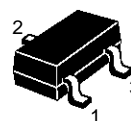


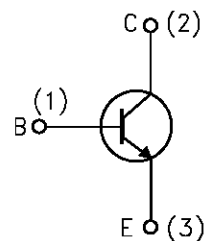
SMALL SIGNAL NPN TRANSISTOR

| Type | Marking |
|-------|---------|
| BCX19 | U1 |

- SILICON EPITAXIAL PLANAR NPN TRANSISTORS
- MINIATURE PLASTIC PACKAGE FOR APPLICATION IN SURFACE MOUNTING CIRCUITS
- MEDIUM CURRENT AF AMPLIFICATION AND SWITCHING
- PNP COMPLEMENTS IS BCX17


SOT-23

INTERNAL SCHEMATIC DIAGRAM



SC08960

ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | Unit |
|-----------|---|------------|------------------|
| V_{CES} | Collector-Emitter Voltage ($V_{BE} = 0$) | 50 | V |
| V_{CEO} | Collector-Emitter Voltage ($I_B = 0$) | 45 | V |
| V_{EBO} | Emitter-Base Voltage ($I_C = 0$) | 5 | V |
| I_C | Collector Current | 0.5 | A |
| I_{CM} | Collector Peak Current | 1 | A |
| I_B | Base Current | 0.1 | A |
| I_{BM} | Base Peak Current | 0.2 | A |
| I_{EM} | Emitter Peak Current | -1 | A |
| P_{tot} | Total Dissipation at $T_c = 25\text{ }^\circ\text{C}$ | 350 | mW |
| T_{stg} | Storage Temperature | -65 to 150 | $^\circ\text{C}$ |
| T_j | Max. Operating Junction Temperature | 150 | $^\circ\text{C}$ |

BCX19

THERMAL DATA

| | | | | |
|---------------|---------------------------------------|-----|-----|-----------------------------|
| $R_{thj-amb}$ | Thermal Resistance Junction-Ambient | Max | 350 | $^{\circ}\text{C}/\text{W}$ |
| R_{thj-SR} | Thermal Resistance Junction-Substrate | Max | 290 | $^{\circ}\text{C}/\text{W}$ |

