

General Purpose Transistors

-40V, -2A Low V_{CE(sat)} PNP Silicon

FEATURES

- Low collector-emitter saturation voltage
- High current capability
- Improved device reliability due to reduced heat generation
- Replacement for SOT89/SOT223 standard packaged transistors.
- We declare that the material of product compliance with RoHS requirements.
- S- Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable.

APPLICATIONS

- Supply line switching circuits
- Battery management applications
- DC/DC converter applications
- Strobe flash units
- Heavy duty battery powered equipment (motor and lamp drivers).

DESCRIPTION

PNP low V_{CEsat} transistor in a SOT23 plastic package.
NPN complement: LBSS4240LT1G.

ORDERING INFORMATION

| Device | Marking | Shipping |
|--------------------------------|---------|-------------------|
| LBSS5240LT1G S-LBSS5240LT1G | ZF | 3000/Tape & Reel |
| LBSS5240LT3G S-LBSS5240LT3G | ZF | 10000/Tape & Reel |

MAXIMUM RATINGS

| Rating | Symbol | Value | Unit |
|--------------------------------|------------------|------------|------|
| Collector–Emitter Voltage | V _{CEO} | -40 | V |
| Collector–Base Voltage | V _{CBO} | -40 | V |
| Emitter–Base Voltage | V _{EBO} | -5.0 | V |
| Collector Current — Continuous | I _C | -2 | A |
| power dissipation | P _D | 0.3 | W |
| Junction temperature | T _j | 150 | °C |
| Storage temperature | T _{stg} | -65 ~ +150 | °C |

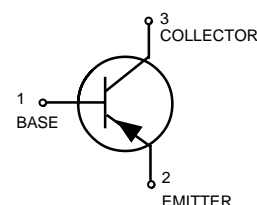
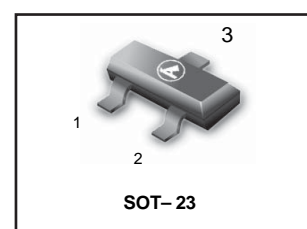
THERMAL CHARACTERISTICS

| Symbol | Parameter | Conditions | Value | Unit |
|----------------------|---|--------------------|-------|------|
| R _{th(j-a)} | thermal resistance from junction to ambient | in free air;note 1 | 417 | K/W |
| | | in free air;note 2 | 260 | K/W |

Notes:

- 1.Device mounted on a printed-circuit board,single sided copper,tinplated and standard footprint.
- 2.Device mounted on a printed-circuit board,single sided copper,tinplated and mounted pad for collector 1 cm²

LBSS5240LT1G
S-LBSS5240LT1G



LBSS5240LT1G,S-LBSS5240LT1G

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted.)

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|--------------|--------------------------------------|---|--------------------------|--------------------------------------|----------------------------|
| I_{CBO} | collector-base cut-off current | $V_{CB} = -30\text{ V}; I_E = 0$ | – | –100 | nA |
| I_{EBO} | emitter-base cut-off current | $V_{BE} = -4\text{ V}; I_C = 0$ | – | –100 | nA |
| h_{FE} | DC current gain | $V_{CE} = -2\text{ V}$ $I_C = -100\text{ mA}$ $I_C = -500\text{ mA}$ $I_C = -1\text{ A}$ $I_C = -2\text{ A}$ | 300 260 210 100 | – – – – | |
| V_{CEsat} | collector-emitter saturation voltage | $I_C = -100\text{ mA}; I_B = -1\text{ mA}$ $I_C = -500\text{ mA}; I_B = -50\text{ mA}$ $I_C = -750\text{ mA}; I_B = -15\text{ mA}$ $I_C = -1\text{ A}; I_B = -50\text{ mA}$ $I_C = -2\text{ A}; I_B = -200\text{ mA}$ | – – – – – | –100 –110 –225 –225 –350 | mV mV mV mV mV |
| V_{BEsat} | base-emitter saturation voltage | $I_C = -2\text{ A}; I_B = -200\text{ mA}$ | – | –1.1 | V |
| $V_{BE(on)}$ | base-emitter turn-on voltage | $V_{CE} = -2\text{ V}; I_C = -100\text{ mA}$ | – | –0.75 | V |
| f_T | transition frequency | $I_C = -100\text{ mA}; V_{CE} = -10\text{ V};$ $f = 100\text{ MHz}$ | 100 | – | MHz |
| C_c | collector capacitance | $V_{CB} = -10\text{ V}; I_E = I_e = 0;$ $f = 1\text{ MHz}$ | – | 28 | pF |

LBSS5240LT1G,S-LBSS5240LT1G

ELECTRICAL CHARACTERISTIC CURVES
(Ta = 25°C)

