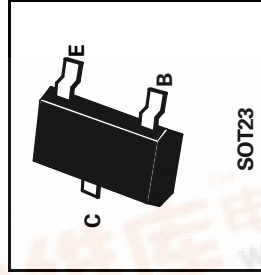


SOT23 NPN SILICON PLANAR  
GENERAL PURPOSE TRANSISTORS

ISSUE 6 - JANUARY 1997

BC846 BC847  
BC848 BC849  
BC850

| PARTMARKING DETAILS |            | COMPLEMENTARY TYPES |
|---------------------|------------|---------------------|
| BC846A-Z1A          | BC848B-1K  | BC846 BC856         |
| BC846B-1B           | BC848C-Z1L | BC847 BC857         |
| BC847A-Z1E          | BC849B-2B  | BC848 BC858         |
| BC847B-1F           | BC849C-2C  | BC849 BC859         |
| BC847C-1GZ          | BC850B-2FZ | BC850 BC860         |
| BC848A-1JZ          | BC850C-Z2G |                     |



查询BC846A-Z1A供应商

ABSOLUTE MAXIMUM RATINGS.

| PARAMETER                                         | SYMBOL         | BC846 | BC847 | BC848       | BC849 | BC850 | UNIT               |
|---------------------------------------------------|----------------|-------|-------|-------------|-------|-------|--------------------|
| Collector-Base Voltage                            | $V_{CB0}$      | 80    | 50    | 30          | 30    | 50    | V                  |
| Collector-Emitter Voltage                         | $V_{CES}$      | 80    | 50    | 30          | 30    | 50    | V                  |
| Collector-Emitter Voltage                         | $V_{CEO}$      | 65    | 45    | 30          | 30    | 45    | V                  |
| Emitter-Base Voltage                              | $V_{EBO}$      | 6     | 5     |             |       |       | V                  |
| Continuous Collector Current                      | $I_C$          |       |       | 100         |       |       | mA                 |
| Peak Collector Current                            | $I_{CM}$       |       |       | 200         |       |       | mA                 |
| Peak Base Current                                 | $I_{BM}$       |       |       | 200         |       |       | mA                 |
| Peak Emitter Current                              | $I_{EM}$       |       |       | 200         |       |       | mA                 |
| Power Dissipation at $T_{amb}=25^{\circ}\text{C}$ | $P_{tot}$      |       |       | 330         |       |       | mW                 |
| Operating and Storage Temperature Range           | $T_j, T_{stg}$ |       |       | -55 to +150 |       |       | $^{\circ}\text{C}$ |

捷多邦，专业PCB打样工厂，24小时加急出货

ELECTRICAL CHARACTERISTICS (at  $T_{amb} = 25^{\circ}\text{C}$  unless otherwise stated).

| PARAMETER                            | SYMBOL        | BC846 | BC847 | BC848 | BC849 | BC850 | UNIT          | CONDITIONS.                                              |
|--------------------------------------|---------------|-------|-------|-------|-------|-------|---------------|----------------------------------------------------------|
| Collector Cut-Off Current            | $I_{C0}$      | Max   | Max   | 15    |       |       | nA            | $V_{CB} = 30\text{V}$                                    |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | Typ   | Typ   | 90    |       |       | $\mu\text{A}$ | $V_{CB} = 30\text{V}$<br>$T_{amb} = 150^{\circ}\text{C}$ |
|                                      |               | Max.  | Max.  | 250   |       |       | mV            | $I_C = 10\text{mA}$ ,<br>$I_B = 0.5\text{mA}$            |
|                                      |               | Typ   | Typ   | 200   |       |       | mV            | $I_C = 100\text{mA}$ ,<br>$I_B = 5\text{mA}$             |
|                                      |               | Max.  | Max.  | 600   |       |       | mV            | $I_C = 10\text{mA}^*$                                    |
|                                      |               | Typ   | Typ   | 300   |       |       | mV            |                                                          |
|                                      |               | Max.  | Max.  | 600   |       |       | mV            |                                                          |
| Base-Emitter Saturation Voltage      | $V_{BE(sat)}$ | Typ   | Typ   | 700   |       |       | mV            | $I_C = 10\text{mA}$ ,<br>$I_B = 0.5\text{mA}$            |
|                                      |               | Typ   | Typ   | 900   |       |       | mV            | $I_C = 100\text{mA}$ ,<br>$I_B = 5\text{mA}$             |
|                                      |               | Min   | Min   | 580   |       |       | mV            | $I_C = 2\text{mA}$                                       |
|                                      |               | Typ   | Typ   | 660   |       |       | mV            | $V_{CE} = 5\text{V}$                                     |
|                                      |               | Max   | Max   | 700   |       |       | mV            |                                                          |
|                                      |               | Max   | Max   | 770   |       |       | mV            | $I_C = 10\text{mA}$ ,<br>$V_{CE} = 5\text{V}$            |

