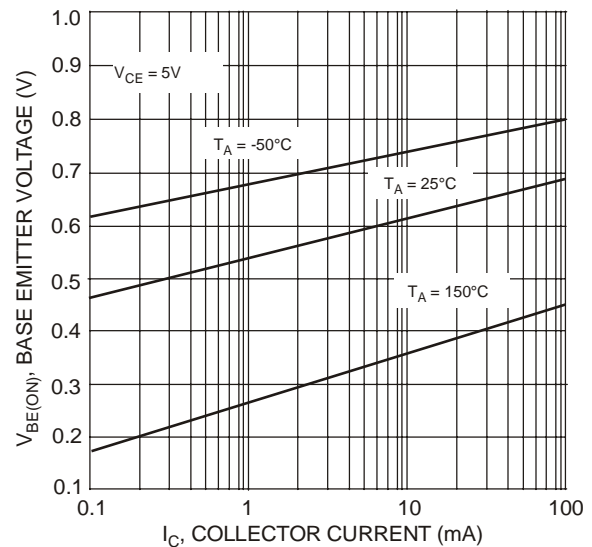


Fig. 4 Base Emitter Voltage vs. Collector Current

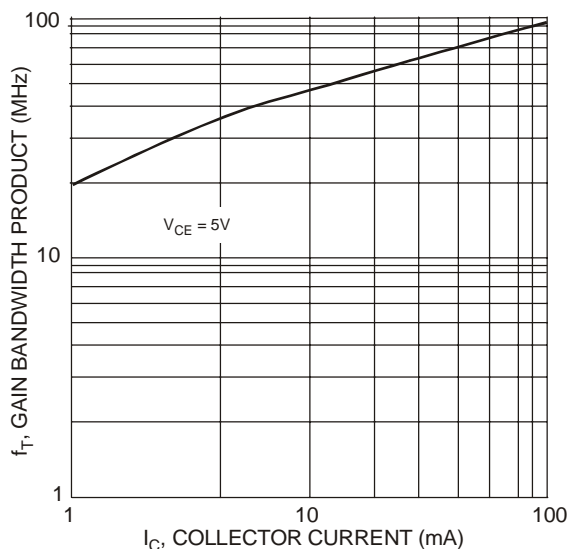


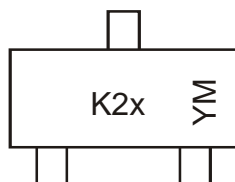
Fig. 5 Gain Bandwidth Product vs. Collector Current

Ordering Information (Notes 4 and 6)

Device	Packaging	Shipping
MMSTA55-7-F	SOT-323	3000/Tape & Reel
MMSTA56-7-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



K2x = Product Type Marking Code, e.g. K2H = MMSTA55
 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	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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