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.

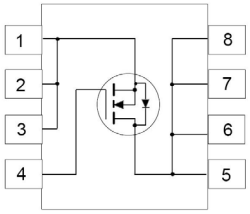
特征 / Features

低导通电阻，低输入电容，开关速度快。
Low On-Resistance, Low Input Capacitance, Fast Switching Speed.

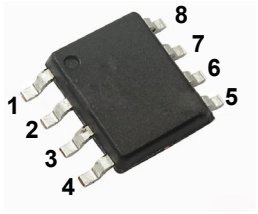
用途 / Applications

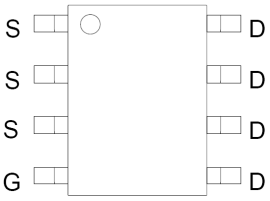
适用于负荷开关，转换开关。
Load Switch, Adaptor Switch.

内部等效电路 / Equivalent Circuit



引脚排列 / Pinning





PIN1、PIN 2、PIN 3：S　　PIN 4：G

PIN5、PIN 6、PIN 7、PIN 8：D

放大及印章代码 / h_{FE} Classifications & Marking

见印章说明。See Marking Instructions.

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

参数 Parameter			符号 Symbol	数值 Rating	单位 Unit
Drain-Source Voltage			V_{DSS}	60	V
Gate-Source Voltage			V_{GS}	±20	V
continuous Drain Current (Note 6) V_{GS} = 10V	Steady State	(T_a= 25°C)	I_D	9.2	A
		(T_a =70°C)		7.4	A
	t<10s	(T_a= 25°C)	I_D	11.9	A
		(T_a =70°C)		9.5	A
Continuous Drain Current (Note 6) V_{GS} = 4.5V	Steady State	(T_a= 25°C)	I_D	7.5	A
		(T_a =70°C)		6.0	A
	t<10s	(T_a= 25°C)	I_D	9.7	A
		(T_a =70°C)		7.7	A
Pulsed Drain Current (10μs pulse, duty cycle = 1%)			I_{DM}	60	A
Maximum Continuous Body Diode Forward Current (Note 6)			I_S	2	A
Avalanche Current (note7)L=0.1mH			I_{AS}	15.3	A
Avalanche Energy (note7)L=0.1mH			E_{AS}	11.7	mJ
Power Dissipation (note5)			P_D	1.5	W
Thermal Resistance, Junction-to-Ambient (note5)	Steady State		$R_{\theta JA}$	85	℃/ W
	t<10s			45	℃/ W
Power Dissipation (note6)			P_D	2.1	W
Thermal Resistance, Junction-to-Ambient (note6)	Steady State		$R_{\theta JA}$	74	℃/ W
	t<10s			37	℃/ W
Thermal Resistance, Junction-to case			$R_{\theta JC}$	13	℃/ W
Operating and Junction Temperature Range			T_j T_{stg}	-55～150	℃

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

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(note8)	V_{DSS}	V_{GS}=0V I_D=250μA	60			V
Zero Gate Voltage Drain Current(note8)	I_{DSS}	V_{DS}=48V V_{GS}=0V			1	μA
Gate-Body Leakage Current Forward(note8)	I_{GSS}	V_{GS}=±20V V_{DS}=0V			±100	nA
Gate Threshold Voltage(note8)	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=250μA	1.0		2.5	V
Static Drain-Source On-Resistance(note8)	$R_{DS(on)}$	V_{GS}=10V I_D=10A			18	mΩ
		V_{GS}=4.5V I_D=6.0A			28	mΩ
Diode Forward Voltage(note7)	V_{SD}	I_S=1.0A V_{GS}= 0V		0.7	1.2	V

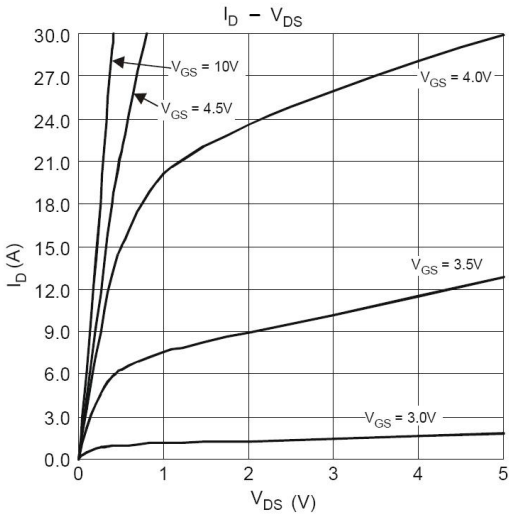
电性能参数 / Electrical Characteristics(Ta=25℃)

