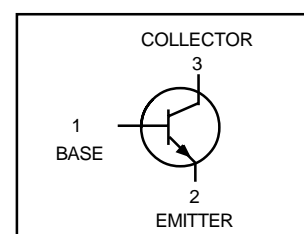
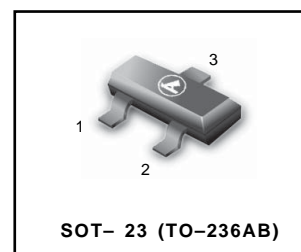


# Epitaxial planar type NPN silicon transistor

## L2SD2114KVLTL1G Series

### ●Features

- 1) High DC current gain.  
 $h_{FE} = 1200$  (Typ.)
- 2) High emitter-base voltage.  
 $V_{EBO} = 12V$  (Min.)
- 3) Low  $V_{CE(sat)}$ .  
 $V_{CE(sat)} = 0.18V$  (Typ.)  
( $I_C / I_B = 500mA / 20mA$ )
- 4) We declare that the material of product compliance with RoHS requirements.



### ●Absolute maximum ratings (Ta=25°C)

| Parameter                   | Symbol    | Limits   | Unit       |
|-----------------------------|-----------|----------|------------|
| Collector-base voltage      | $V_{CBO}$ | 25       | V          |
| Collector-emitter voltage   | $V_{CEO}$ | 20       | V          |
| Emitter-base voltage        | $V_{EBO}$ | 12       | V          |
| Collector current           | $I_C$     | 0.5      | A(DC)      |
|                             |           | 1        | A(Pulse) * |
| Collector power dissipation | $P_C$     | 0.2      | W          |
| Junction temperature        | $T_j$     | 150      | °C         |
| Storage temperature         | $T_{stg}$ | -55~+150 | °C         |

\* Single pulse  $P_w=100ms$

### ●Electrical characteristics (Ta=25°C)

| Parameter                            | Symbol        | Min. | Typ. | Max. | Unit    | Conditions                        |
|--------------------------------------|---------------|------|------|------|---------|-----------------------------------|
| Collector-base breakdown voltage     | $BV_{CBO}$    | 25   | -    | -    | V       | $I_C=10\mu A$                     |
| Collector-emitter breakdown voltage  | $BV_{CEO}$    | 20   | -    | -    | V       | $I_C=1mA$                         |
| Emitter-base breakdown voltage       | $BV_{EBO}$    | 12   | -    | -    | V       | $I_E=10\mu A$                     |
| Collector cutoff current             | $I_{CBO}$     | -    | -    | 0.5  | $\mu A$ | $V_{CB}=20V$                      |
| Emitter cutoff current               | $I_{EBO}$     | -    | -    | 0.5  | $\mu A$ | $V_{EB}=10V$                      |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | -    | 0.18 | 0.4  | V       | $I_C/I_B=500mA/20mA$              |
| DC current transfer ratio            | $h_{FE}$      | 820  | -    | 2700 | -       | $V_{CE}=3V, I_C=10mA$             |
| Transition frequency                 | $f_T^*$       | -    | 350  | -    | MHz     | $V_{CE}=10V, I_E=-50mA, f=100MHz$ |
| Output capacitance                   | $C_{ob}$      | -    | 8.0  | -    | pF      | $V_{CB}=10V, I_E=0A, f=1MHz$      |
| Output On-resistance                 | $R_{on}$      | -    | 0.8  | -    | pF      | $I_B=1mA, V_i=100mV(rms), f=1kHz$ |

\* Measured using pulse current

### ● $h_{FE}$ Values Classification, Device Marking and Ordering Information

| Device          | $h_{FE}$  | Marking | Shipping        |
|-----------------|-----------|---------|-----------------|
| L2SD2114KVLTL1G | 820~1800  | BV      | 3000/Tape&Reel  |
| L2SD2114KVLTL3G | 820~1800  | BV      | 10000/Tape&Reel |
| L2SD2114KWLT1G  | 1200~2700 | BW      | 3000/Tape&Reel  |
| L2SD2114KWLT3G  | 1200~2700 | BW      | 10000/Tape&Reel |

