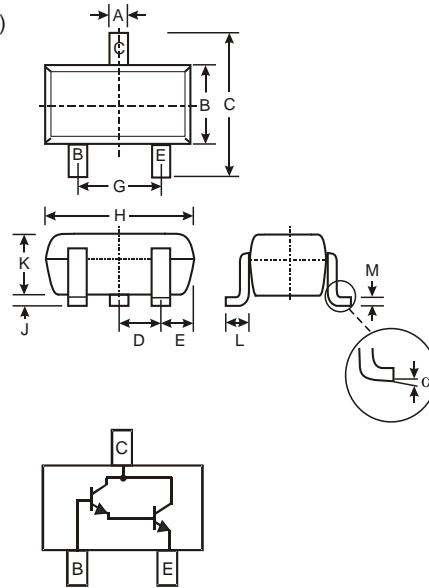


Features

- Epitaxial Planar Die Construction
- Complementary PNP Type Available (MMSTA63/MMSTA64)
- Ideal for Low Power Amplification and Switching
- High Current Gain
- 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).
- MMSTA13 Marking K2D, K3D (See Page 3)
- MMSTA14 Marking K3D (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 |
| | 0° | 8° |
| All Dimensions in mm | | |

Maximum Ratings @ T_A = 25°C unless otherwise specified

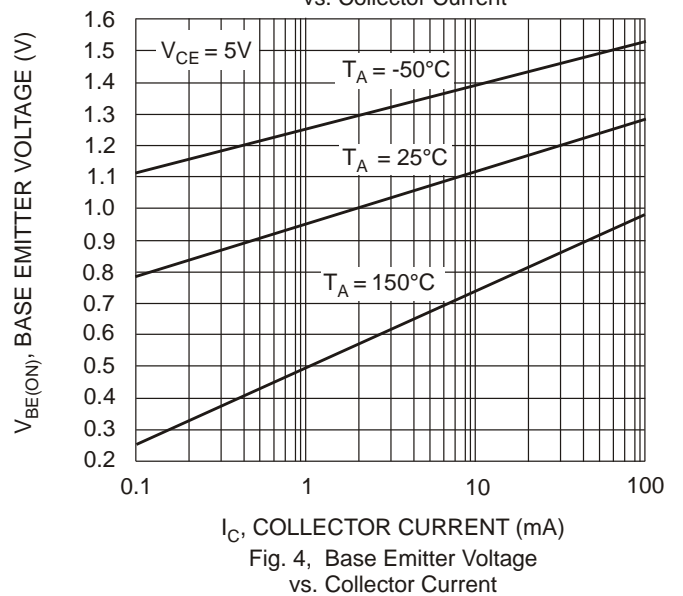
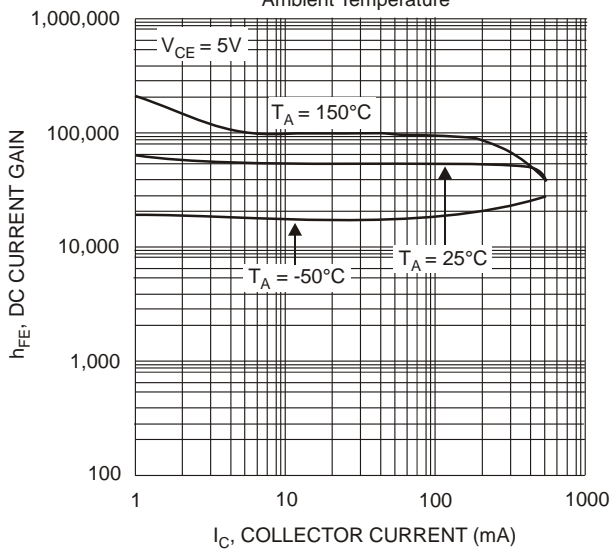
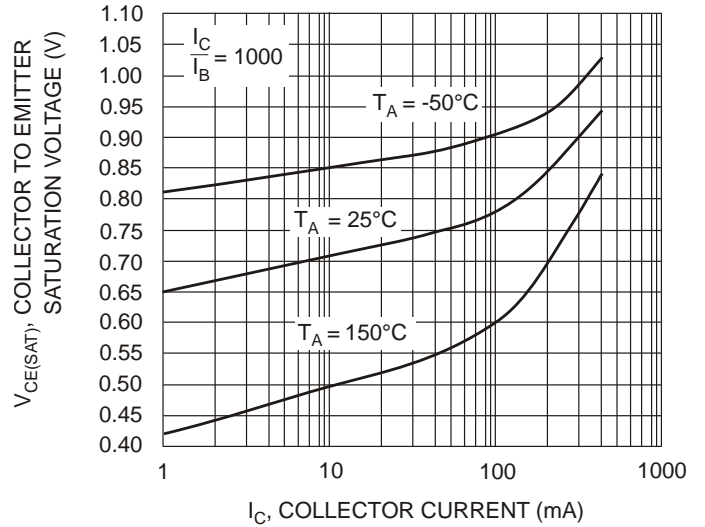
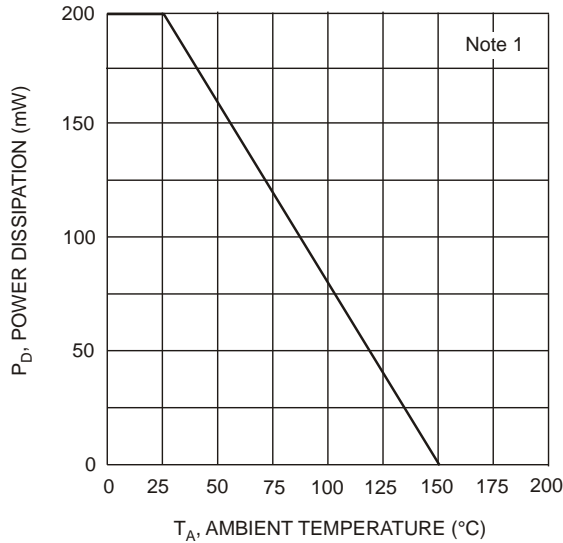
| Characteristic | Symbol | Value | Unit |
|--------------------------------------------------|-----------------------------------|-------------|------|
| Collector-Base Voltage | V _{CBO} | 30 | V |
| Collector-Emitter Voltage | V _{CEO} | 30 | V |
| Emitter-Base Voltage | V _{EBO} | 10 | V |
| Collector Current - Continuous (Note 1) | I _C | 300 | mA |
| Power Dissipation (Note 1) | P _d | 200 | mW |
| Thermal Resistance, Junction to Ambient (Note 1) | R _{JA} | 625 | °C/W |
| Operating and Storage and Temperature Range | T _j , T _{STG} | -55 to +150 | °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>.
 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 0609 (week 9, 2006) and newer are built with Green Molding Compound. Product manufactured prior to Date Code 0609 are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants.

