

描述 / Descriptions

SOP-8 塑封封装 N 沟道 MOS 场效应管。N-Channel MOSFET in a SOP-8 Plastic Package.

特征 / Features

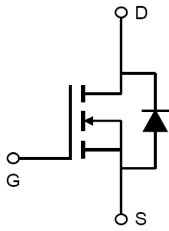
低导通电阻 $R_{DS(ON)}$ ，低栅极电荷，优化了快速转换特性，符合 RoHS，符合 AEC-Q101 标准高可靠性要求，无卤产品。

Low $R_{DS(ON)}$, Low Gate Charge, Optimized for fast-switching, RoHS, Qualified to AEC-Q101 Standards for High Reliability, HF Product.

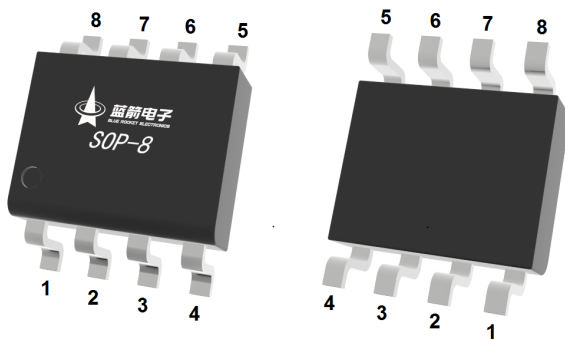
用途 / Applications

DC/DC 和 AC/DC 转换器的同步整流，隔离直流/直流转换器在电信和工业，满足汽车应用的严格要求。Synchronous Rectification in DC/DC and AC/DC Converters, Isolated DC/DC Converters in Telecom and Industrial, Meet the stringent requirements of automotive applications.

内部等效电路 / Equivalent Circuit



引脚排列 / Pinning



PIN1:S PIN 2:S PIN 3 : S PIN 4 : G

PIN5、PIN 6、PIN 7、PIN 8:D

印章代码 / Marking

见印章说明。See Marking Instructions.

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

| 参数 Parameter | 符号 Symbol | 数值 Rating | 单位 Unit |
|--|---------------------------------|----------------------|------------|
| Drain-Source Voltage | V _{DS} | 60 | V |
| Gate-Source Voltage | V _{GS} | ±20 | V |
| Continuous Drain Current | I _D | T _A =25°C | 10 A |
| | | T _A =70°C | 8.0 A |
| Pulsed Drain Current ^C | I _{DM} | 40 | A |
| Avalanche Current ^C | I _{AS} | 20 | A |
| Avalanche energy L=0.1mH ^C | E _{AS} | 20 | mJ |
| VDS Spike | 10 μS | V _{SPIKE} | 72 V |
| Power Dissipation ^B | P _D | T _A =25°C | 3.1 W |
| | | T _A =70°C | 2.0 W |
| Maximum Junction-to-Ambient ^A t≤10S | R _{θJA} | 40 | °C/W |
| Maximum Junction-to-Ambient ^{AD} Steady-State | | 75 | °C/W |
| Maximum Junction-to Lead Steady-State | R _{θJL} | 24 | °C/W |
| Operating and Junction Temperature Range | T _j T _{stg} | -55~+150 | °C |

电性能参数 / Electrical Characteristics(Ta=25°C)

| 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 |
|---|---------------------|---|------------|------------|------------|------------|
| Drain-Source Breakdown Voltage | BV _{DSS} | V _{GS} =0V I _D =250μA | 60 | | | V |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} =60V V _{GS} =0V | | | 1.0 | μA |
| | | V _{DS} =60V V _{GS} =0V T _J =55°C | | | 5.0 | μA |
| Gate-Body Leakage Current Forward | I _{GSS} | V _{GS} =±20V V _{DS} =0V | | | ±100 | nA |
| Gate Threshold Voltage | V _{GS(th)} | V _{DS} =V _{GS} I _D =250μA | 1.0 | 1.8 | 2.5 | V |
| Static Drain-Source On-Resistance | R _{DS(on)} | V _{GS} =10V I _D =10A | | 12 | 15 | mΩ |
| | | V _{GS} =10V I _D =10A T _J =125°C | | 20.5 | 25 | |
| | | V _{GS} =4.5V I _D =9.0A | | 15 | 19 | |
| Forward Transconductance | g _{FS} | V _{DS} =5.0V I _D =10A | | 35 | | S |
| Diode Forward Voltage | V _{SD} | I _S =10A V _{GS} =0V | | 0.72 | 1.2 | V |
| Maximum Continuous Drain-Source Diode Forward Current | I _S | | | | 4.0 | A |

