

# General Purpose Transistors

## NPN Silicon

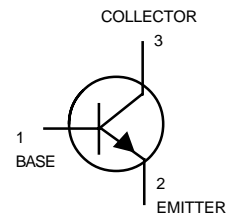
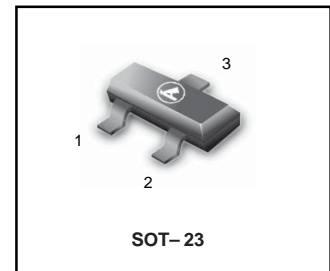
### FEATURE

- Complementary to L9014.
- We declare that the material of product compliance with RoHS requirements.

### DEVICE MARKING AND ORDERING INFORMATION

| Device     | Marking | Shipping        |
|------------|---------|-----------------|
| L9014QLT1G | 14Q     | 3000/Tape&Reel  |
| L9014QLT3G | 14Q     | 10000/Tape&Reel |
| L9014RLT1G | 14R     | 3000/Tape&Reel  |
| L9014RLT3G | 14R     | 10000/Tape&Reel |
| L9014SLT1G | 14S     | 3000/Tape&Reel  |
| L9014SLT3G | 14S     | 10000/Tape&Reel |
| L9014TLT1G | 14T     | 3000/Tape&Reel  |
| L9014TLT3G | 14T     | 10000/Tape&Reel |

## L9014QLT1G Series



### MAXIMUM RATINGS

| Rating                       | Symbol    | Value | Unit |
|------------------------------|-----------|-------|------|
| Collector-Emitter Voltage    | $V_{CEO}$ | 45    | V    |
| Collector-Base Voltage       | $V_{CBO}$ | 50    | V    |
| Emitter-Base Voltage         | $V_{EBO}$ | 5     | V    |
| Collector current-continuoun | $I_C$     | 100   | mA   |

### THERMAL CHARATEERISTICS

| Characteristic  | Symbol          | Max         | Unit                      |
|---|-----------------|-------------|---------------------------|
| Total Device Dissipation FR-5 Board, (1)<br>$T_A=25^\circ\text{C}$        | $P_D$           | 225         | mW                        |
| Derate above $25^\circ\text{C}$   |                 | 1.8         | mW/ $^\circ\text{C}$      |
| Thermal Resistance, Junction to Ambient                                   | $R_{\theta JA}$ | 556         | $^\circ\text{C}/\text{W}$ |
| Total Device Dissipation<br>Alumina Substrate, (2) $T_A=25^\circ\text{C}$ | $P_D$           | 300         | mW                        |
| Derate above $25^\circ\text{C}$   |                 | 2.4         | mW/ $^\circ\text{C}$      |
| Thermal Resistance, Junction to Ambient                                   | $R_{\theta JA}$ | 417         | $^\circ\text{C}/\text{W}$ |
| Junction and Storage Temperature  | $T_J, T_{stg}$  | -55 to +150 | $^\circ\text{C}$          |

1. FR-5 = 1.0 x 0.75 x 0.062 in.

2. Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.

**L9014QLT1G Series**

**ELECTRICAL CHARACTERISTICS (TA=25°C unless otherwise noted)**

**OFF CHARACTERISTICS**

| Characteristic   | Symbol        | Min | Typ | Max | Unit |
|--|---------------|-----|-----|-----|------|
| Collector-Emitter Breakdown Voltage<br>( $I_C=1.0\text{mA}$ )  | $V(BR)_{CEO}$ | 45  | -   | -   | V    |
| Emitter-Base Breakdown Voltage<br>( $I_E=100\ \mu\text{A}$ )   | $V(BR)_{EBO}$ | 5   | -   | -   | V    |
| Collector-Base Breakdown Voltage<br>( $I_C=100\ \mu\text{A}$ ) | $V(BR)_{CBO}$ | 50  | -   | -   | V    |
| Collector Cutoff Current ( $V_{CB}=40\text{V}$ )               | $I_{CBO}$     | -   | -   | 100 | nA   |
| Emitter Cutoff Current ( $V_{EB}=3\text{V}$ )                  | $I_{EBO}$     | -   | -   | 100 | nA   |

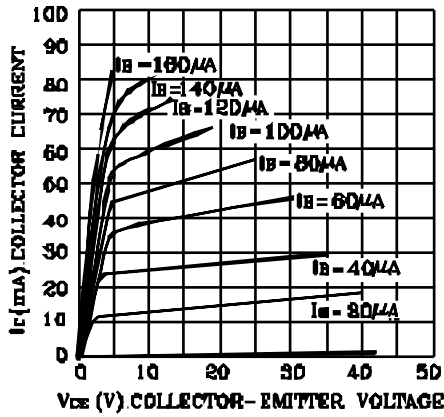
**ON CHARACTERISTICS**

|   |          |     |   |      |   |
|---|----------|-----|---|------|---|
| DC Current Gain<br>( $I_C=1\text{mA}$ , $V_{CE}=5\text{V}$ )                      | $H_{FE}$ | 150 | - | 1000 |   |
| Collector-Emitter Saturation Voltage<br>( $I_C=100\text{mA}$ , $I_B=5\text{mA}$ ) | $V_{CE}$ | -   | - | 0.3  | V |

