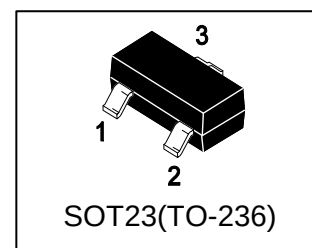


# LMUN2216LT1G

Bias Resistor Transistor

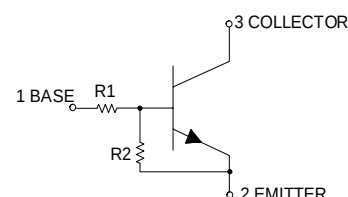
NPN Silicon Surface Mount Transistor

with Monolithic Bias Resistor Network



## 1. FEATURES

- Simplifies circuit design
- Reduces board space and component count
- We declare that the material of product compliance with RoHS requirements and Halogen Free.



## 2. DEVICE MARKING AND RESISTOR VALUES

| Device       | Marking | R1(K) | R2(K)    | Vin(V) | Shipping       |
|--------------|---------|-------|----------|--------|----------------|
| LMUN2216LT1G | A8F     | 4.7   | $\infty$ | -6+30  | 3000/Tape&Reel |

## 3. MAXIMUM RATINGS(Ta = 25°C)

| Parameter                      | Symbol | Limits | Unit |
|--------------------------------|--------|--------|------|
| Collector–Emitter Voltage      | VCEO   | 50     | V    |
| Collector–Base Voltage         | VCBO   | 50     | V    |
| Collector Current — Continuous | IC     | 100    | mA   |

## 4. THERMAL CHARACTERISTICS

| Parameter                                                                         | Symbol  | Limits     | Unit        |
|-----------------------------------------------------------------------------------|---------|------------|-------------|
| Total Device Dissipation,<br>FR-5 Board (Note 1) @ TA = 25°C<br>Derate above 25°C | PD      | 246<br>1.5 | mW<br>mW/°C |
| Thermal Resistance,<br>Junction–to–Ambient(Note 1)                                | RθJA    | 508        | °C/W        |
| Junction and Storage temperature                                                  | TJ,Tstg | -55~+150   | °C          |

