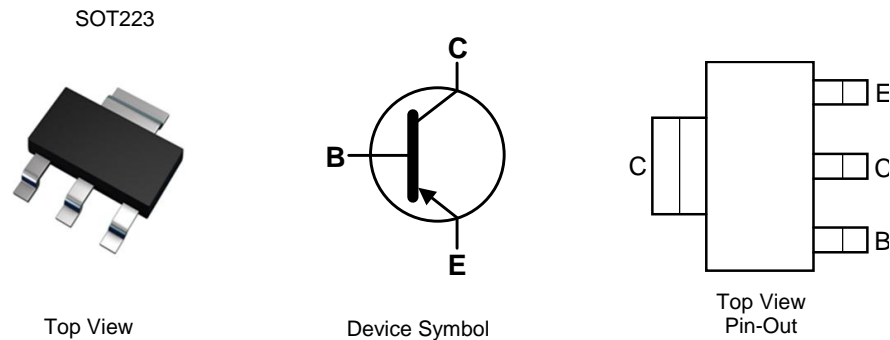


Features

- Ideally Suited for Automated Assembly Processes
- Ultra Low Collector-Emitter Saturation Voltage
- Complementary NPN Type Available (DSS60601MZ4)
- Ideal for Medium Power Switching or Amplification Applications
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

- Case: SOT223
- Case Material: Molded Plastic. "Green" Molding Compound.
- UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 ②③
- Weight: 0.112 grams (Approximate)



Ordering Information (Note 4)

| Product | Compliance | Marking | Reel size (inches) | Tape width (mm) | Quantity per reel |
|----------------|------------|---------|--------------------|-----------------|-------------------|
| DSS60600MZ4-13 | AEC-Q101 | ZPS66 | 13 | 12 | 2,500 |

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
 2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
 3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 4. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

Marking Information



ZPS66 = Product Type Marking Code
 YWW = Date Code Marking
 Y = Last Digit of Year (ex: 7 = 2017)
 WW = Week Code 01 - 52

Absolute Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

| Characteristic | Symbol | Value | Unit |
|------------------------------|------------------|-------|------|
| Collector-Base Voltage | V _{CBO} | -100 | V |
| Collector-Emitter Voltage | V _{CEO} | -60 | V |
| Emitter-Base Voltage | V _{EBO} | -7 | V |
| Continuous Collector Current | I _C | -6 | A |
| Peak Pulse Current | I _{CM} | -12 | A |