\* Collector-Emitter Saturation Voltage at  $I_C = 10\text{mA}$  for the characteristics going through the operating point  $I_C = 11\text{mA}$ ,  $V_{CE} = 1\text{V}$  at constant base current.

BC846  
BC848  
BC850

BC847  
BC849

BC846  
BC848  
BC850

BC847  
BC849

ELECTRICAL CHARACTERISTICS (Continued)

| PARAMETER               | SYMBOL   | BC846 | BC847 | BC848 | BC849 | BC850 | UNIT             | CONDITIONS.              |
|-------------------------|----------|-------|-------|-------|-------|-------|------------------|--------------------------|
| Dynamic Characteristics | $h_{ie}$ | Min   | 0.4   | 0.4   | —     | —     | k $\Omega$       | $V_{CE}=5V$<br>$I_C=2mA$ |
|                         |          | Typ   | 1.2   | 1.2   | —     | —     | k $\Omega$       |                          |
|                         |          | Max   | 2.2   | 2.2   | —     | —     | k $\Omega$       |                          |
|                         |          |       |       |       |       |       |                  |                          |
| Group A                 |          | Min   | 1.6   | 1.6   | —     | —     | k $\Omega$       |                          |
|                         |          | Typ   | 2.7   | 2.7   | —     | —     | k $\Omega$       |                          |
|                         |          | Max   | 4.5   | 4.5   | —     | —     | k $\Omega$       |                          |
|                         |          |       |       |       |       |       |                  |                          |
| Group B                 |          | Min   | 3.2   | 3.2   | —     | —     | k $\Omega$       |                          |
|                         |          | Typ   | 4.5   | 4.5   | —     | —     | k $\Omega$       |                          |
|                         |          | Max   | 8.5   | 8.5   | —     | —     | k $\Omega$       |                          |
|                         |          |       |       |       |       |       |                  |                          |
| Group C                 |          | Min   | 6     | 6     | 6     | 6     | k $\Omega$       |                          |
|                         |          | Typ   | 8.7   | 8.7   | 8.7   | 8.7   | k $\Omega$       |                          |
|                         |          | Max   | 15    | 15    | 15    | 15    | k $\Omega$       |                          |
|                         |          |       |       |       |       |       |                  |                          |
| Group VI                | $h_{re}$ | Typ   | 2.5   | 2.5   | —     | —     | $\times 10^{-4}$ |                          |
|                         |          | Typ   | 1.5   | 1.5   | —     | —     | $\times 10^{-4}$ |                          |
|                         |          | Typ   | 2     | 2     | 2     | 2     | $\times 10^{-4}$ |                          |
|                         |          | Typ   | —     | 3     | 3     | 3     | $\times 10^{-4}$ |                          |
| Group VI                | $h_{fe}$ | Min   | 75    | 75    | —     | —     | —                |                          |
|                         |          | Typ   | 110   | 110   | —     | —     | —                |                          |
|                         |          | Max   | 150   | 150   | —     | —     | —                |                          |
|                         |          |       |       |       |       |       |                  |                          |
| Group A                 |          | Min   | 125   | 125   | —     | —     | —                |                          |
|                         |          | Typ   | 220   | 220   | —     | —     | —                |                          |
|                         |          | Max   | 260   | 260   | —     | —     | —                |                          |
|                         |          |       |       |       |       |       |                  |                          |
| Group B                 |          | Min   | 240   | 240   | —     | —     | —                |                          |
|                         |          | Typ   | 330   | 330   | —     | —     | —                |                          |
|                         |          | Max   | 500   | 500   | —     | —     | —                |                          |
|                         |          |       |       |       |       |       |                  |                          |
| Group C                 |          | Min   | 450   | 450   | 450   | 450   | —                |                          |
|                         |          | Typ   | 600   | 600   | 600   | 600   | —                |                          |
|                         |          | Max   | 900   | 900   | 900   | 900   | —                |                          |
|                         |          |       |       |       |       |       |                  |                          |
| Group VI                | $h_{oe}$ | Typ   | 20    | 20    | —     | —     | $\mu S$          |                          |
|                         |          | Max   | 40    | 40    | —     | —     | $\mu S$          |                          |
|                         |          | Typ   | 18    | 18    | —     | —     | $\mu S$          |                          |
|                         |          | Max   | 30    | 30    | —     | —     | $\mu S$          |                          |
| Group A                 |          | Typ   | 30    | 30    | —     | —     | $\mu S$          |                          |
|                         |          | Max   | 60    | 60    | —     | —     | $\mu S$          |                          |
|                         |          |       |       |       |       |       |                  |                          |
|                         |          |       |       |       |       |       |                  |                          |
| Group B                 |          | Typ   | 60    | 60    | 60    | 60    | $\mu S$          |                          |
|                         |          | Max   | 110   | 110   | 110   | 110   | $\mu S$          |                          |
|                         |          |       |       |       |       |       |                  |                          |
|                         |          |       |       |       |       |       |                  |                          |
| Group C                 |          | Typ   | 110   | 110   | 110   | 110   | $\mu S$          |                          |
|                         |          | Max   | 110   | 110   | 110   | 110   | $\mu S$          |                          |
|                         |          |       |       |       |       |       |                  |                          |
|                         |          |       |       |       |       |       |                  |                          |