1. FR-5 @ Minimum Pad.

## 5. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

### OFF CHARACTERISTICS

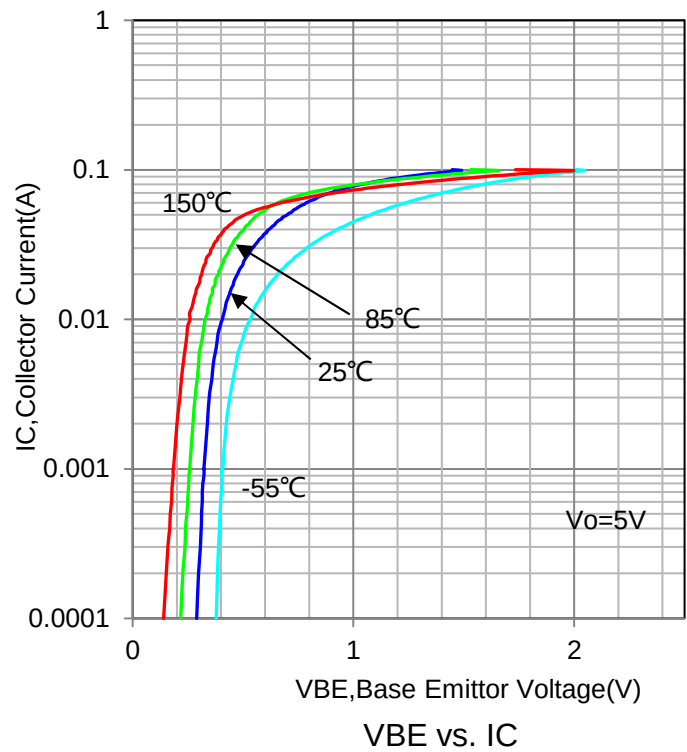
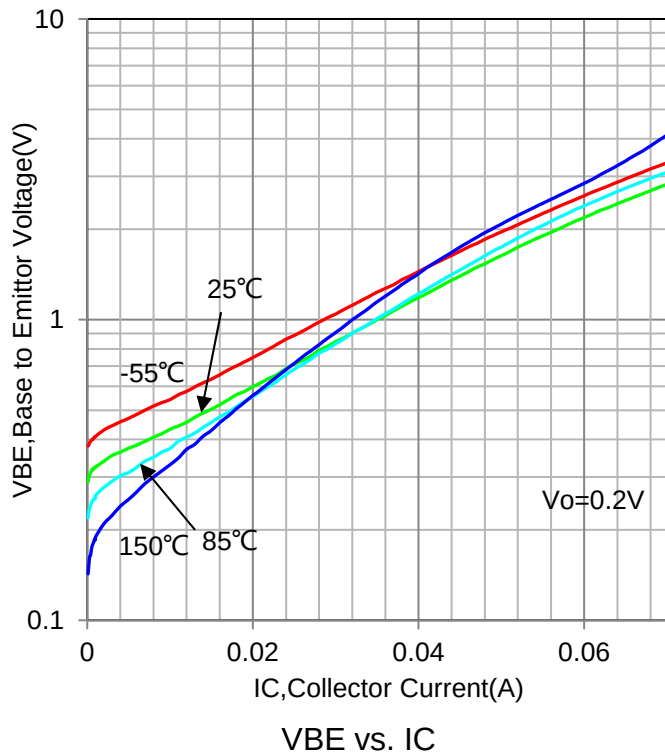
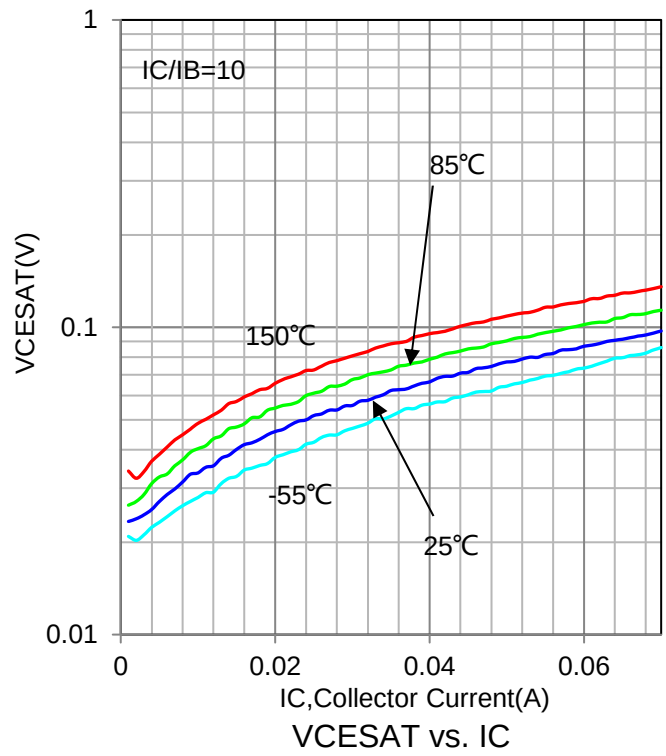
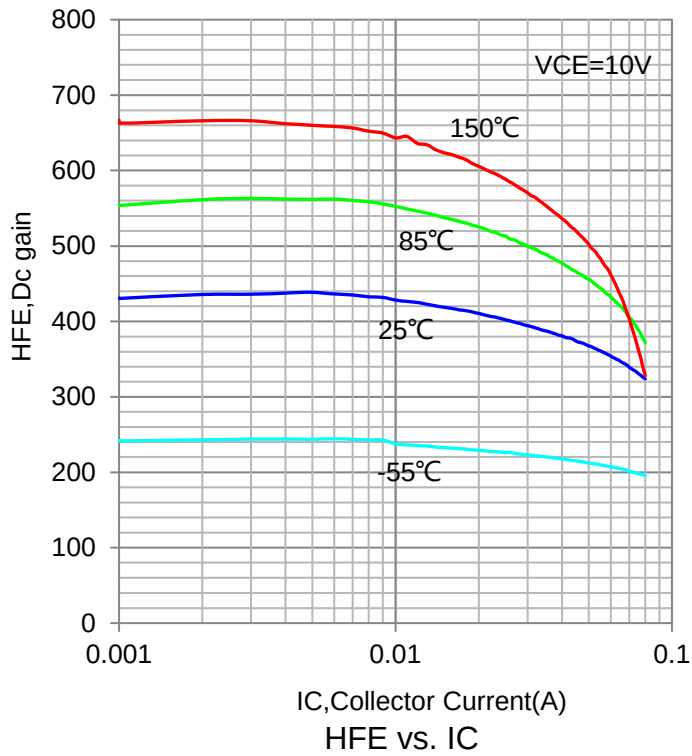
| Characteristic                                                | Symbol   | Min. | Typ. | Max. | Unit |
|---------------------------------------------------------------|----------|------|------|------|------|
| Collector–Emitter Breakdown Voltage<br>(IC = 2.0 mA, IB = 0)  | VBR(CEO) | 50   | -    | -    | V    |
| Collector–Base Breakdown Voltage<br>(IC = 10 $\mu$ A, IE = 0) | VBR(CBO) | 50   | -    | -    | V    |
| Collector-Base Cutoff Current<br>(VCB = 50 V, IE = 0)         | ICBO     | -    | -    | 100  | nA   |
| Collector-Emitter Cutoff Current<br>(VCE = 50 V, IB = 0)      | ICEO     | -    | -    | 500  | nA   |
| Emitter-Base Cutoff Current<br>(VEB = 6.0 V, IC = 0)          | IEBO     | -    | -    | 500  | nA   |

