

BR78L05MAQ

Rev.A Dec.-2023

描述 / Descriptions

SOT-23 塑封封装电压调整器。Voltage Regulator in a SOT-23 Plastic Package.

特征 / Features

三端稳压调整器，输出电流高达 100mA, 内设过热保护和短路限制，符合 AEC-Q100 标准高可靠性要求，无卤产品。

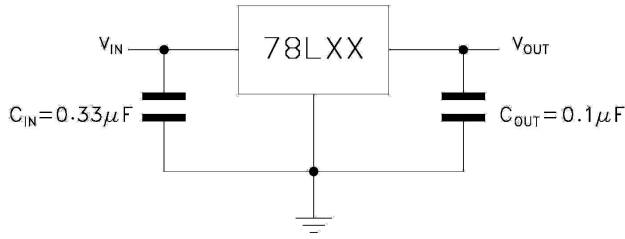
3-Terminal regulators ,output current up to 100 mA, internal thermal overload protection and short-circuit limiting, Qualified to AEC-Q100 Standards for High Reliability, HF Product.

用途 / Applications

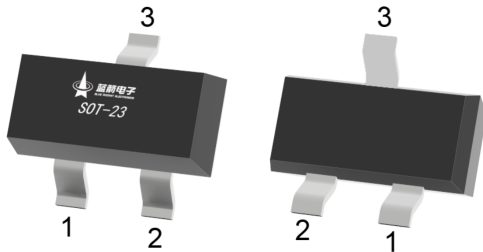
电压调整器，可调节电源和开关电源，满足汽车应用的严格要求。

Voltage Regulator, Meet the stringent requirements of automotive applications.

内部等效电路 / 应用电路 / Equivalent Circuit or Application Circuit



引脚排列 / Pinning



PIN1 : VOUT

PIN 2 : VIN

PIN 3 : GND

印章代码 / Marking

Marking

QL05

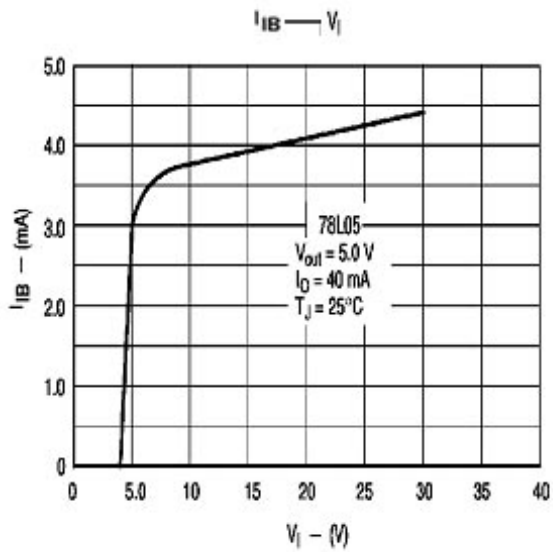
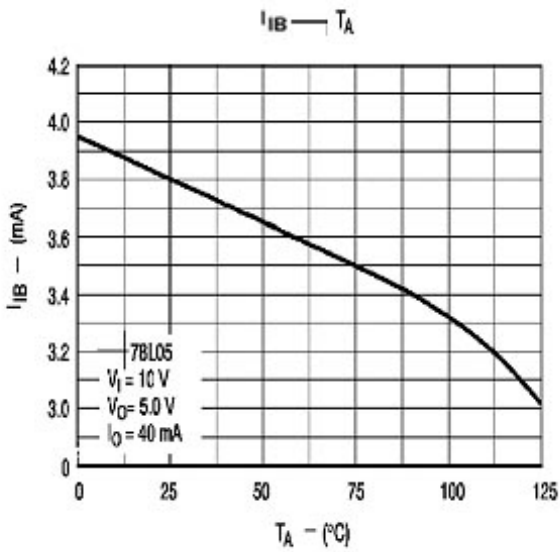
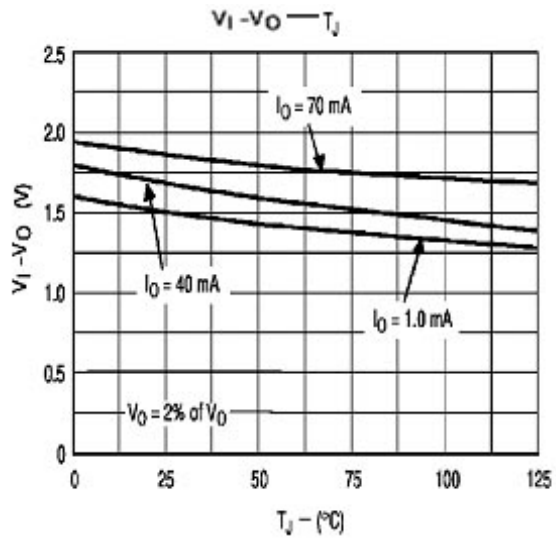
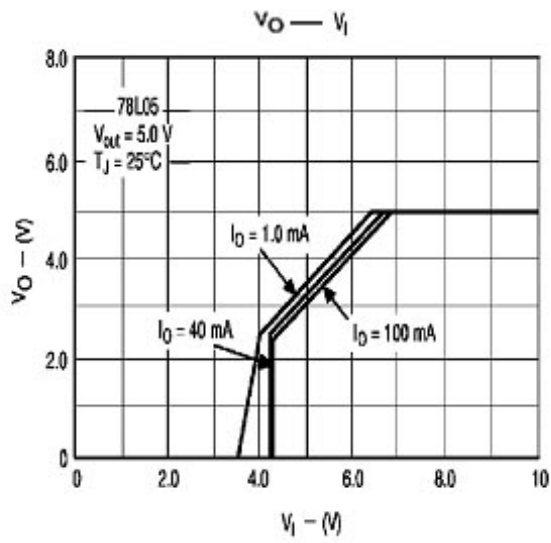
极限参数 / Absolute Maximum Ratings(Ta=25°C)