ELECTRICAL CHARACTERISTICS (Continued)

| PARAMETER                    | SYMBOL    | BC846 | BC847 | BC848 | BC849 | BC850 | UNIT | CONDITIONS.                                                                |
|------------------------------|-----------|-------|-------|-------|-------|-------|------|----------------------------------------------------------------------------|
| Static Forward Current Ratio | $h_{FE}$  | Min   | 75    | 75    | —     | —     | —    | $I_C=2mA, V_{CE}=5V$                                                       |
|                              |           | Typ   | 110   | 110   | —     | —     | —    |                                                                            |
|                              |           | Max   | 150   | 150   | —     | —     | —    |                                                                            |
|                              |           |       |       |       |       |       |      |                                                                            |
| Group A                      | $h_{FE}$  | Typ   | 90    | 90    | —     | —     | —    | $I_C=0.01mA, V_{CE}=5V$                                                    |
|                              |           |       |       |       |       |       |      |                                                                            |
|                              |           |       |       |       |       |       |      |                                                                            |
|                              |           |       |       |       |       |       |      |                                                                            |
| Group B                      | $h_{FE}$  | Min   | 110   | 110   | —     | —     | —    | $I_C=2mA, V_{CE}=5V$                                                       |
|                              |           | Typ   | 180   | 180   | —     | —     | —    |                                                                            |
|                              |           | Max   | 220   | 220   | —     | —     | —    |                                                                            |
|                              |           |       |       |       |       |       |      |                                                                            |
| Group B                      | $h_{FE}$  | Typ   | 120   | 120   | —     | —     | —    | $I_C=100mA, V_{CE}=5V$                                                     |
|                              |           |       |       |       |       |       |      |                                                                            |
|                              |           |       |       |       |       |       |      |                                                                            |
|                              |           |       |       |       |       |       |      |                                                                            |
| Group C                      | $h_{FE}$  | Typ   | 150   | 150   | —     | —     | —    | $I_C=0.01mA, V_{CE}=5V$                                                    |
|                              |           |       |       |       |       |       |      |                                                                            |
|                              |           |       |       |       |       |       |      |                                                                            |
|                              |           |       |       |       |       |       |      |                                                                            |
| Group C                      | $h_{FE}$  | Min   | 200   | 200   | —     | —     | —    | $I_C=2mA, V_{CE}=5V$                                                       |
|                              |           | Typ   | 270   | 270   | 270   | 270   | 270  |                                                                            |
|                              |           | Max   | 420   | 420   | 420   | 420   | 420  |                                                                            |
|                              |           |       |       |       |       |       |      |                                                                            |
| Transition Frequency         | $f_T$     | Typ   | —     | —     | —     | —     | —    | $I_C=10mA, V_{CE}=5V$<br>$f=100MHz$                                        |
|                              |           |       |       |       |       |       |      |                                                                            |
|                              |           |       |       |       |       |       |      |                                                                            |
|                              |           |       |       |       |       |       |      |                                                                            |
| Collector-Base Capacitance   | $C_{obo}$ | Typ   | 2.5   | 2.5   | —     | —     | pF   | $V_{CE}=10V, f=1MHz$                                                       |
|                              |           | Max   | 4.5   | 4.5   | —     | —     | pF   |                                                                            |
|                              |           |       |       |       |       |       |      |                                                                            |
|                              |           |       |       |       |       |       |      |                                                                            |
| Emitter-Base Capacitance     | $C_{ibo}$ | Typ   | 9     | 9     | —     | —     | pF   | $V_{EB}=0.5V, f=1MHz$                                                      |
|                              |           |       |       |       |       |       |      |                                                                            |
|                              |           |       |       |       |       |       |      |                                                                            |
|                              |           |       |       |       |       |       |      |                                                                            |
| Noise Figure                 | N         | Typ   | 2     | 2     | 2     | 2     | dB   | $V_{CE}=5V, I_C=200\mu A$<br>$R_G=2k\Omega, f=1kHz$<br>$\Delta f=200Hz$    |
|                              |           | Max   | 10    | 10    | 10    | 10    | dB   |                                                                            |
|                              |           |       |       |       |       |       |      |                                                                            |
|                              |           |       |       |       |       |       |      |                                                                            |
| Equivalent Noise Voltage     | $e_n$     | Typ   | —     | —     | —     | —     | nV   | $V_{CE}=5V, I_C=200\mu A$<br>$R_G=2k\Omega, f=10Hz$ to 50Hz at -3dB points |
|                              |           | Max   | —     | —     | —     | —     | nV   |                                                                            |
|                              |           |       |       |       |       |       |      |                                                                            |
|                              |           |       |       |       |       |       |      |                                                                            |