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

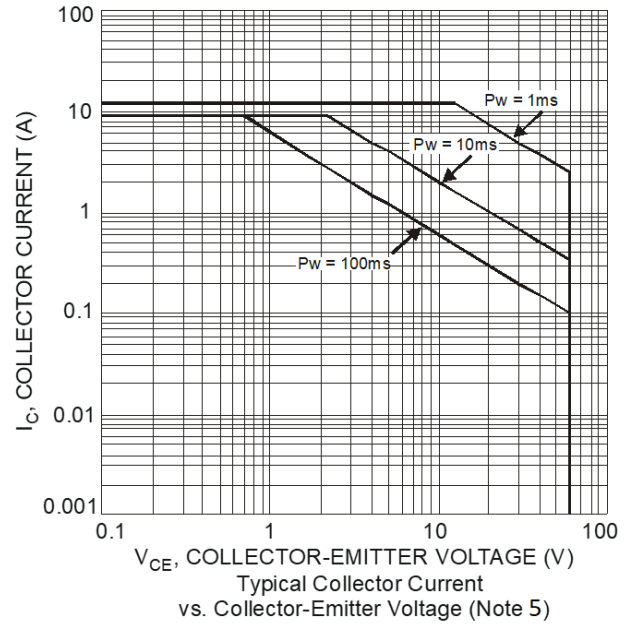
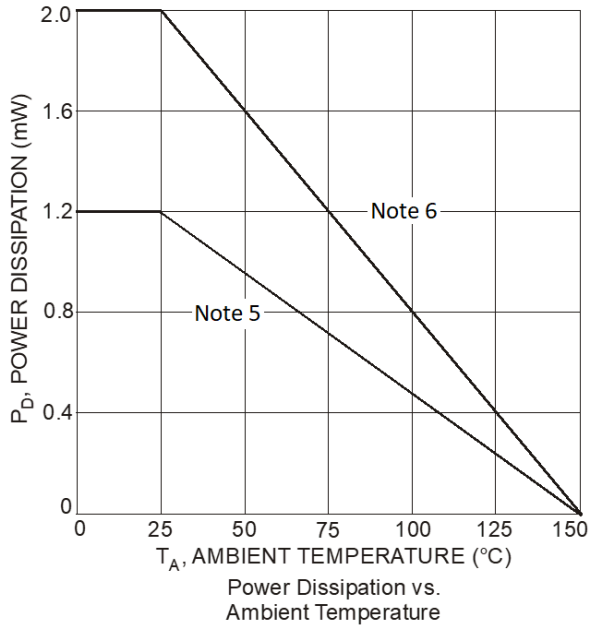
| Characteristic | Symbol | Value | Unit |
|-----------------------------------------|-----------------------------------|------------------|------|
| Power Dissipation | P _D | (Note 5) 1.2 | W |
| | | (Note 6) 2.0 | W |
| Thermal Resistance, Junction to Ambient | R _{θJA} | (Note 5) 104 | °C/W |
| | | (Note 6) 62.5 | °C/W |
| Operating and Storage Temperature Range | T _J , T _{STG} | -55 to +150 | °C |

ESD Ratings (Note 7)

| Characteristic | Symbol | Value | Unit | JEDEC Class |
|--------------------------------------------|---------|-------|------|-------------|
| Electrostatic Discharge - Human Body Model | ESD HBM | 4,000 | V | 3A |
| Electrostatic Discharge - Machine Model | ESD MM | 400 | V | C |

- Notes:
5. Device mounted on FR-4 PCB with minimum recommended pad layout.
 6. Device mounted on Polyimide PCB with 330mm² 2oz. Copper pad layout.
 7. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