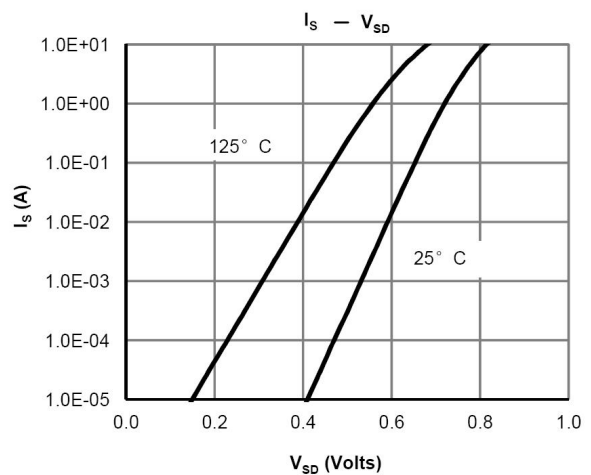
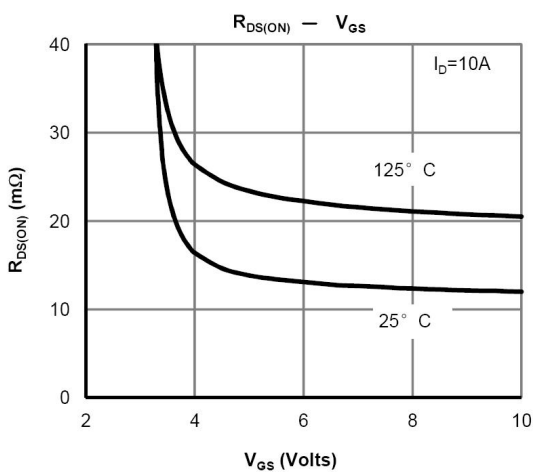
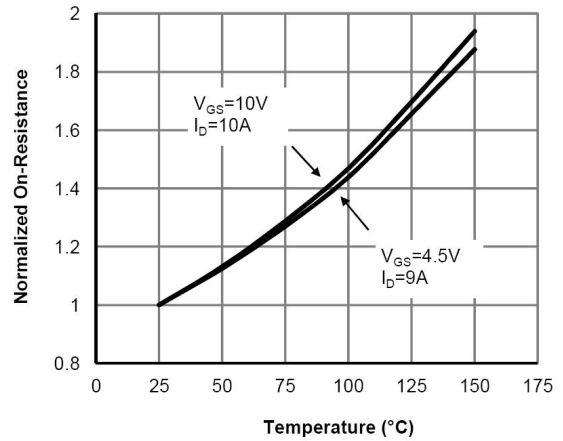
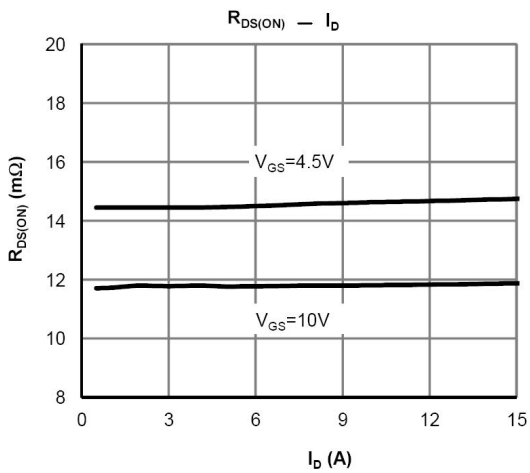
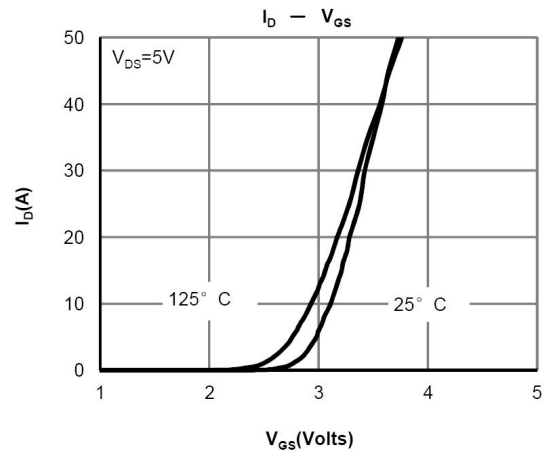
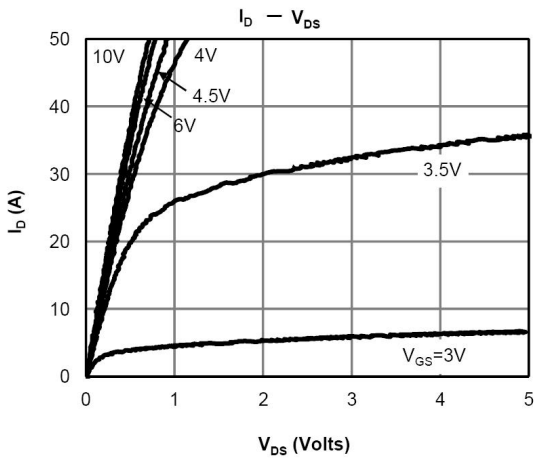
电性能参数 / Electrical Characteristics(Ta=25°C)