Spice parameter data is available upon request for this device

BC846  
BC848  
BC850

BC847  
BC849

BC846  
BC848  
BC850

BC847  
BC849

ELECTRICAL CHARACTERISTICS (Continued)

| PARAMETER               | SYMBOL   | BC846 | BC847 | BC848 | BC849 | BC850 | UNIT             | CONDITIONS.              |
|-------------------------|----------|-------|-------|-------|-------|-------|------------------|--------------------------|
| Dynamic Characteristics | $h_{ie}$ | Min   | 0.4   | 0.4   | —     | —     | k $\Omega$       | $V_{CE}=5V$<br>$I_C=2mA$ |
|                         |          | Typ   | 1.2   | 1.2   | —     | —     | k $\Omega$       |                          |
|                         |          | Max   | 2.2   | 2.2   | —     | —     | k $\Omega$       |                          |
|                         |          |       |       |       |       |       |                  |                          |
| Group A                 |          | Min   | 1.6   | 1.6   | —     | —     | k $\Omega$       |                          |
|                         |          | Typ   | 2.7   | 2.7   | —     | —     | k $\Omega$       |                          |
|                         |          | Max   | 4.5   | 4.5   | —     | —     | k $\Omega$       |                          |
|                         |          |       |       |       |       |       |                  |                          |
| Group B                 |          | Min   | 3.2   | 3.2   | —     | —     | k $\Omega$       |                          |
|                         |          | Typ   | 4.5   | 4.5   | —     | —     | k $\Omega$       |                          |
|                         |          | Max   | 8.5   | 8.5   | —     | —     | k $\Omega$       |                          |
|                         |          |       |       |       |       |       |                  |                          |
| Group C                 |          | Min   | 6     | 6     | 6     | 6     | k $\Omega$       |                          |
|                         |          | Typ   | 8.7   | 8.7   | 8.7   | 8.7   | k $\Omega$       |                          |
|                         |          | Max   | 15    | 15    | 15    | 15    | k $\Omega$       |                          |
|                         |          |       |       |       |       |       |                  |                          |
| Group VI                | $h_{re}$ | Typ   | 2.5   | 2.5   | —     | —     | $\times 10^{-4}$ |                          |
|                         |          | Typ   | 1.5   | 1.5   | —     | —     | $\times 10^{-4}$ |                          |
|                         |          | Typ   | 2     | 2     | 2     | 2     | $\times 10^{-4}$ |                          |
|                         |          | Typ   | —     | 3     | 3     | 3     | $\times 10^{-4}$ |                          |
| Group VI                | $h_{fe}$ | Min   | 75    | 75    | —     | —     | —                |                          |
|                         |          | Typ   | 110   | 110   | —     | —     | —                |                          |
|                         |          | Max   | 150   | 150   | —     | —     | —                |                          |
|                         |          |       |       |       |       |       |                  |                          |
| Group A                 |          | Min   | 125   | 125   | —     | —     | —                |                          |
|                         |          | Typ   | 220   | 220   | —     | —     | —                |                          |
|                         |          | Max   | 260   | 260   | —     | —     | —                |                          |
|                         |          |       |       |       |       |       |                  |                          |
| Group B                 |          | Min   | 240   | 240   | —     | —     | —                |                          |
|                         |          | Typ   | 330   | 330   | —     | —     | —                |                          |
|                         |          | Max   | 500   | 500   | —     | —     | —                |                          |
|                         |          |       |       |       |       |       |                  |                          |
| Group C                 |          | Min   | 450   | 450   | 450   | 450   | —                |                          |
|                         |          | Typ   | 600   | 600   | 600   | 600   | —                |                          |
|                         |          | Max   | 900   | 900   | 900   | 900   | —                |                          |
|                         |          |       |       |       |       |       |                  |                          |
| Group VI                | $h_{oe}$ | Typ   | 20    | 20    | —     | —     | $\mu S$          |                          |
|                         |          | Max   | 40    | 40    | —     | —     | $\mu S$          |                          |
|                         |          | Typ   | 18    | 18    | —     | —     | $\mu S$          |                          |
|                         |          | Max   | 30    | 30    | —     | —     | $\mu S$          |                          |
| Group A                 |          | Typ   | 30    | 30    | —     | —     | $\mu S$          |                          |
|                         |          | Max   | 60    | 60    | —     | —     | $\mu S$          |                          |
|                         |          |       |       |       |       |       |                  |                          |
|                         |          |       |       |       |       |       |                  |                          |
| Group B                 |          | Typ   | 60    | 60    | 60    | 60    | $\mu S$          |                          |
|                         |          | Max   | 110   | 110   | 110   | 110   | $\mu S$          |                          |
|                         |          |       |       |       |       |       |                  |                          |
|                         |          |       |       |       |       |       |                  |                          |
| Group C                 |          | Typ   | 110   | 110   | 110   | 110   | $\mu S$          |                          |
|                         |          | Max   | 110   | 110   | 110   | 110   | $\mu S$          |                          |
|                         |          |       |       |       |       |       |                  |                          |
|                         |          |       |       |       |       |       |                  |                          |

ELECTRICAL CHARACTERISTICS (Continued)