Thermal Characteristics and Derating Information

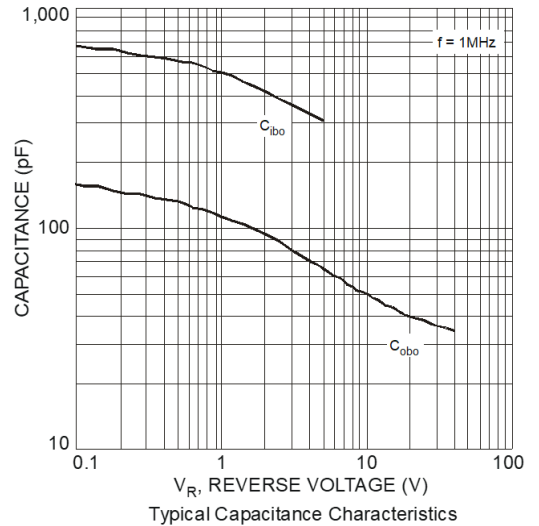
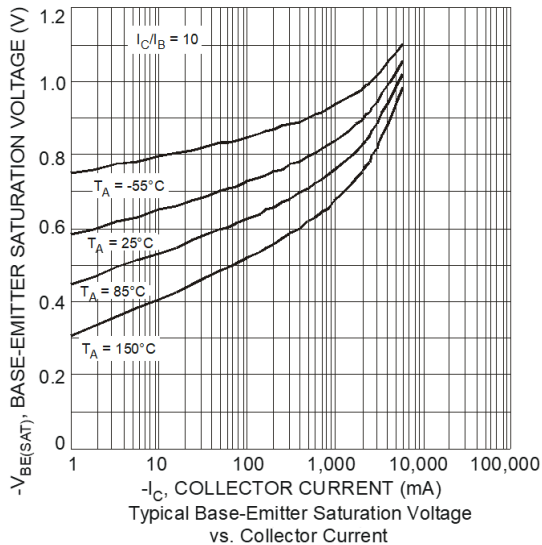
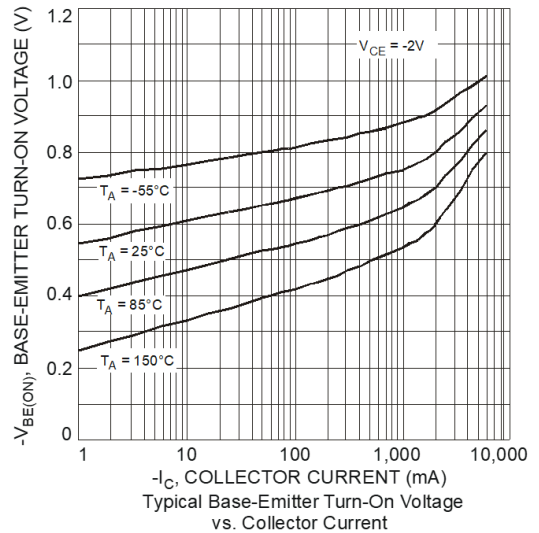
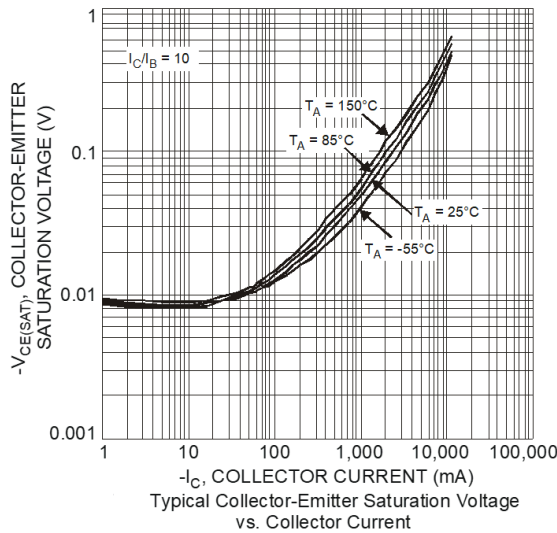
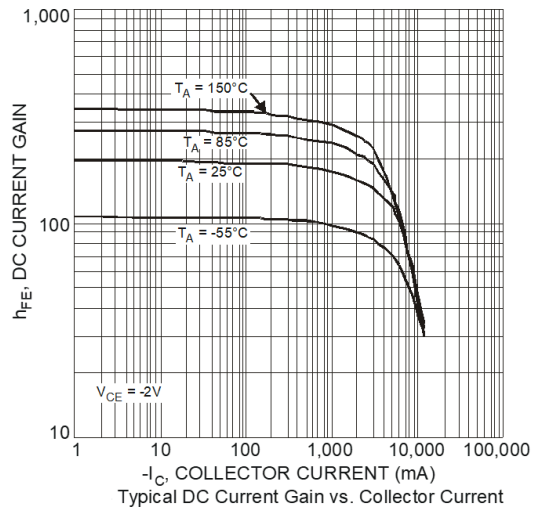
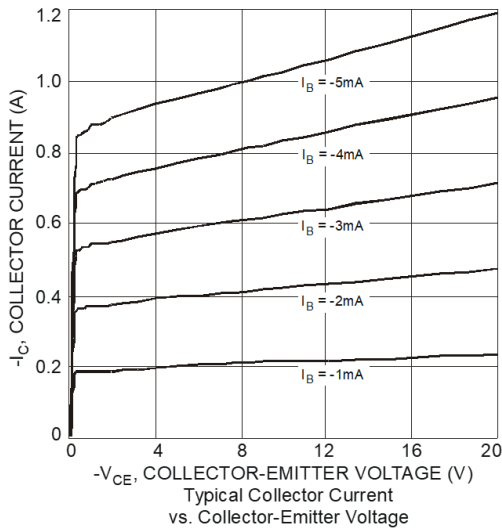


Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

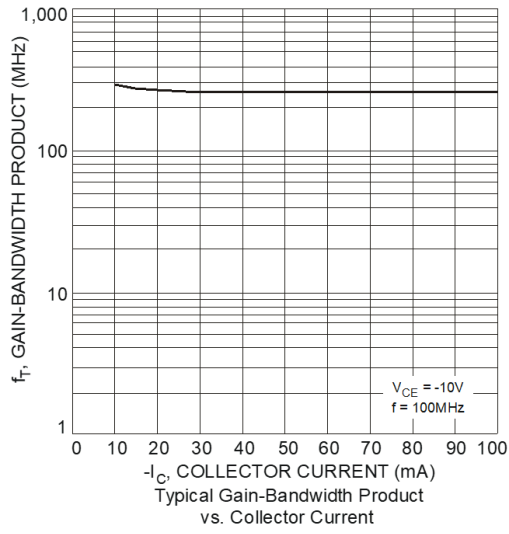
| Characteristic | Symbol | Min | Typ | Max | Unit | Test Conditions |
|----------------------------------------------|----------------------|------|-----|------|------|---------------------------------------------------------------------------------------------|
| OFF CHARACTERISTICS | | | | | | |
| Collector-Base Breakdown Voltage | V _{(BR)CBO} | -100 | — | — | V | I _C = -100μA |
| Collector-Emitter Breakdown Voltage (Note 8) | V _{(BR)CEO} | -60 | — | — | V | I _C = -10mA |
| Emitter-Base Breakdown Voltage | V _{(BR)EBO} | -7 | — | — | V | I _E = -100μA |
| Collector-Base Cutoff Current | I _{CBO} | — | — | -100 | nA | V _{CB} = -100V, I _E = 0 |
| Emitter-Base Cutoff Current | I _{EBO} | — | — | -50 | μA | V _{CB} = -100V, I _E = 0, T _A = 150°C |
| | | — | — | -100 | nA | V _{EB} = -6V, I _C = 0 |
| ON CHARACTERISTICS (Note 8) | | | | | | |
| DC Current Gain | h _{FE} | 150 | — | — | — | V _{CE} = -2V, I _C = -0.5A |
| | | 120 | — | 360 | | V _{CE} = -2V, I _C = -1A |
| | | 100 | — | — | | V _{CE} = -2V, I _C = -2A |
| | | 70 | — | — | | V _{CE} = -2V, I _C = -6A |
| Collector-Emitter Saturation Voltage | V _{CE(SAT)} | — | — | -50 | mV | I _C = -0.1A, I _B = -2mA |
| | | — | -50 | -70 | | I _C = -1A, I _B = -100mA |
| | | — | -90 | -120 | | I _C = -2A, I _B = -200mA |
| | | — | — | -250 | | I _C = -3A, I _B = -60mA |
| | | — | — | -350 | | I _C = -6A, I _B = -600mA |
| Equivalent On-Resistance | R _{C(E)SAT} | — | 45 | 60 | mΩ | I _C = -2A, I _B = -200mA |
| Base-Emitter Saturation Voltage | V _{BE(SAT)} | — | — | -1.0 | V | I _C = 1A, I _B = -100mA |
| Base-Emitter Turn-on Voltage | V _{BE(ON)} | — | — | -0.9 | V | V _{CE} = -2V, I _C = -1A |
| SMALL SIGNAL CHARACTERISTICS | | | | | | |
| Transition Frequency | f _T | 100 | — | — | MHz | V _{CE} = -10V, I _C = -100mA, f = 100MHz |
| Output Capacitance | C _{obo} | — | 50 | — | pF | V _{CB} = -10V, f = 1MHz |
| Input Capacitance | C _{ibo} | — | 300 | — | pF | V _{EB} = -5V, f = 1MHz |
| SWITCHING CHARACTERISTICS | | | | | | |
| Turn-On Time | t _{on} | — | 350 | — | ns | V _{CC} = -30V, I _C = -750mA, I _{B1} = -15mA |
| Delay Time | t _d | — | 180 | — | ns | |
| Rise Time | t _r | — | 170 | — | ns | |
| Turn-Off Time | t _{off} | — | 400 | — | ns | V _{CC} = -30V, I _C = -750mA, I _{B1} = -I _{B2} = -15mA |
| Storage Time | t _s | — | 300 | — | ns | |
| Fall Time | t _f | — | 100 | — | ns | |