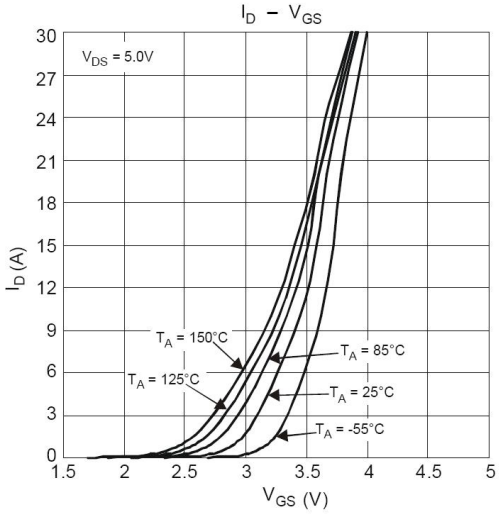
参数 Parameter	符号 Symbol	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Input Capacitance(note9)	C_{iss}	V_{DS}=30V V_{GS}=0V f=1.0MHz		864		pF
Output Capacitance(note9)	C_{oss}			282		
Reverse Transfer Capacitance(note9)	C_{rss}			27		
Gate- Resistance	R_g	V_{DS}=0V V_{GS}=0V f=1MHz		1.3		Ω
Total Gate Charge(V_{GS} = 10V)	Q_g	V_{DD}=30V I_D=10A		8.4		nC
Total Gate Charge(V_{GS} = 4.5V)	Q_g			17		
Gate-Source Charge	Q_{gs}			3.1		
Gate-Drain Charge	Q_{gd}			4.3		
Turn-On Delay Time(note9)	$t_{d(on)}$	V_{GS}=10V I_D=10A R_G=6Ω V_{DS}=30V		3.4		ns
Turn-On Rise Time(note9)	t_r			5.2		
Turn-Off Delay Time(note9)	$t_{d(off)}$			13		
Turn-Off Fall Time(note9)	t_f			7.0		
Reverse Recovery Time	t_{rr}	I_F=10A di/dt=100A/μS		22		ns
Reverse Recovery Charge	Q_{rr}			11		nC

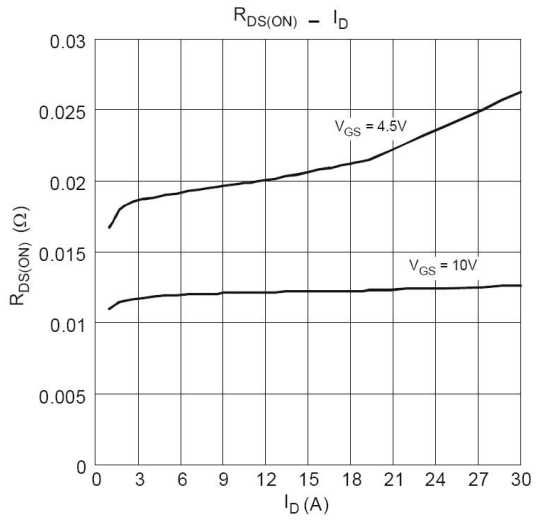
Notes:

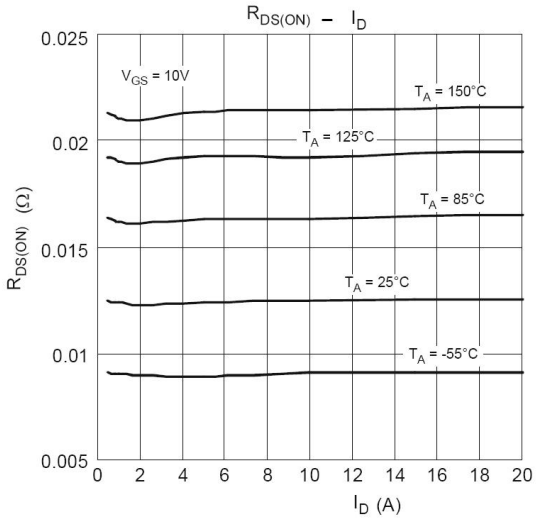
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
2. See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. For packaging details, go to our website at http://www.diodes.com/products/packages.html.
5. Device mounted on FR-4 PC board, with minimum recommended pad layout, single sided.
6. Device mounted on FR-4 substrate PC board, 2oz copper, with thermal bias to bottom layer 1inch square copper plate.
7. I_{AS} and E_{AS} rating are based on low frequency and duty cycles to keep T_J =25°C.
8. Short duration pulse test used to minimize self-heating effect.
9. Guaranteed by design. Not subject to product testing.