| PARAMETER                    | SYMBOL    | BC846 | BC847 | BC848 | BC849 | BC850 | UNIT | CONDITIONS.                                                                    |
|------------------------------|-----------|-------|-------|-------|-------|-------|------|--------------------------------------------------------------------------------|
| Static Forward Current Ratio | $h_{FE}$  | Min   | 75    | 75    | —     | —     | —    | $I_C=2mA, V_{CE}=5V$                                                           |
|                              |           | Typ   | 110   | 110   | —     | —     | —    |                                                                                |
|                              |           | Max   | 150   | 150   | —     | —     | —    |                                                                                |
|                              |           |       |       |       |       |       |      |                                                                                |
| Group A                      | $h_{FE}$  | Typ   | 90    | 90    | —     | —     | —    | $I_C=0.01mA, V_{CE}=5V$                                                        |
|                              |           |       |       |       |       |       |      |                                                                                |
|                              |           |       |       |       |       |       |      |                                                                                |
|                              |           |       |       |       |       |       |      |                                                                                |
| Group B                      | $h_{FE}$  | Min   | 110   | 110   | —     | —     | —    | $I_C=2mA, V_{CE}=5V$                                                           |
|                              |           | Typ   | 180   | 180   | —     | —     | —    |                                                                                |
|                              |           | Max   | 220   | 220   | —     | —     | —    |                                                                                |
|                              |           |       |       |       |       |       |      |                                                                                |
| Group B                      | $h_{FE}$  | Typ   | 120   | 120   | —     | —     | —    | $I_C=100mA, V_{CE}=5V$                                                         |
|                              |           |       |       |       |       |       |      |                                                                                |
|                              |           |       |       |       |       |       |      |                                                                                |
|                              |           |       |       |       |       |       |      |                                                                                |
| Group B                      | $h_{FE}$  | Typ   | 150   | 150   | —     | —     | —    | $I_C=0.01mA, V_{CE}=5V$                                                        |
|                              |           |       |       |       |       |       |      |                                                                                |
|                              |           |       |       |       |       |       |      |                                                                                |
|                              |           |       |       |       |       |       |      |                                                                                |
| Group C                      | $h_{FE}$  | Min   | 200   | 200   | —     | —     | —    | $I_C=2mA, V_{CE}=5V$                                                           |
|                              |           | Typ   | 270   | 270   | 270   | 270   | —    |                                                                                |
|                              |           | Max   | 420   | 420   | 420   | 420   | —    |                                                                                |
|                              |           |       |       |       |       |       |      |                                                                                |
| Group C                      | $h_{FE}$  | Typ   | —     | —     | —     | —     | —    | $I_C=100mA, V_{CE}=5V$                                                         |
|                              |           |       |       |       |       |       |      |                                                                                |
|                              |           |       |       |       |       |       |      |                                                                                |
|                              |           |       |       |       |       |       |      |                                                                                |
| Group C                      | $h_{FE}$  | Typ   | —     | —     | —     | —     | —    | $I_C=2mA, V_{CE}=5V$                                                           |