Note: 8. Measured under pulsed conditions. Pulse width ≤ 300 μs. Duty cycle ≤ 2%

Typical Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

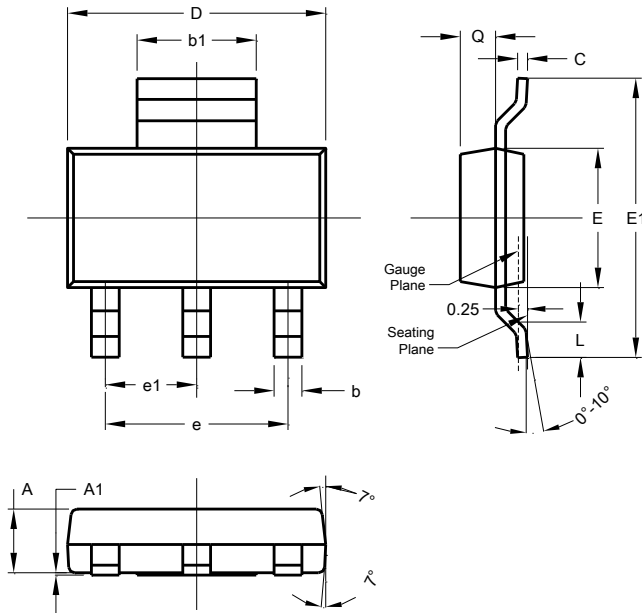


Typical Electrical Characteristics (Continued)



Package Outline Dimensions

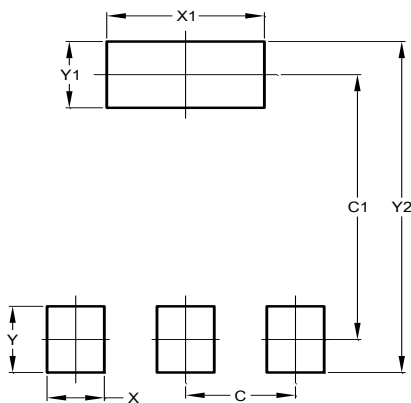
Please see <http://www.diodes.com/package-outlines.html> for the latest version.



| SOT223 | | | |
|-----------------------------|-------|------|------|
| Dim | Min | Max | Typ |
| A | 1.55 | 1.65 | 1.60 |
| A1 | 0.010 | 0.15 | 0.05 |
| b | 0.60 | 0.80 | 0.70 |
| b1 | 2.90 | 3.10 | 3.00 |
| C | 0.20 | 0.30 | 0.25 |
| D | 6.45 | 6.55 | 6.50 |
| E | 3.45 | 3.55 | 3.50 |
| E1 | 6.90 | 7.10 | 7.00 |
| e | - | - | 4.60 |
| e1 | - | - | 2.30 |
| L | 0.85 | 1.05 | 0.95 |
| Q | 0.84 | 0.94 | 0.89 |
| All Dimensions in mm | | | |

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.



| Dimensions | Value (in mm) |
|------------|---------------|
| C | 2.30 |
| C1 | 6.40 |
| X | 1.20 |
| X1 | 3.30 |
| Y | 1.60 |
| Y1 | 1.60 |
| Y2 | 8.00 |

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