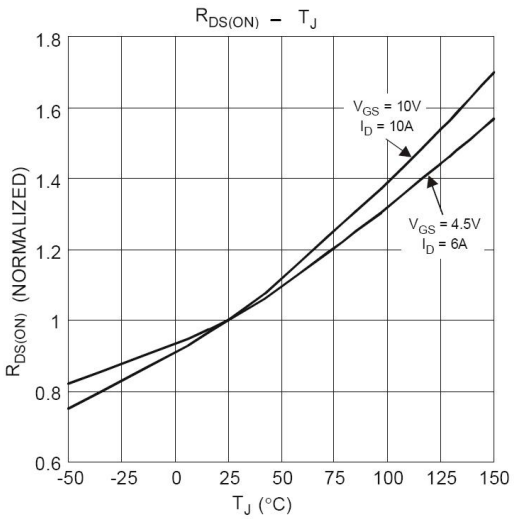
电参数曲线图 / Electrical Characteristic Curve

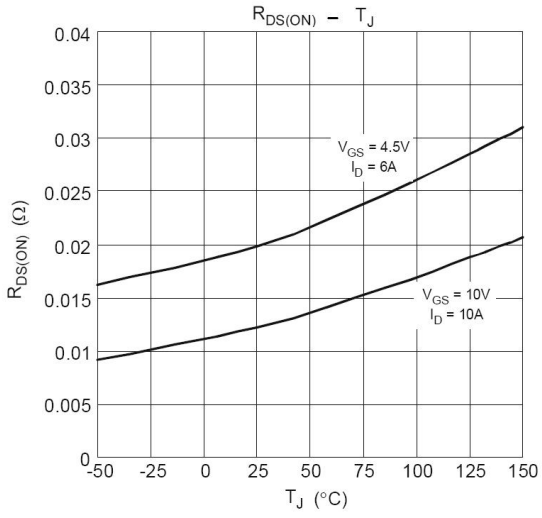




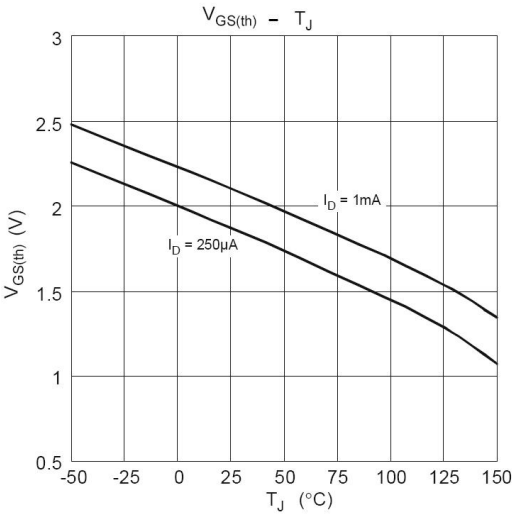