| 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 |
|------------------------------------|--------------|--|------------|------------|------------|------------|
| Input Capacitance | C_{iss} | $V_{DS}=30V$ $V_{GS}=0V$ $f=1.0MHz$ | | 1340 | | pF |
| Output Capacitance | C_{oss} | | | 123 | | |
| Reverse Transfer Capacitance | C_{rss} | | | 10 | | |
| Gate resistance | R_g | $f=1.0MHz$ | 0.7 | 1.5 | 2.3 | Ω |
| Total Gate Charge(10V) | Q_g | $V_{DD}=10V$ $I_D=10A$ $V_{DS}=30V$ | | 21 | 30 | nC |
| Total Gate Charge(4.5V) | | | | 9.0 | 15 | |
| Gate-Source Charge | Q_{gs} | | | 4.7 | | |
| Gate-Drain Charge | Q_{gd} | | | 2.6 | | |
| Turn-On Delay Time | $t_{d(on)}$ | $V_{DD}=10V$ $V_{DS}=30V$ $R_L=3.0\Omega$ $R_{GEN}=3.0\Omega$ | | 6.0 | | ns |
| Turn-On Rise Time | t_r | | | 2.5 | | |
| Turn-Off Delay Time | $t_{d(off)}$ | | | 22 | | |
| Turn-Off Fall Time | t_f | | | 2.5 | | |
| Body Diode Reverse Recovery Time | t_{rr} | $I_F=10A$ $di/dt=500A/\mu s$ | | 15.5 | | ns |
| Body Diode Reverse Recovery Charge | Q_{rr} | | | 55.5 | | nC |