| 参数 Parameter | 符号 Symbol | 数值 Rating | 单位 Unit |
|--|--------------|--------------|------------|
| Input voltage | V_I | 30 | V |
| Output current | I_O | 100 | mA |
| Operating virtual Junction temperature | T_J | -40~125 | °C |
| Power Dissipation | P_D | 350 | mW |
| Storage temperature range | T_{stg} | -65~150 | °C |

电性能参数 / Electrical Characteristics(Ta=25°C , Vi=10V,Io=40mA , unless otherwise specified)

| 参数 Parameter | 符号 Symbol | 测试条件 Test Conditions | 最小值 Min | 典型值 Typ | 最大值 Max | 单位 Unit |
|----------------------|--------------|---|------------|------------|------------|------------|
| Output voltage | V_O | $I_O=40mA$ $T_J=25^\circ C$ | 4.80 | 5.0 | 5.2 | V |
| | | $I_O=1mA$ to 40mA $V_I=7V$ to 20V | 4.75 | 5.0 | 5.25 | V |
| | | $I_O=1mA$ to 70mA $V_I=10V$ | 4.75 | 5.0 | 5.25 | V |
| Input regulation | ΔV_O | $V_I=7V$ to 20V $T_J=25^\circ C$ | | 32 | 150 | mV |
| | | $V_I=8V$ to 20V $T_J=25^\circ C$ | | 26 | 100 | mV |
| Output regulation | ΔV_O | $I_O=1mA$ to 100mA $T_J=25^\circ C$ | | 15 | 60 | mV |
| | | $I_O=1mA$ to 40 mA $T_J=25^\circ C$ | | 8 | 30 | mV |
| Ripple rejection | RR | $V_I=8V$ to 18V $f=120Hz$ $T_J=25^\circ C$ | 41 | 49 | | dB |
| Output noise voltage | V_N | $f=10Hz\sim 100KHz$ $T_J=25^\circ C$ | | 42 | | μV |
| Dropout voltage | V_D | $T_J=25^\circ C$ | | 1.7 | | V |
| Bias current | I_q | $T_J=25^\circ C$ | | 3.8 | 6 | mA |
| | | $T_J=125^\circ C$ | | | 5.5 | mA |
| Bias current change | ΔI_q | $V_I=8V$ to 20V | | | 1.5 | mA |
| | | $I_O=1mA$ to 40mA | | | 0.1 | mA |