• Mounted on a ceramic substrate area = 15 x 15 x 0.6 mm

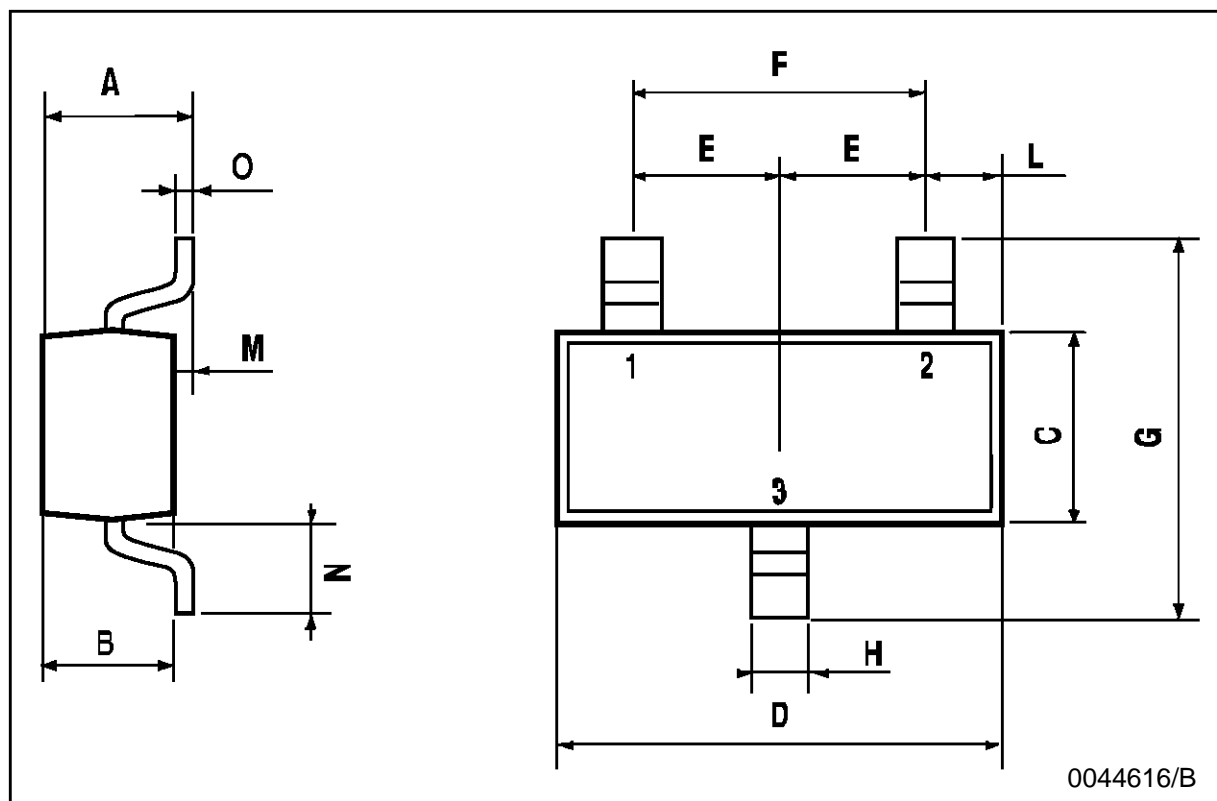
ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}\text{C}$ unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|-----------------|--|---|-----------------|------|----------|---------------------|
| I_{CBO} | Collector Cut-off Current ($I_E = 0$) | $V_{CB} = 20\text{ V}$ $V_{CB} = 20\text{ V}$ $T_j = 150^{\circ}\text{C}$ | | | 100 5 | nA μA |
| $V_{(BR)CES}^*$ | Collector-Emitter Breakdown Voltage ($V_{BE} = 0$) | $I_C = 10\ \mu\text{A}$ | 50 | | | V |
| $V_{(BR)CEO}^*$ | Collector-Emitter Breakdown Voltage ($I_B = 0$) | $I_C = 10\text{ mA}$ | 45 | | | V |
| $V_{(BR)EBO}$ | Emitter-Base Breakdown Voltage ($I_C = 0$) | $I_E = 10\ \mu\text{A}$ | 5 | | | V |
| $V_{CE(sat)}^*$ | Collector-Emitter Saturation Voltage | $I_C = 500\text{ mA}$ $I_B = 50\text{ mA}$ | | | 0.62 | V |
| $V_{BE(on)}^*$ | Base-Emitter On Voltage | $I_C = 500\text{ mA}$ $V_{CE} = 1\text{ V}$ | | | 1.2 | V |
| h_{FE}^* | DC Current Gain | $I_C = 100\text{ mA}$ $V_{CE} = 1\text{ V}$ $I_C = 300\text{ mA}$ $V_{CE} = 1\text{ V}$ $I_C = 500\text{ mA}$ $V_{CE} = 1\text{ V}$ | 100 70 40 | | | |
| f_T | Transition Frequency | $I_C = 10\text{ mA}$ $V_{CE} = 5\text{ V}$ $f = 100\text{ MHz}$ | | 200 | | MHz |
| C_{CB} | Collector Base Capacitance | $I_E = 0\text{ mA}$ $V_{CB} = 10\text{ V}$ $f = 1\text{ MHz}$ | | 6 | | pF |

* Pulsed: Pulse duration = 300 μs , duty cycle $\leq 2\%$

SOT-23 MECHANICAL DATA

| DIM. | mm | | | mils | | |
|------|------|------|------|-------|------|------|
| | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. |
| A | 0.85 | | 1.1 | 33.4 | | 43.3 |
| B | 0.65 | | 0.95 | 25.6 | | 37.4 |
| C | 1.20 | | 1.4 | 47.2 | | 55.1 |
| D | 2.80 | | 3 | 110.2 | | 118 |
| E | 0.95 | | 1.05 | 37.4 | | 41.3 |
| F | 1.9 | | 2.05 | 74.8 | | 80.7 |
| G | 2.1 | | 2.5 | 82.6 | | 98.4 |
| H | 0.38 | | 0.48 | 14.9 | | 18.8 |
| L | 0.3 | | 0.6 | 11.8 | | 23.6 |
| M | 0 | | 0.1 | 0 | | 3.9 |
| N | 0.3 | | 0.65 | 11.8 | | 25.6 |
| O | 0.09 | | 0.17 | 3.5 | | 6.7 |



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