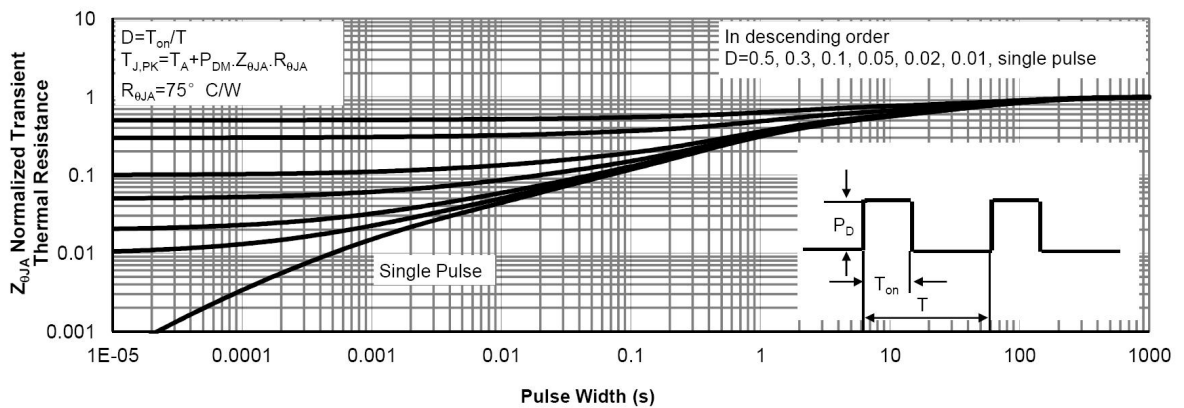
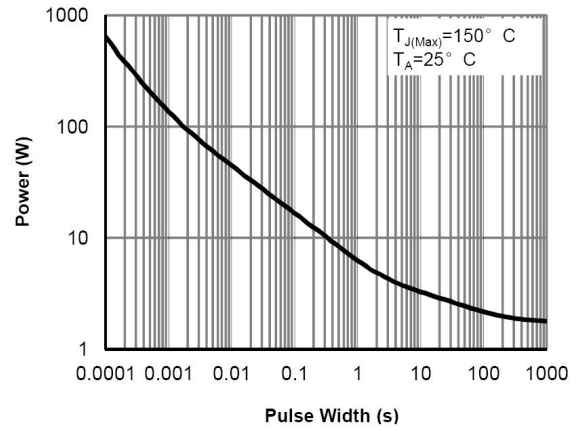
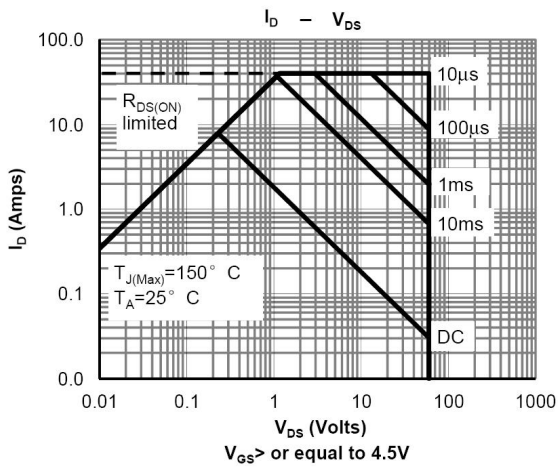
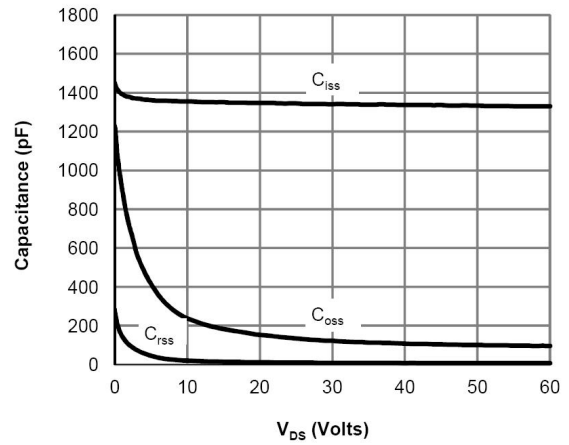
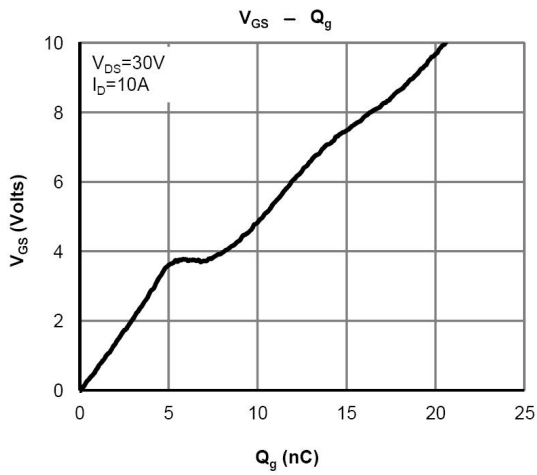
Notes:

- A. The value of $R_{\theta JA}$ is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^\circ C$. The value in any given application depends on the user's specific board design.
- B. The power dissipation P_D is based on $T_{J(MAX)}=150^\circ C$, using $\leq 10s$ junction-to-ambient thermal resistance.
- C. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}=150^\circ C$. Ratings are based on low frequency and duty cycles to keep initial $T_J=25^\circ C$.
- D. The $R_{\theta JA}$ is the sum of the thermal impedance from junction to lead $R_{\theta JL}$ and lead to ambient.
- E. The static characteristics in Figures 1 to 6 are obtained using $<300\mu s$ pulses, duty cycle 0.5% max.
- F. These curves are based on the junction-to-ambient thermal impedance which is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, assuming a maximum junction temperature of $T_{J(MAX)}=150^\circ C$. The SOA curve provides a single pulse rating.

电参数曲线图 / Electrical Characteristic Curve

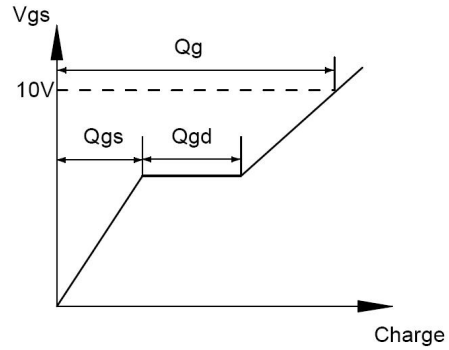
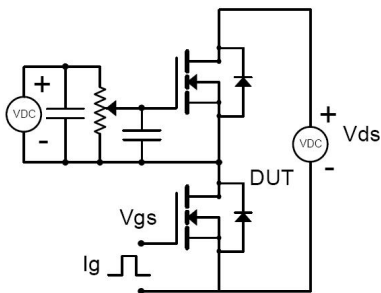


电参数曲线图 / Electrical Characteristic Curve

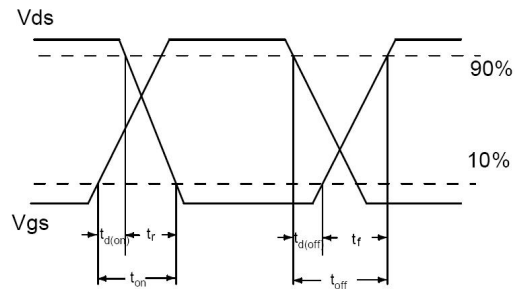
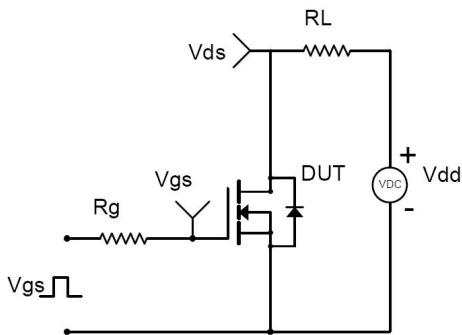


测试电路和波形 / Test Circuit & Waveform

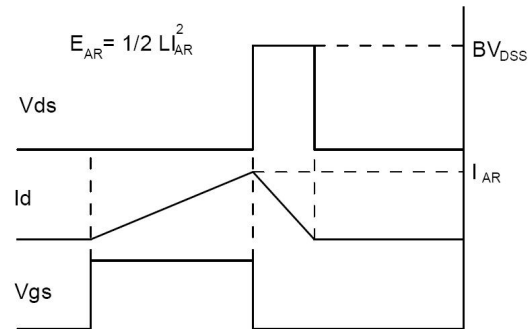
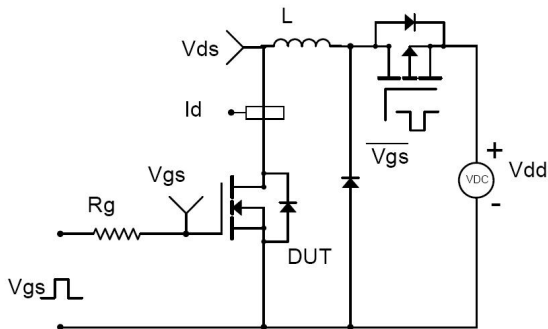
Gate Charge Test Circuit & Waveform