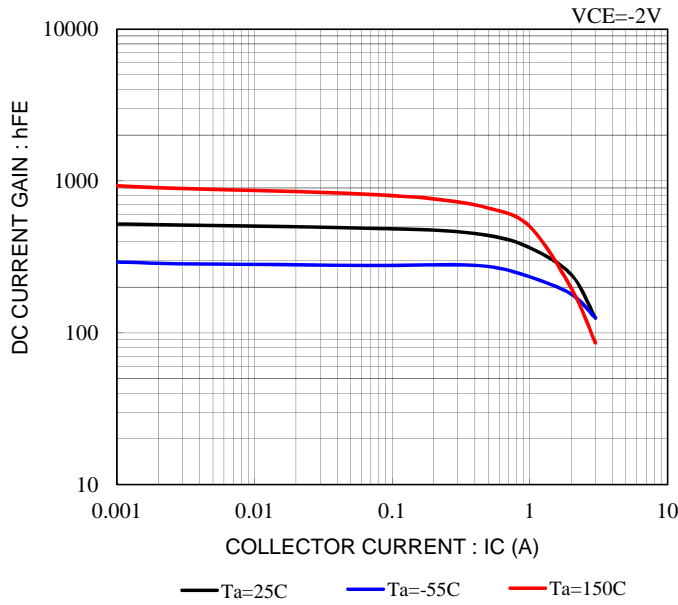


Fig.1 DC CURRENT GAIN VS.COLLECTOR CURRENT

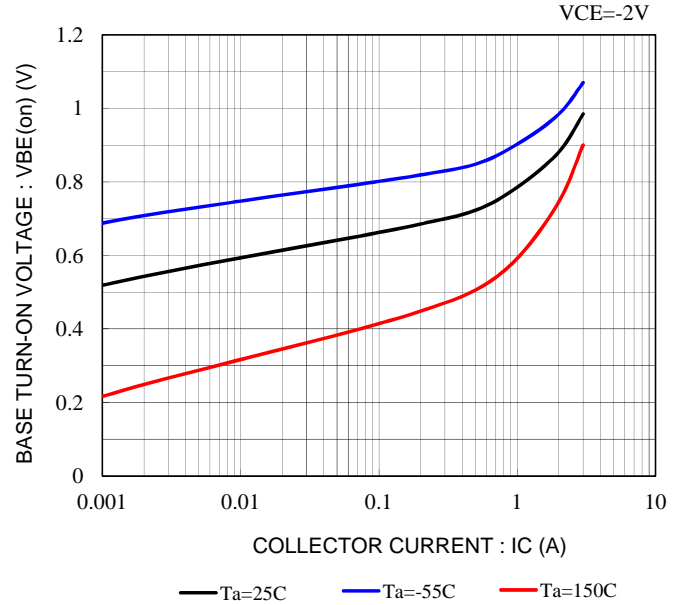


Fig.2 BASE-EMITTER TURN-ON VOLTAGE VS.COLLECTOR CURRENT

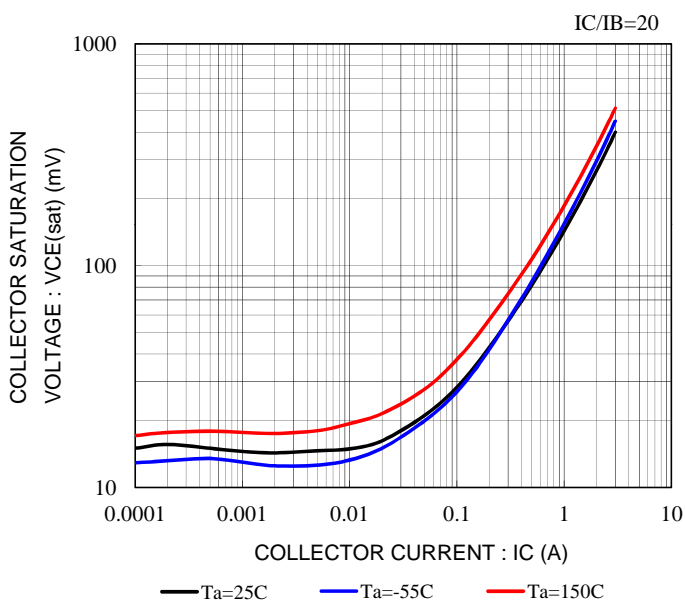


Fig.3 COLLECTOR-EMITTER SATURATION VOLTAGE VS.COLLECTOR CURRENT

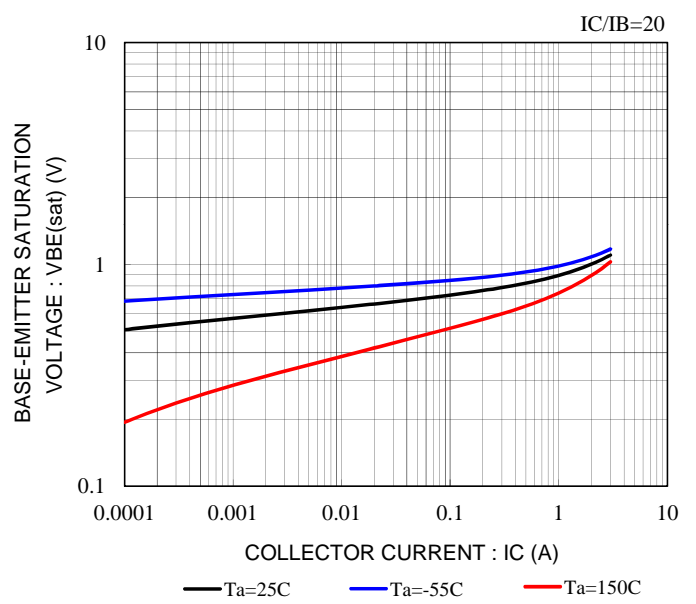


Fig.4 BASE-EMITTER SATURATION VOLTAGE VS.COLLECTOR CURRENT

LBSS5240LT1G,S-LBSS5240LT1G