## L2SD2114KVLT1G Series

### ●Electrical characteristic curves

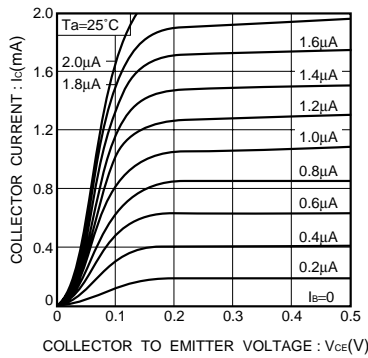


Fig.1 Grounded emitter output characteristics(I)

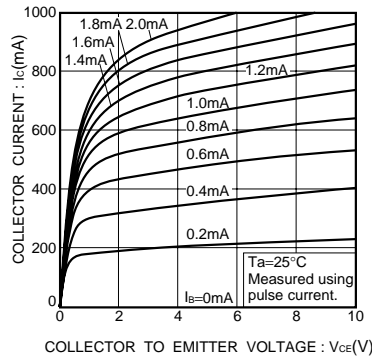


Fig.2 Grounded emitter output characteristics(II)

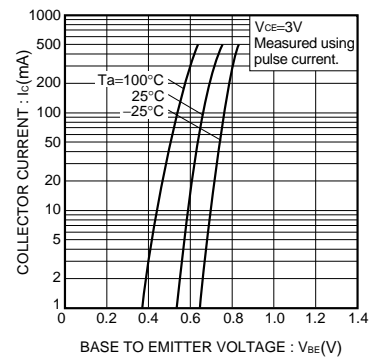


Fig.3 Grounded emitter propagation characteristics

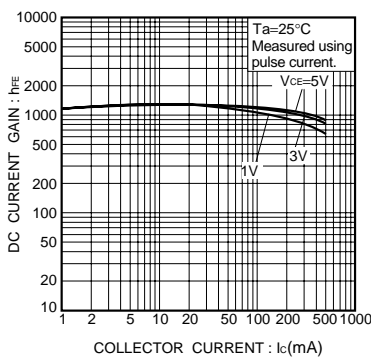


Fig.4 DC current gain vs. collector current(I)

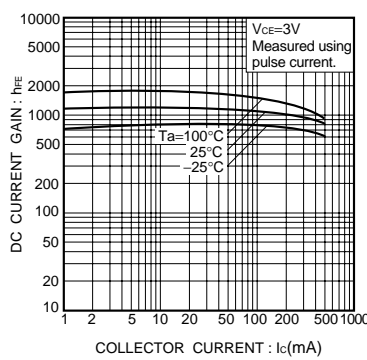


Fig.5 DC current gain vs. collector current(II)

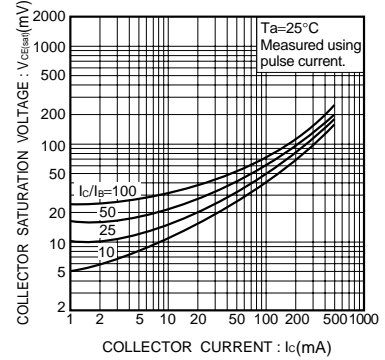


Fig.6 Collector-emitter saturation voltage vs. collector current(I)

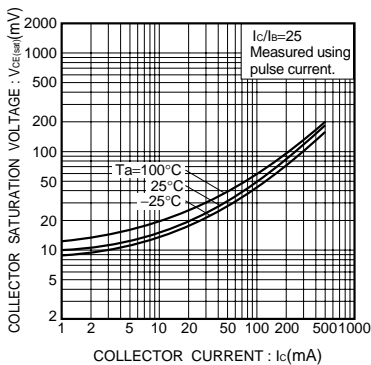


Fig.7 Collector-emitter saturation voltage vs. collector current(II)