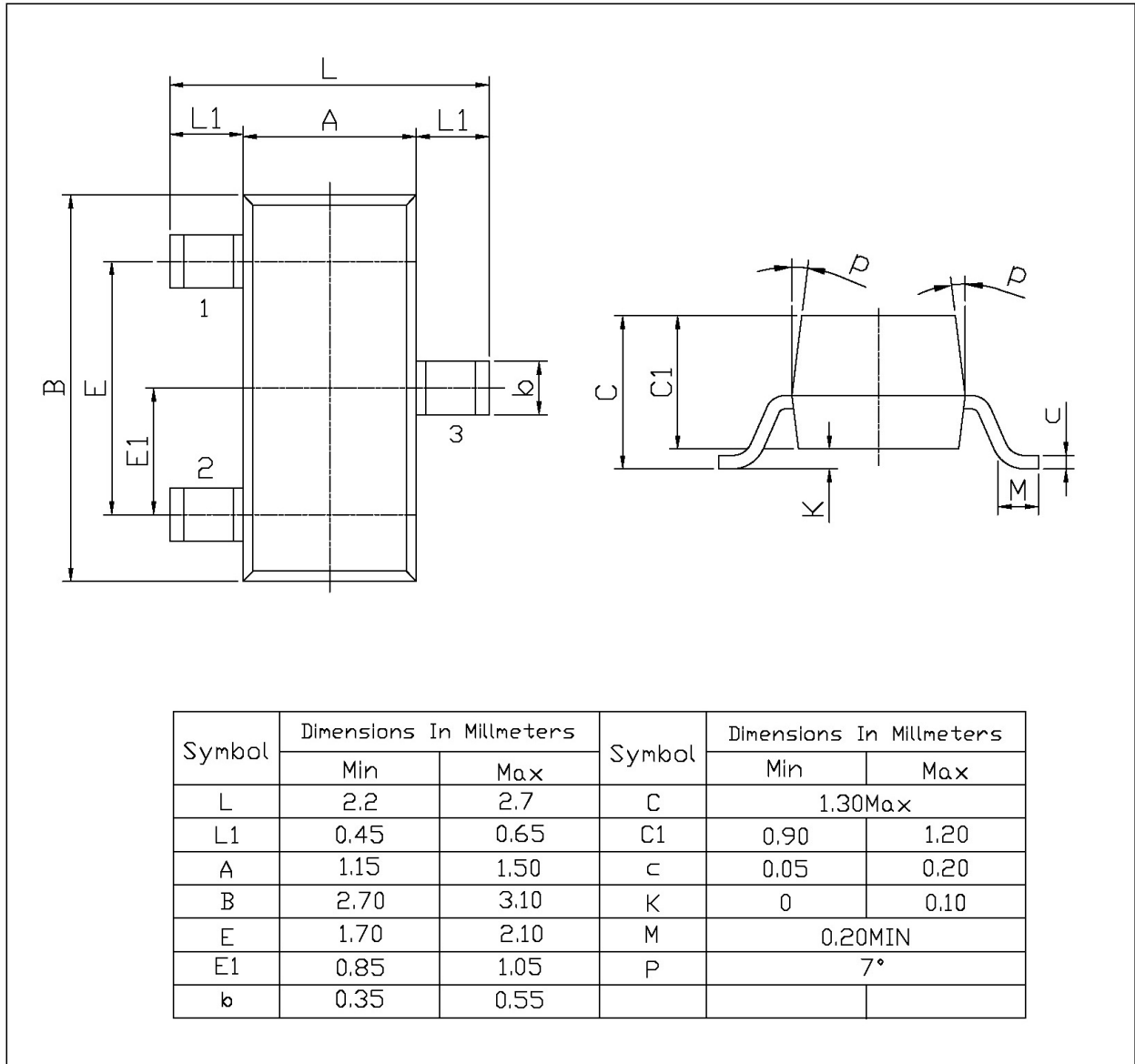
电参数曲线图 / Electrical Characteristic Curve