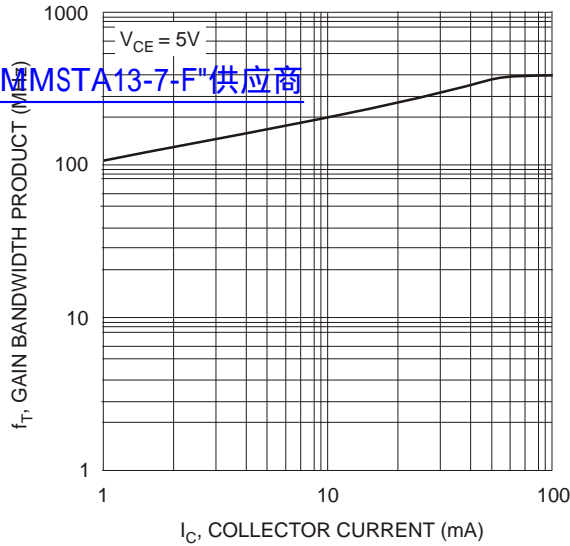
Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

查询"MMSTA13-7-F"供应商

| Characteristic | Symbol | Min | Max | Unit | Test Condition |
|--------------------------------------|------------------------------------------|-------------|-------------------------------------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OFF CHARACTERISTICS (Note 5) | | | | | |
| 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 | $V_{EB} = 10\text{V}$, $I_C = 0$ |
| ON CHARACTERISTICS (Note 5) | | | | | |
| 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 | $I_C = 100\text{mA}$, $V_{CE} = 5.0\text{V}$ |
| SMALL SIGNAL CHARACTERISTICS | | | | | |
| 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 | $V_{CE} = 5.0\text{V}$, $I_C = 10\text{mA}$, $f = 100\text{MHz}$ |



查询"MMSTA13-7-F"供应商

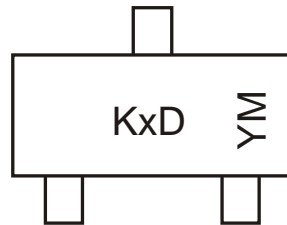


Ordering Information (Note 4 & 6)

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

- Notes: 4. Product manufactured with Date Code 0609 (week 9, 2006) and newer are built with Green Molding Compound. Product manufactured prior to Date Code 0609 are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants.
 5. Short duration pulse test used to minimize self-heating effect.
 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 | March | 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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