### ON CHARACTERISTICS (Note 2.)

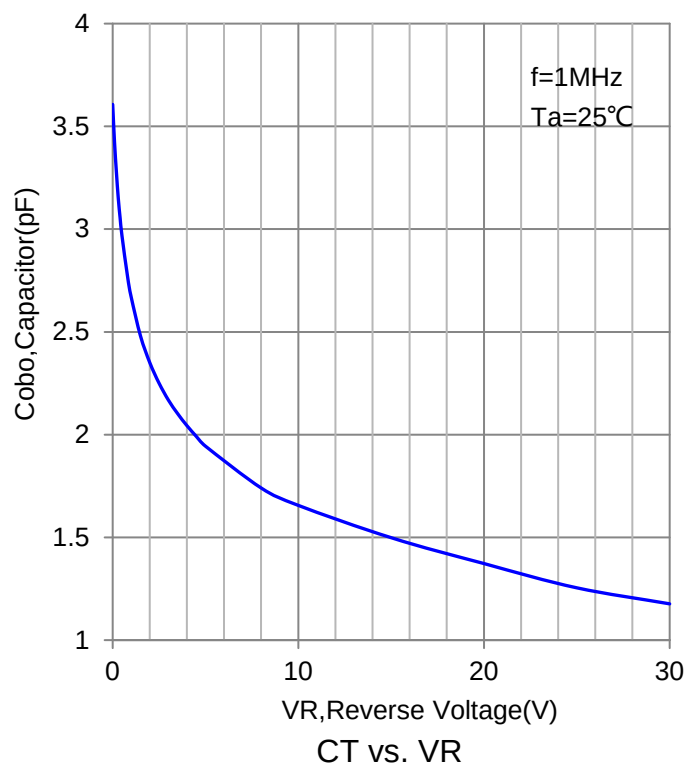
|                                                                        |          |     |     |      |            |
|------------------------------------------------------------------------|----------|-----|-----|------|------------|
| DC Current Gain<br>(IC = 5.0 mA, VCE = 10 V)                           | HFE      | 160 | 350 | -    |            |
| Collector–Emitter Saturation Voltage<br>(IC = 10 mA, IB = 1 mA)        | VCE(sat) | -   | -   | 0.25 | V          |
| Output Voltage (on)<br>(VCC = 5.0 V, VB = 2.5 V, RL = 1.0K $\Omega$ )  | VOL      | -   | -   | 0.2  | V          |
| Output Voltage (on)<br>(VCC = 5.0 V, VB = 0.25 V, RL = 1.0K $\Omega$ ) | VOH      | 4.9 | -   | -    | V          |
| Input Resistor                                                         | R1       | 3.3 | -   | 6.1  | K $\Omega$ |
| Resistor Ratio                                                         | R1/R2    | -   | -   | -    |            |