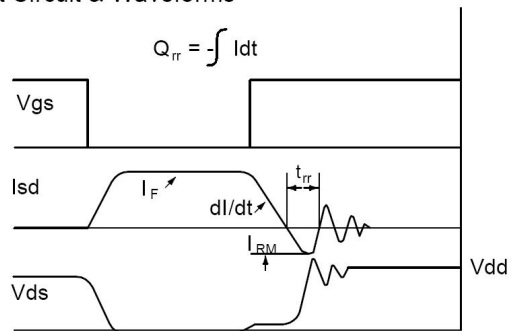
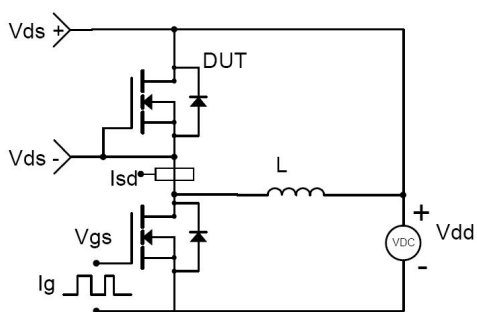
Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



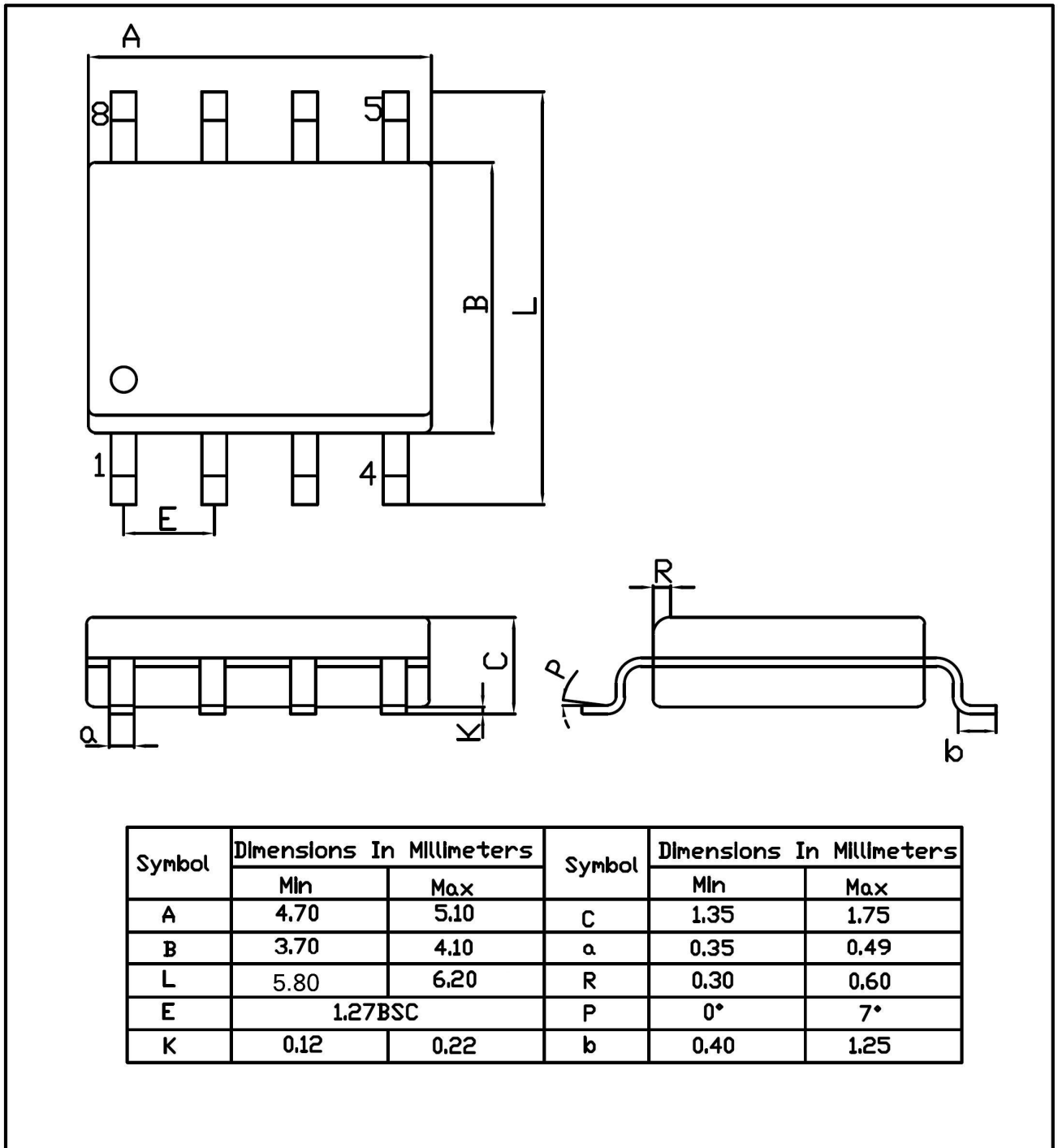
Diode Recovery Test Circuit & Waveforms



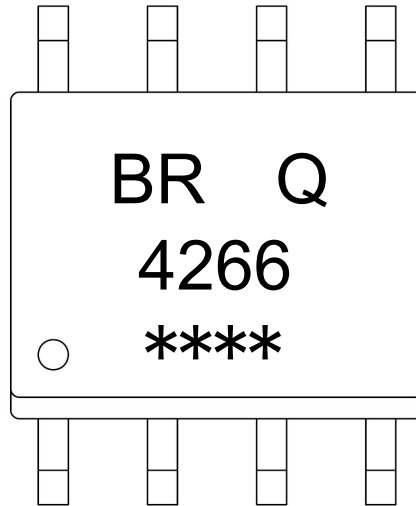
外形尺寸图 / Package Dimensions

SOP-8

Unit:mm



印章说明 / Marking Instructions



说明：

BR： 为公司代码

Q： 为汽车无卤产品标识