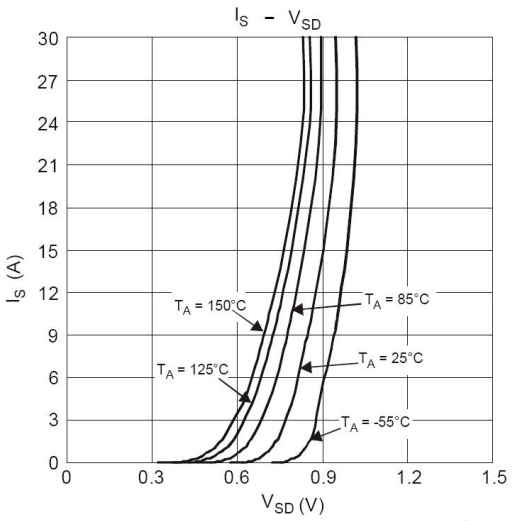


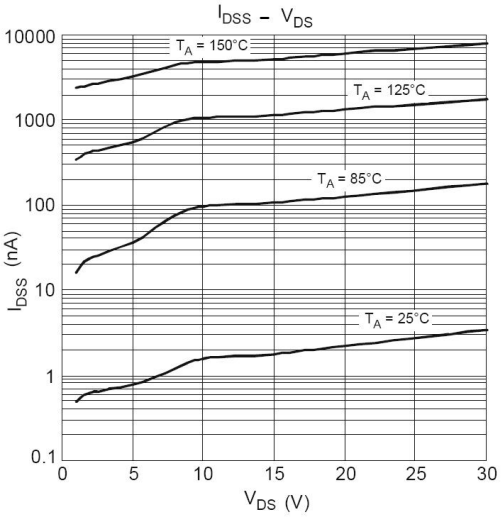


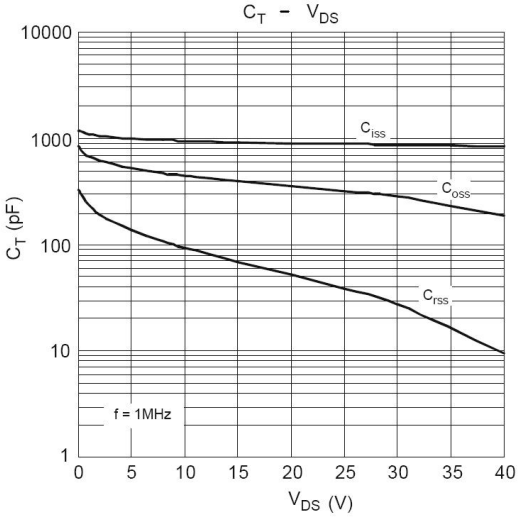


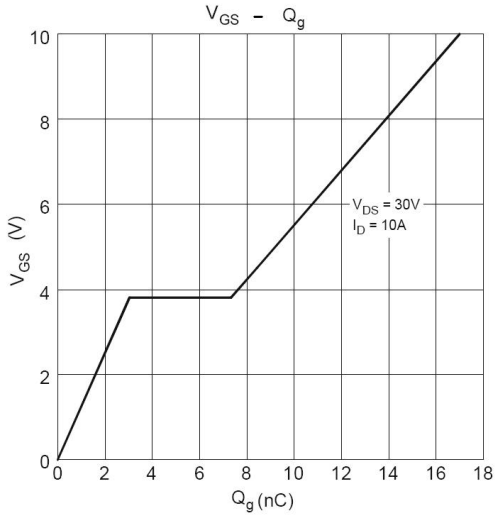
电参数曲线图 / Electrical Characteristic Curve

