



## 9015

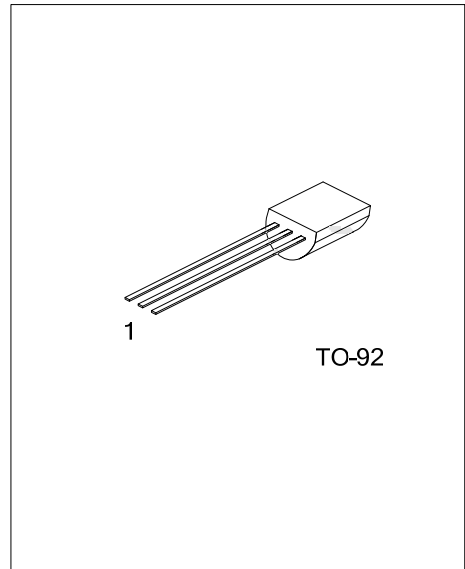
Preliminary

### PNP EPITAXIAL SILICON TRANSISTOR

## PRE-AMPLIFIER, LOW LEVEL & LOW NOISE

### ■ FEATURES

- \* High total power dissipation. (450mW)
- \* Excellent hFE linearity.
- \* Complementary to UTC 9014



### ■ ORDERING INFORMATION

| Ordering Number |               | Package | Packing   |
|-----------------|---------------|---------|-----------|
| Lead Free       | Halogen Free  |         |           |
| 9015L-x-T92-B   | 9015G-x-T92-B | TO-92   | Tape Box  |
| 9015L-x-T92-K   | 9015G-x-T92-K | TO-92   | Bulk      |
| 9015L-x-T92-T   | 9015G-x-T92-T | TO-92   | Tape Reel |

|                      |  |  |
|----------------------|--|--|
| <p>9015L-x-T92-B</p> | <p>(1)Packing Type<br/>(2)Package Type<br/>(3)Rank<br/>(4)Halogen Free</p> | <p>(1) B: Tape Box, T: Tape Reel<br/>(2) T92: TO-92<br/>(3) x: refer to Classification of hFE<br/>(4) G:Halogen Free, L: Lead Free</p> |
|----------------------|--|--|

■ ABSOLUTE MAXIMUM RATINGS ( Ta=25°C, unless otherwise specified )

| PARAMETER                 | SYMBOL    | RATINGS  | UNIT |
|---------------------------|-----------|----------|------|
| Collector-Base Voltage    | $V_{CBO}$ | -50      | V    |
| Collector-Emitter Voltage | $V_{CEO}$ | -45      | V    |
| Emitter-Base Voltage      | $V_{EBO}$ | -5       | V    |
| Collector Current         | $I_C$     | -100     | mA   |
| Collector Dissipation     | $P_C$     | 450      | mW   |
| Junction Temperature      | $T_J$     | +150     | °C   |
| Storage Temperature       | $T_{STG}$ | -55~+150 | °C   |

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ ELECTRICAL CHARACTERISTICS ( Ta=25°C, unless otherwise specified)

| PARAMETER                            | SYMBOL        | TEST CONDITIONS  | MIN  | TYP   | MAX   | UNIT |
|--------------------------------------|---------------|--|------|-------|-------|------|
| Collector-Base Breakdown Voltage     | $BV_{CBO}$    | $I_C = -100\mu A, I_E = 0$                                 | -50  |       |       | V    |
| Collector-Emitter Breakdown Voltage  | $BV_{CEO}$    | $I_C = -1mA, I_B = 0$                                      | -45  |       |       | V    |
| Emitter-Base Breakdown Voltage       | $BV_{EBO}$    | $I_E = -100\mu A, I_C = 0$                                 | -5   |       |       | V    |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = -100mA, I_B = -5mA$                                 |      | -0.2  | -0.7  | V    |
| Base-Emitter Saturation Voltage      | $V_{BE(sat)}$ | $I_C = -100mA, I_B = -5mA$                                 |      | -0.82 | -1.0  | V    |
| Base-Emitter On Voltage              | $V_{BE(on)}$  | $V_{CE} = -5V, I_C = -2mA$                                 | -0.6 | -0.65 | -0.75 | V    |
| Collector Cutoff Current             | $I_{CBO}$     | $V_{CB} = -50V, I_E = 0$                                   |      |       | -50   | nA   |
| Emitter Cutoff Current               | $I_{EBO}$     | $V_{EB} = -5V, I_C = 0$                                    |      |       | -100  | nA   |
| DC Current Gain                      | $h_{FE}$      | $V_{CE} = -5V, I_C = -1mA$                                 | 60   | 200   | 600   |      |
| Output Capacitance                   | $C_{ob}$      | $V_{CB} = -10V, I_E = 0, f = 1MHz$                         |      | 4.5   | 7.0   | pF   |
| Current Gain-Bandwidth Product       | $f_T$         | $V_{CE} = -5V, I_C = -10mA$                                | 100  | 190   |       | MHz  |
| Noise Figure                         | NF            | $V_{CE} = -5V, I_C = -0.2mA$<br>$f = 1KHz, R_s = 1K\Omega$ |      | 0.7   | 10    | dB   |

■ CLASSIFICATION OF  $h_{FE}$

| RANK  | A      | B       | C       |
|-------|--------|---------|---------|
| RANGE | 60-150 | 100-300 | 200-600 |

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