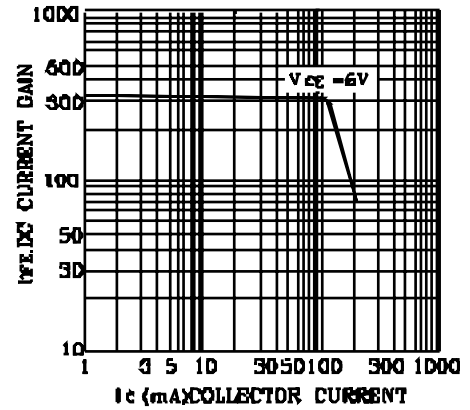
| NOTE: | *        | Q       | R       | S       | T        |
|-------|----------|---------|---------|---------|----------|
|       | $H_{FE}$ | 150~300 | 200~400 | 300~600 | 400~1000 |

L9014QLT1G Series

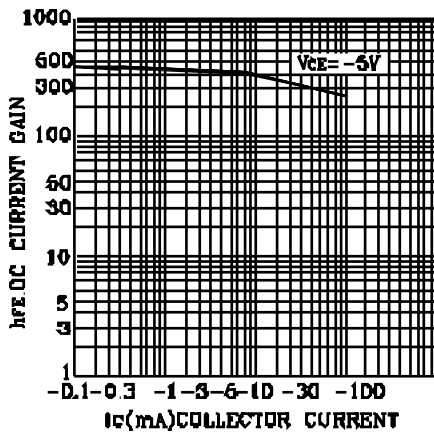
STATIC CHARACTERISTIC



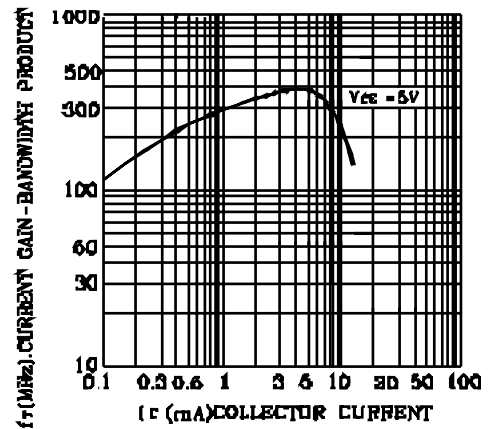
DC CURRENT GAIN



BASE-EMITTER SATURATION VOLTAGE  
COLLECTOR-EMITTER SATURATION VOLTAGE

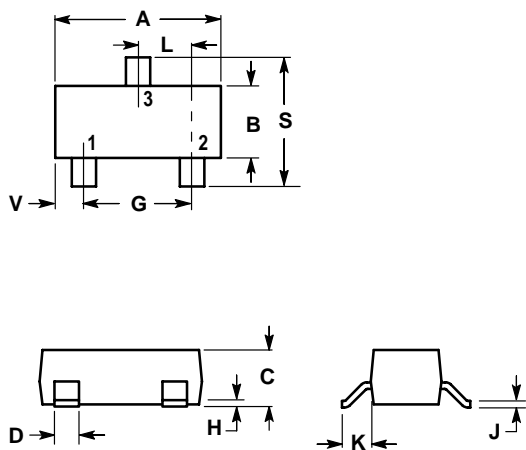


CURRENT GAIN-BANDWIDTH PRODUCT



L9014QLT1G Series

SOT-23



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

| DIM | INCHES |        | MILLIMETERS |       |
|-----|--------|--------|-------------|-------|
|     | MIN    | MAX    | MIN         | MAX   |
| A   | 0.1102 | 0.1197 | 2.80        | 3.04  |
| B   | 0.0472 | 0.0551 | 1.20        | 1.40  |
| C   | 0.0350 | 0.0440 | 0.89        | 1.11  |
| D   | 0.0150 | 0.0200 | 0.37        | 0.50  |
| G   | 0.0701 | 0.0807 | 1.78        | 2.04  |
| H   | 0.0005 | 0.0040 | 0.013       | 0.100 |
| J   | 0.0034 | 0.0070 | 0.085       | 0.177 |
| K   | 0.0140 | 0.0285 | 0.35        | 0.69  |
| L   | 0.0350 | 0.0401 | 0.89        | 1.02  |
| S   | 0.0830 | 0.1039 | 2.10        | 2.64  |
| V   | 0.0177 | 0.0236 | 0.45        | 0.60  |

- PIN 1. BASE  
 2. EMITTER  
 3. COLLECTOR