2. Pulse Test: Pulse Width < 300  $\mu$ s, Duty Cycle < 2.0%

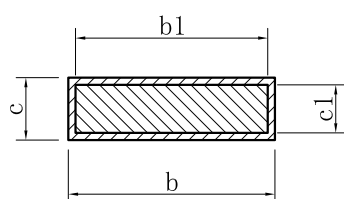
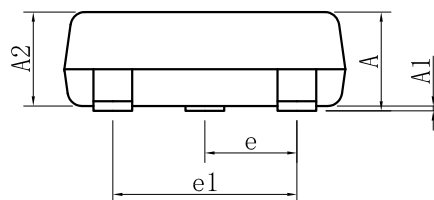
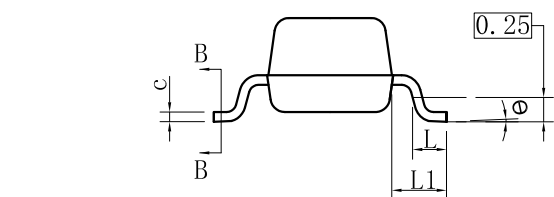
## 6.ELECTRICAL CHARACTERISTICS CURVES



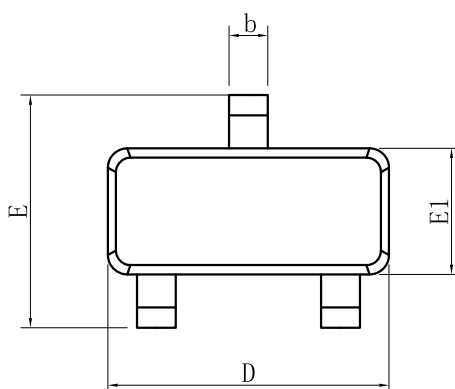
## 6.ELECTRICAL CHARACTERISTICS CURVES(Con.)



## 7.OUTLINE AND DIMENSIONS



SECTION B-B

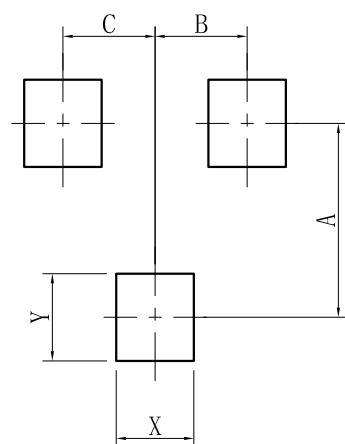


| SOT23                |         |      |      |
|----------------------|---------|------|------|
| DIM                  | MIN     | NOR  | MAX  |
| A                    | 0.89    | —    | 1.12 |
| A1                   | 0.01    | —    | 0.10 |
| A2                   | 0.88    | 0.95 | 1.02 |
| b                    | 0.30    | —    | 0.50 |
| b1                   | 0.30    | 0.40 | 0.45 |
| c                    | 0.08    | —    | 0.20 |
| c1                   | 0.08    | 0.10 | 0.16 |
| D                    | 2.80    | 2.90 | 3.04 |
| E                    | 2.10    | —    | 2.64 |
| E1                   | 1.20    | 1.30 | 1.40 |
| e                    | 0.95BSC |      |      |
| e1                   | 1.90BSC |      |      |
| L                    | 0.40    | 0.46 | 0.60 |
| L1                   | 0.54REF |      |      |
| θ                    | 0°      | —    | 8°   |
| All Dimensions in mm |         |      |      |

### GENERAL NOTES

- 1.Top package surface finish  $Ra0.4 \pm 0.2\mu m$
- 2.Bottom package surface finish  $Ra0.7 \pm 0.2\mu m$
- 3.Side package surface finish  $Ra0.4 \pm 0.2\mu m$

## 8.SOLDERING FOOTPRINT



| SOT-23 |      |
|--------|------|
| DIM    | (mm) |
| X      | 0.80 |
| Y      | 0.90 |
| A      | 2.00 |
| B      | 0.95 |
| C      | 0.95 |

## **DISCLAIMER**

- Curve guarantee in the specification. The curve of test items with electric parameter is used as quality guarantee. The curve of test items without electric parameter is used as reference only.
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