ELECTRICAL CHARACTERISTIC CURVES
($T_a = 25^\circ\text{C}$)

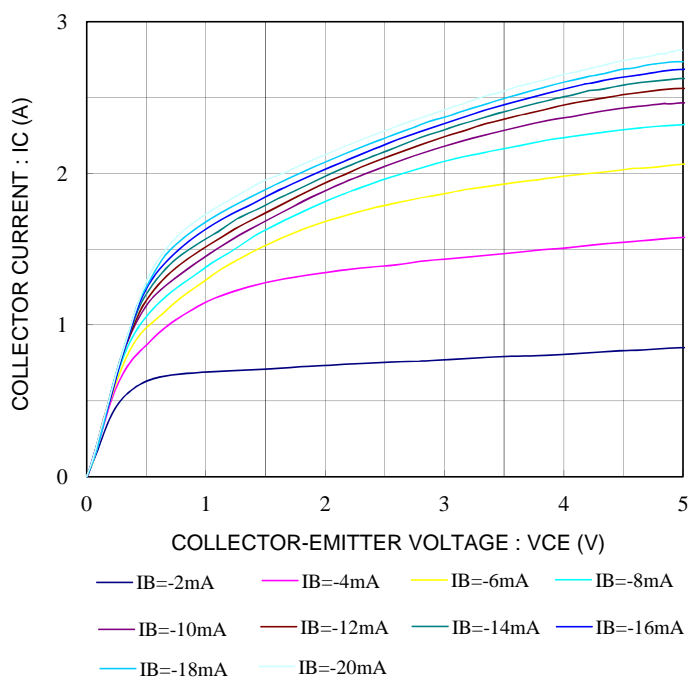


Fig.5 COLLECTOR CURRENT VS.COLLECTOR-EMITTER SATURATION VOLTAGE

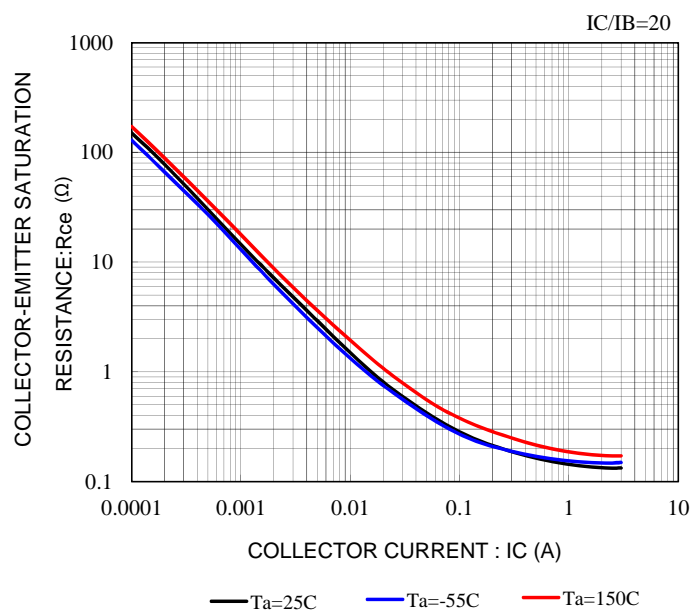


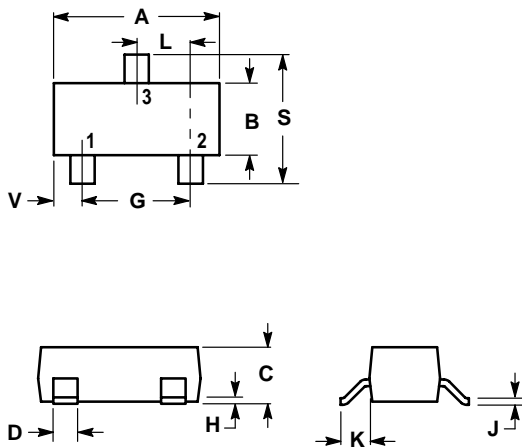
Fig.6 COLLECTOR-EMITTER SATURATION RESISTANCE VS.COLLECTOR CURRENT

LBSS5240LT1G,S-LBSS5240LT1G

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 |