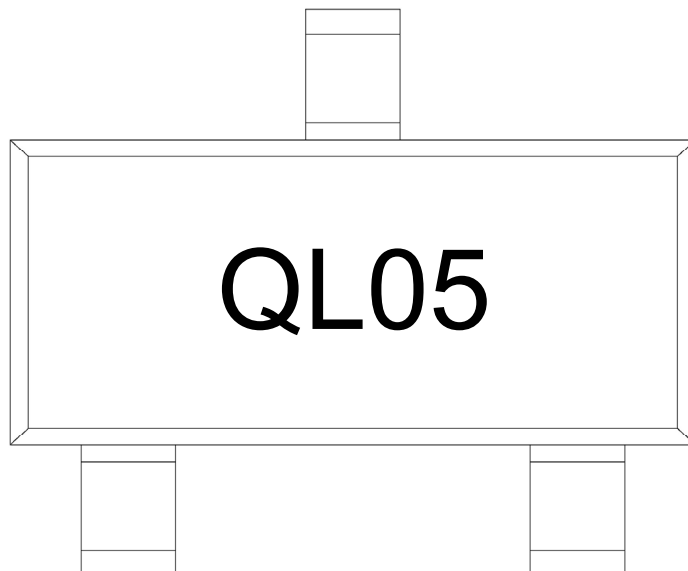
外形尺寸图 / Package Dimensions

SOT-23

单位: mm



印章说明 / Marking Instructions



说明：

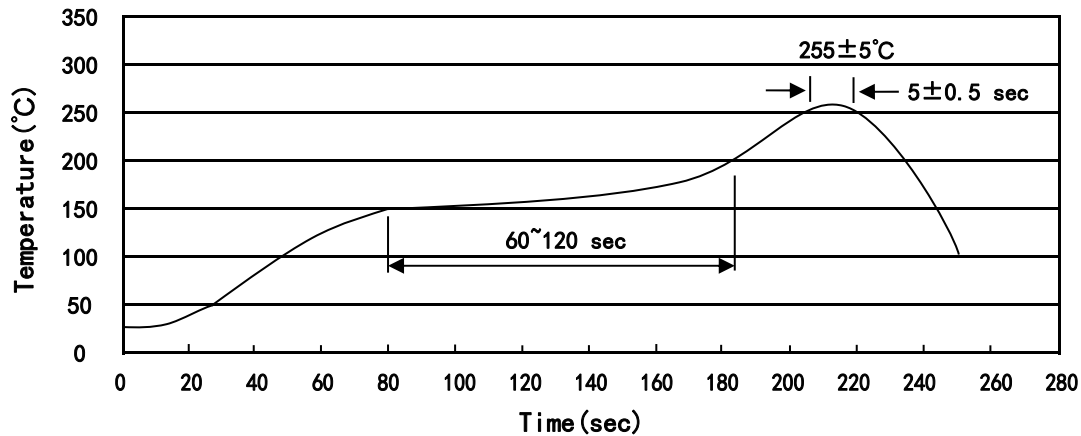
Q： 为汽车无卤产品标识

L05： 为型号代码

Note:

Q: Automobile halogen-free product Code

L05: Product Type Code

回流焊温度曲线图(无铅) / Temperature Profile for IR Reflow Soldering(Pb-Free)


说明：

- 1、预热温度 150~200°C，时间 60~120sec;
- 2、峰值温度 255±5°C，时间持续为 5±0.5sec;
- 3、焊接制程冷却速度为 2~10°C/sec.

Note:

- 1.Preheating:150~200°C, Time:60~120sec.
- 2.Peak Temp.:255±5°C, Duration:5±0.5sec.
3. Cooling Speed: 2~10°C/sec.

耐焊接热试验条件 / Resistance to Soldering Heat Test Conditions

温度：260±5°C

时间：10±1 sec.

Temp.:260±5°C

Time:10±1 sec

包装规格 / Packaging SPEC.

卷盘包装 / REEL

| Package Type 封装形式 | Units 包装数量 | | | | | Dimension 包装尺寸 (unit: mm ³) | | |
|----------------------|--------------------|-------------------------|------------------------|------------------------------|------------------------|---|-------------|-------------|
| | Units/Reel 只/卷盘 | Reels/Inner Box 卷盘/盒 | Units/Inner Box 只/盒 | Inner Boxes/Outer Box 盒/箱 | Units/Outer Box 只/箱 | Reel | Inner Box 盒 | Outer Box 箱 |
| SOT-23 | 3,000 | 10 | 30,000 | 6 | 180,000 | 7" ×8 | 180×120×180 | 390×385×205 |

使用说明 / Notices