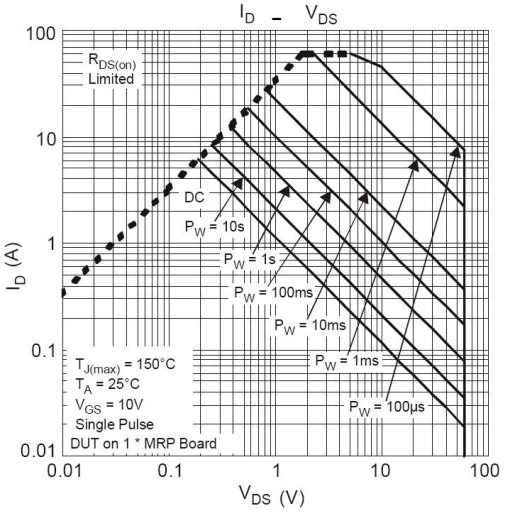




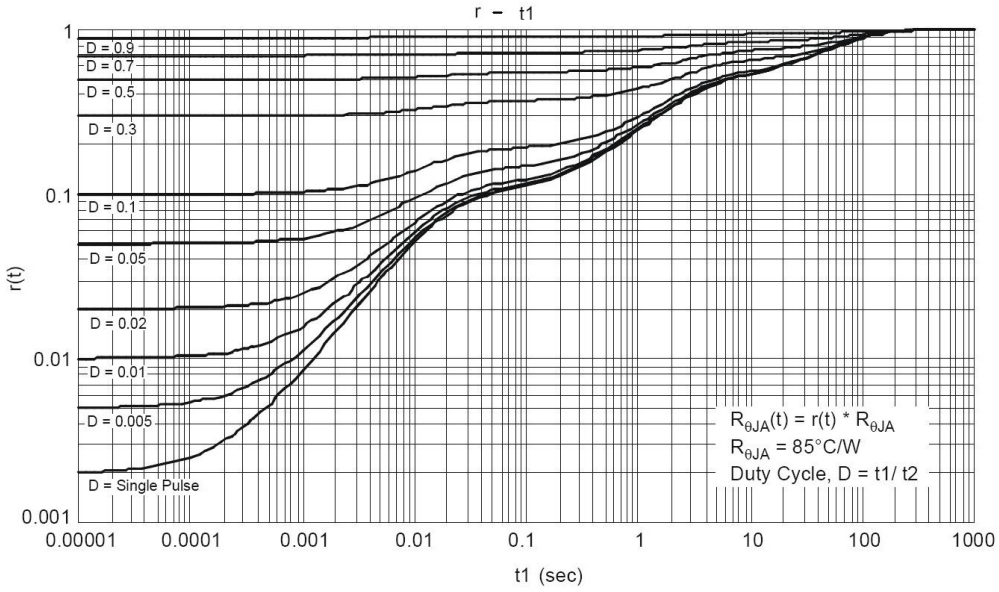






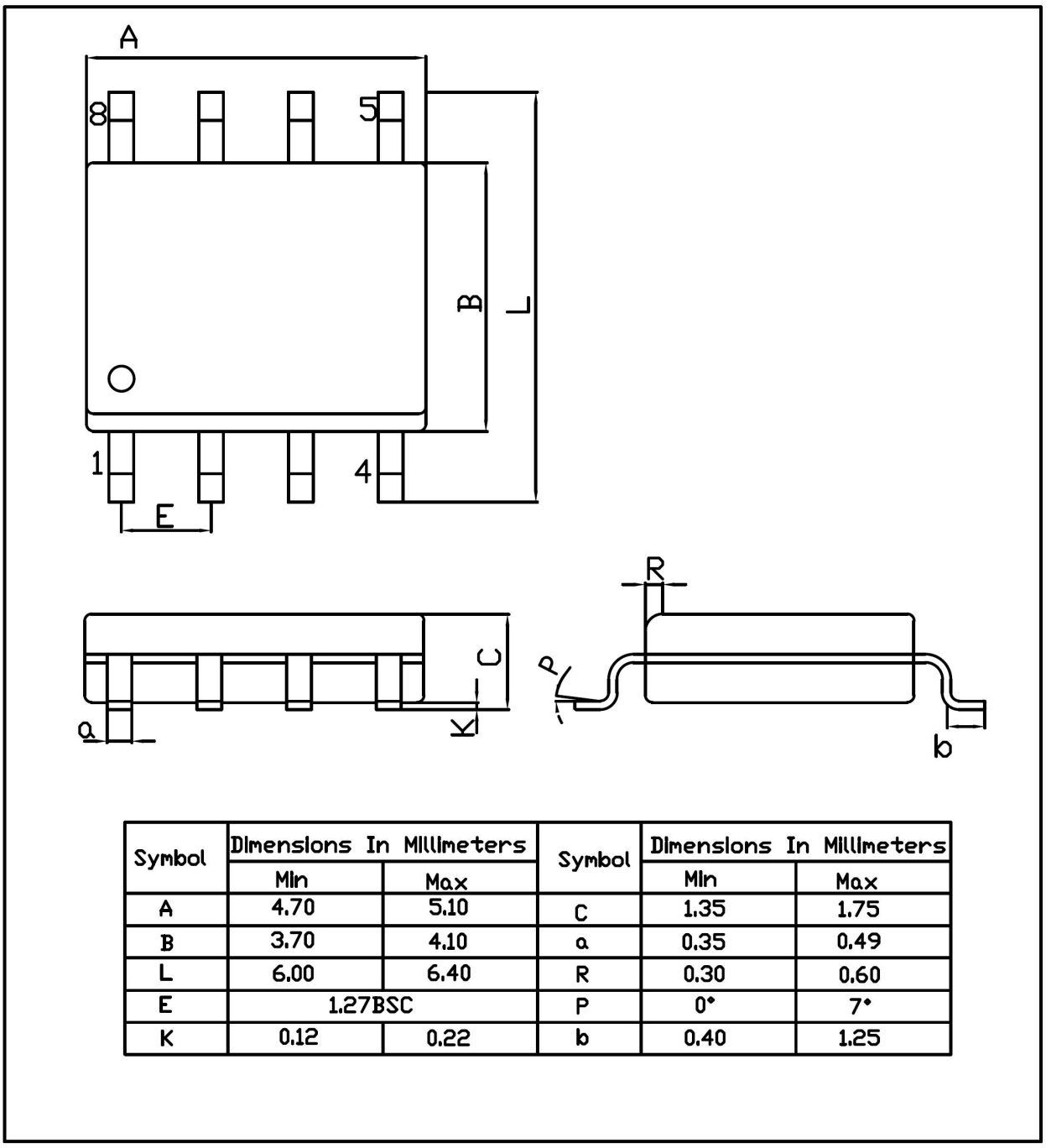


电参数曲线图 / Electrical Characteristic Curve



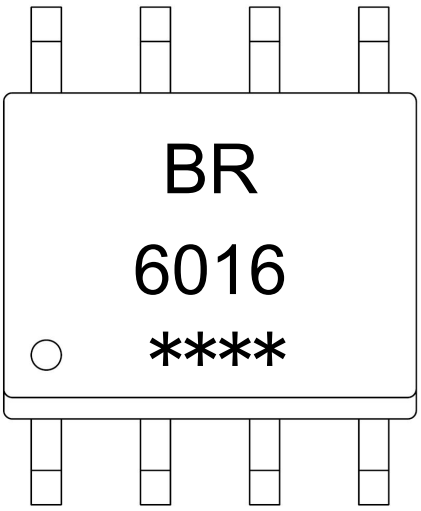
外形尺寸图 / Package Dimensions

SOP-8 Unit:mm



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	4.70	5.10	C	1.35	1.75
B	3.70	4.10	α	0.35	0.49
L	6.00	6.40	R	0.30	0.60
E	1.27BSC		P	0°	7°
K	0.12	0.22	b	0.40	1.25

印章说明 / Marking Instructions



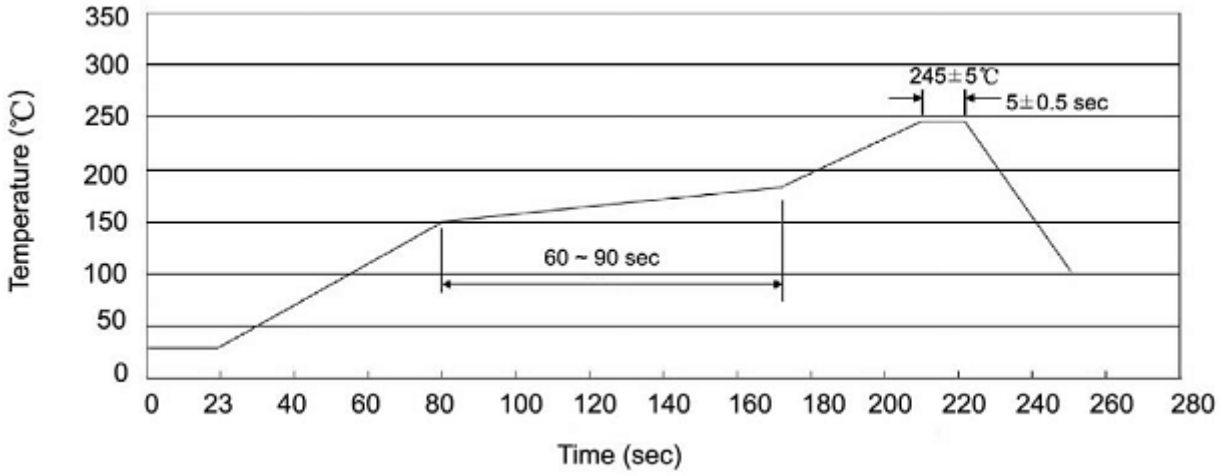
说明：

BR：	为公司代码
6016：	为型号代码
****：	为生产批号代码，随生产批号变化。

Note:

BR:	Company Code.
6016:	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 25～150℃，时间 60～90sec;

2、峰值温度 245±5℃，时间持续为 5±0.5sec;

3、焊接制程冷却速度为 2～10℃/sec.

Note:

1.Preheating:25~150℃, Time:60~90sec.

2.Peak Temp.:245±5℃, Duration:5±0.5sec.

3. Cooling Speed: 2~10℃/sec.

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

温度：260±5℃ 时间：10±1 sec. Temp.:260±5℃ 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	5	40,000	13″ ×16	360×360×50	385×257×392

使用说明 / Notices