|                              |           |       |       |       |       |       |      |                                                                                |
|                              |           |       |       |       |       |       |      |                                                                                |
|                              |           |       |       |       |       |       |      |                                                                                |
| Group C                      | $h_{FE}$  | Typ   | —     | —     | —     | —     | —    | $I_C=100mA, V_{CE}=5V$                                                         |
|                              |           |       |       |       |       |       |      |                                                                                |
|                              |           |       |       |       |       |       |      |                                                                                |
|                              |           |       |       |       |       |       |      |                                                                                |
| Transition Frequency         | $f_T$     | Typ   | 300   | 300   | —     | —     | MHz  | $I_C=10mA, V_{CE}=5V$<br>$f=100MHz$                                            |
|                              |           |       |       |       |       |       |      |                                                                                |
|                              |           |       |       |       |       |       |      |                                                                                |
|                              |           |       |       |       |       |       |      |                                                                                |
| Collector-Base Capacitance   | $C_{obo}$ | Typ   | 2.5   | 2.5   | —     | —     | pF   | $V_{CE}=10V, f=1MHz$                                                           |
|                              |           | Max   | 4.5   | 4.5   | —     | —     | pF   |                                                                                |
|                              |           |       |       |       |       |       |      |                                                                                |
|                              |           |       |       |       |       |       |      |                                                                                |
| Emitter-Base Capacitance     | $C_{ibo}$ | Typ   | 9     | 9     | —     | —     | pF   | $V_{EB}=0.5V, f=1MHz$                                                          |
|                              |           |       |       |       |       |       |      |                                                                                |
|                              |           |       |       |       |       |       |      |                                                                                |
|                              |           |       |       |       |       |       |      |                                                                                |
| Noise Figure                 | N         | Typ   | 2     | 2     | 2     | 2     | dB   | $V_{CE}=5V, I_C=200\mu A$<br>$R_G=2k\Omega, f=1kHz$<br>$\Delta f=200Hz$        |
|                              |           | Max   | 10    | 10    | 10    | 10    | dB   |                                                                                |
|                              |           |       |       |       |       |       |      |                                                                                |
|                              |           |       |       |       |       |       |      |                                                                                |
| Noise Figure                 | N         | Typ   | —     | —     | —     | —     | dB   | $V_{CE}=5V, I_C=200\mu A$<br>$R_G=2k\Omega, f=30Hz$ to<br>15kHz at -3dB points |
|                              |           | Max   | —     | —     | —     | —     | dB   |                                                                                |
|                              |           |       |       |       |       |       |      |                                                                                |
|                              |           |       |       |       |       |       |      |                                                                                |
| Equivalent Noise Voltage     | $e_n$     | Max   | —     | —     | —     | —     | nV   | $V_{CE}=5V, I_C=200\mu A$<br>$R_G=2k\Omega, f=10Hz$ to<br>50Hz at -3dB points  |
|                              |           |       |       |       |       |       |      |                                                                                |
|                              |           |       |       |       |       |       |      |                                                                                |
|                              |           |       |       |       |       |       |      |                                                                                |

Spice parameter data is available upon request for this device