# NPN General Purpose Amplifier

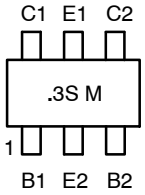
## SUPERSOT™ –6 Surface Mount Package

# FMB5551


**TSOT23 6–Lead**
**CASE 419AG**

- This device is designed for general purpose high voltage amplifiers and gas discharge display driving
- Sourced from process 16
- See MMBT5551 for characteristics
- Pb–Free, Halogen Free/BFR Free and RoHS Compliant

### MARKING DIAGRAM




.3S = Specific Device Code
M = Date Code

### ABSOLUTE MAXIMUM RATINGS

($T_A$ = 25°C unless otherwise noted.)

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $V_{CEO}$ | Collector–Emitter Voltage | 160 | V |
| $V_{CBO}$ | Collector–Base Voltage | 180 | V |
| $V_{EBO}$ | Emitter–Base Voltage | 6 | V |
| $I_C$ | Collector Current (DC) | 600 | mA |
| $P_C$ | Collector Dissipation ($T_A$ = 25°C) (Note 1) | 0.7 | W |
| $T_J$ | Junction Temperature | 150 | °C |
| $T_{STG}$ | Storage Temperature Range | –55 to +150 | °C |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient | 180 | °C/W |

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. $P_D$ total, for both transistors. For each transistor, $P_D$ = 350 mW.

### ORDERING INFORMATION

| Device | Package | Shipping† |
|---|---|---|
| FMB5551 | TSOT23 6–Lead (Pb–Free) | 3,000 / Tape & Reel |

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

**ELECTRICAL CHARACTERISTICS** ($T_A$ = 25°C unless otherwise noted.)

| Symbol | Parameter | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| **OFF CHARACTERISTICS** | | | | | | |
| $BV_{CEO}$ | Collector−Emitter Voltage | $I_C$ = 1 mA | 160 | – | – | V |
| $BV_{CBO}$ | Collector−Base Voltage | $I_C$ = 10 μA | 180 | – | – | V |
| $BV_{EBO}$ | Emitter−Base Voltage | $I_E$ = 10 μA | 6 | – | – | V |
| $I_{CBO}$ | Collector Cut−off Current | $V_{CB}$ = 120 V<br>$V_{CB}$ = 120 V, T = 100°C | –<br>– | –<br>– | 50<br>50 | nA<br>μA |
| $I_{EBO}$ | Emitter Cut−off Current | $V_{EB}$ = 4 V | – | – | 50 | nA |
| **ON CHARACTERISTICS** | | | | | | |
| $h_{FE}$ | DC Current Gain | $V_{CE}$ = 5 V, $I_C$ = 1 mA<br>$V_{CE}$ = 5 V, $I_C$ = 10 mA<br>$V_{CE}$ = 5 V, $I_C$ = 50 mA | 80<br>80<br>30 | –<br>–<br>– | –<br>250<br>– | |
| $V_{CE}$(sat) | Collector−Emitter Saturation Voltage | $I_C$ = 10 mA, $I_B$ = 1 mA<br>$I_C$ = 50 mA, $I_B$ = 5 mA | –<br>– | –<br>– | 0.15<br>0.2 | V |
| $V_{BE}$(sat) | Base−Emitter Saturation Voltage | $I_C$ = 10 mA, $I_B$ = 1 mA<br>$I_C$ = 50 mA, $I_B$ = 5 mA | –<br>– | –<br>– | 1<br>1 | V |
| **SMALL SIGNAL CHARACTERISTICS** | | | | | | |
| $C_{ob}$ | Output Capacitance | $V_{CB}$ = 10 V, f = 1 MHz | – | – | 6 | pF |
| $C_{ib}$ | Input Capacitance | $V_{CB}$ = 0.5 V, f = 1 MHz | – | – | 20 | pF |
| $f_T$ | Current gain Bandwidth Product | $V_{CE}$ = 10 V, $I_C$ = 10 mA,<br>f = 100 MHz | 100 | – | 300 | MHz |
| NF | Noise Figure | $V_{CE}$ = 5 V, $I_C$ = 200 μA,<br>f = 1 MHz, $R_S$ = 2 kΩ,<br>B = 200 Hz | – | – | 8 | dB |
| $h_{FE}$ | Small Signal Current Gain | $V_{CE}$ = 10 V, $I_C$ = 1 mA, f = 1 kHz | 50 | – | 250 | |