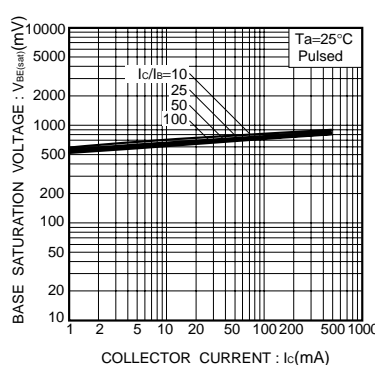


Fig.8 Base-emitter saturation voltage vs. collector current(I)

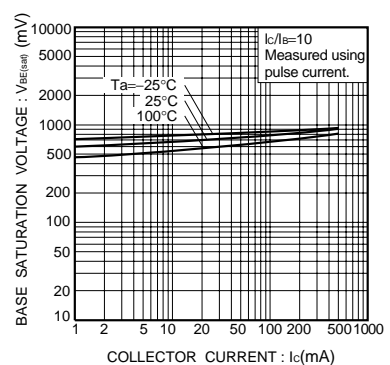


Fig.9 Base-emitter saturation voltage vs. collector current(II)

### L2SD2114KVLT1G Series

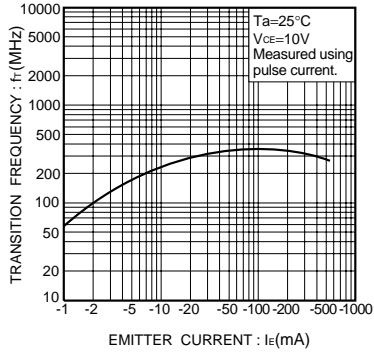


Fig.10 Gain bandwidth product vs. emitter current

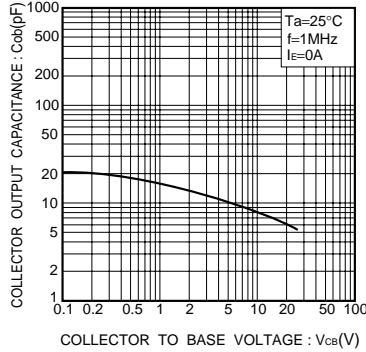


Fig.11 Collector output capacitance vs. collector-base voltage

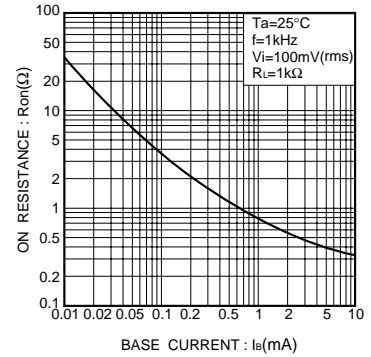
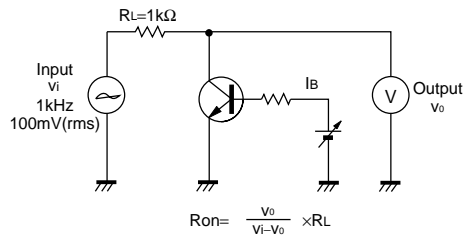


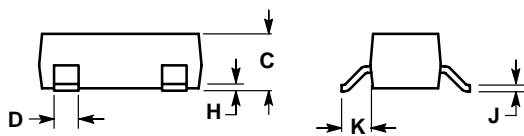
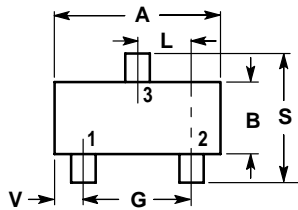
Fig.12 Output-on resistance vs. base current

● Ron measurement circuit



## L2SD2114KVLT1G 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. ANODE  
 2. NO CONNECTION  
 3. CATHODE