4266： 为型号代码

****： 为生产批号代码，随生产批号变化

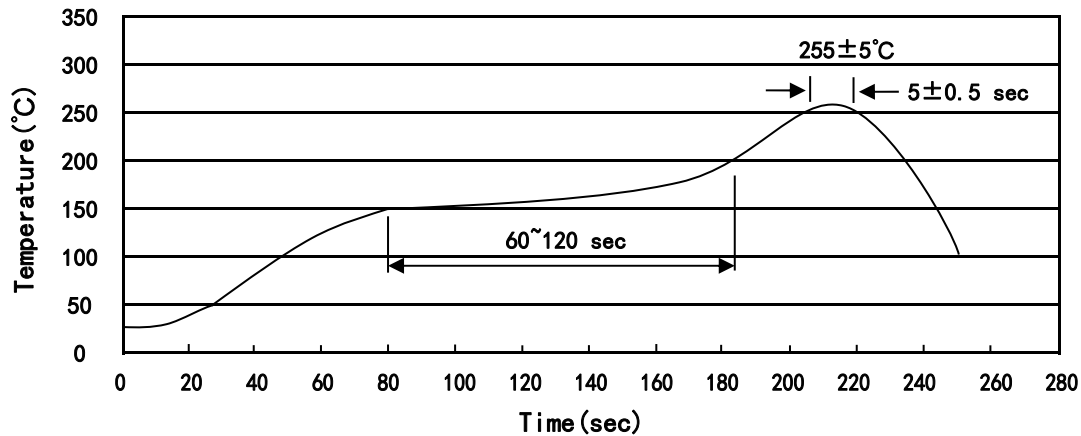
Note:

BR: Company Code

Q: Automobile halogen-free product Code

4266: Product Type

****: Lot No. Code, code change with Lot No

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 |
| SOP/ESOP-8 | 4,000 | 2 | 8,000 | 6 | 48,000 | 13" ×12 | 360×360×50 | 380×335×366 |

使用说明 / Notices