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

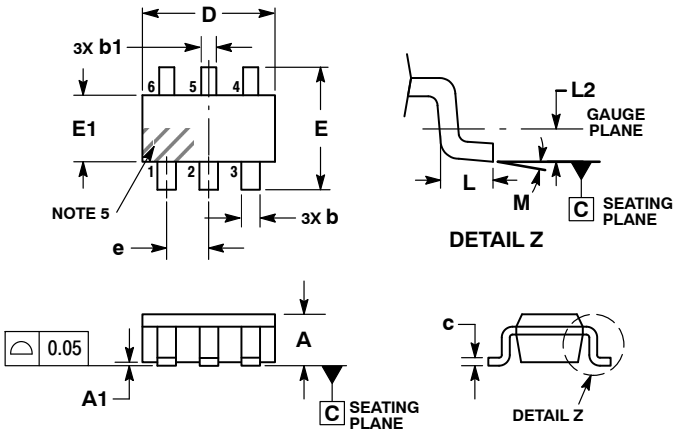
# MECHANICAL CASE OUTLINE
## PACKAGE DIMENSIONS

ON Semiconductor®

**TSOT23 6−Lead**
CASE 419AG−01
ISSUE O

DATE 01 FEB 2010

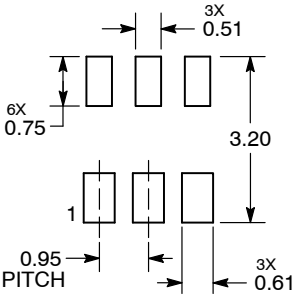
1
**SCALE 2:1**




NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E1 DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS. MOLD FLASH, PROTRUSIONS, OR GATE BURRS SHALL NOT EXCEED 0.15 PER SIDE. DIMENSIONS D AND E1 ARE DETERMINED AT DATUM H.
5. PIN ONE INDICATOR MUST BE LOCATED IN THE INDICATED ZONE.

| | MILLIMETERS | | |
|---|---|---|---|
| DIM | MIN | NOM | MAX |
| A | 0.75 | 0.82 | 0.90 |
| A1 | −−− | −−− | 0.10 |
| b | 0.40 | 0.45 | 0.50 |
| b1 | 0.30 | 0.35 | 0.40 |
| c | 0.08 | 0.14 | 0.20 |
| D | 2.80 | 2.90 | 3.00 |
| E | 2.60 | 2.80 | 3.00 |
| E1 | 1.50 | 1.60 | 1.70 |
| e | | 0.95 BSC | |
| L | 0.30 | 0.45 | 0.60 |
| L2 | | 0.25 BSC | |
| M | 0° | – | 8° |

### RECOMMENDED SOLDERING FOOTPRINT*




DIMENSIONS: MILLIMETERS

*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

### GENERIC MARKING DIAGRAMS*


**IC**

XXX = Specific Device Code
A = Assembly Location
Y = Year
W = Work Week
▪ = Pb−Free Package

**STANDARD**

XXX = Specific Device Code
M = Date Code
▪ = Pb−Free Package

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, “G” or microdot “▪”, may or may not be present.

| | | |
|---|---|---|
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| **DESCRIPTION:** | **TSOT23 6−LEAD** | **PAGE 1 OF 1** |

## ADDITIONAL INFORMATION

**TECHNICAL PUBLICATIONS**:
**Technical Library:** www.onsemi.com/design/resources/technical−documentation
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