

描述 / Descriptions

SOP-8 塑封封装 N 沟道增强型场效应管。

N-Channel Enhancement Mode Field Effect Transistor in a SOP-8 Plastic Package.

特征 / Features

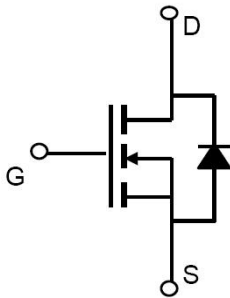
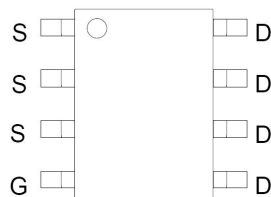
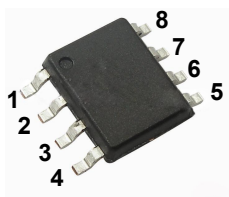
采用先进的沟槽技术，提供优良的 $R_{DS(ON)}$ 和低栅电荷。无卤产品。

Uses advanced trench technology to provide excellent $R_{DS(ON)}$ with low gate charge. Halogen-free Product.

用途 / Applications

适用于广泛的功率转换应用。

Suitable for use in a wide range of power conversion applications.

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°C)

参数 Parameter	符号 Symbol	数值 Rating		单位 Unit	
		10Sec	Steady State		
Drain-Source Voltage	V_{DSS}	40		V	
Gate-Source Voltage	V_{GS}	±20		V	
Drain Current –Continuous ^A	I_D	$T_A=25^\circ\text{C}$	13.5	10	A
		$T_A=70^\circ\text{C}$	10.8	8.0	A
Pulsed Drain Current ^B	I_{DM}	120		A	
Avalanche Current ^G	I_{AR}	23		A	
Repetitive avalanche energy L=0.3mH ^G	E_{AR}	79		mJ	
Power Dissipation for Single Operation ^A	P_D	$T_A=25^\circ\text{C}$	3.1	1.7	W
		$T_A=70^\circ\text{C}$	2.0	1.1	
Thermal Resistance, Junction-to-Ambient ^A	$R_{\theta JA}$	$t \leq 10\text{S}$	40		$^\circ\text{C/W}$
		Steady State	75		$^\circ\text{C/W}$
Thermal Resistance, Junction-to Lead ^A (Steady State)	$R_{\theta JI}$	24		$^\circ\text{C/W}$	
Operating and Junction Temperature Range	T_j T_{stg}	-55~150		$^\circ\text{C}$	

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}	$V_{GS}=0\text{V}$ $I_D=250\mu\text{A}$	40			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=40\text{V}$ $V_{GS}=0\text{V}$			1.0	μA
		$V_{DS}=40\text{V}$ $V_{GS}=0\text{V}$ $T_J=55^\circ\text{C}$			5.0	μA
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 20\text{V}$ $V_{DS}=0\text{V}$			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu\text{A}$	1.0	1.4	2.0	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10\text{V}$ $I_D=10\text{A}$		8.2	10	mΩ
		$V_{GS}=10\text{V}$ $I_D=10\text{A}$ $T_J=125^\circ\text{C}$		12.5	16	
		$V_{GS}=4.5\text{V}$ $I_D=8.0\text{A}$		12	15	
Diode Forward Voltage	V_{SD}	$I_S=1\text{A}$ $V_{GS}=0\text{V}$		0.72	1.0	V
Forward Transconductance	g_{FS}	$V_{DS}=5\text{V}$ $I_D=5\text{A}$		10		S

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}	$V_{DS}=15V$ $V_{GS}=0V$ $f=1.0MHz$		1500	1950	pF	
Output Capacitance	C_{oss}			215			
Reverse Transfer Capacitance	C_{rss}			135			
Total Gate Charge(10V)	Q_g	$V_{DS}=20V$ $I_D=10A$ $V_{GS}=10V$		27.2	37	nC	
Total Gate Charge(4.5V)				13.6	18		
Gate-Source Charge			Q_{gs}		4.5		
Gate-Drain Charge			Q_{gd}		6.4		
Gate resistance	R_g	$V_{GS}=0V$ $V_{DS}=0V$ $f=1MHz$	2.0	3.5	5.0	Ω	
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=20V$ $R_L=2\Omega$ $V_{GS}=10V$ $R_{GEN}=3\Omega$		6.4		ns	
Turn-On Rise Time	t_r			17.2			
Turn-Off Delay Time	$t_{d(off)}$			29.6			
Turn-Off Fall Time	t_f			16.8			
Continuous Drain-Source Diode Forward Current	I_S				2.5	A	
Body Diode Reverse Recovery Time	t_{rr}	$I_F=10A$		30	40	ns	
Body Diode Reverse Recovery Charge	Q_{rr}	$di/dt=100A/\mu s$		19		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: Repetitive rating, pulse width limited by junction temperature.

C. The $R_{\theta JA}$ is the sum of the thermal impedance from junction to lead $R_{\theta JL}$ and lead to ambient.

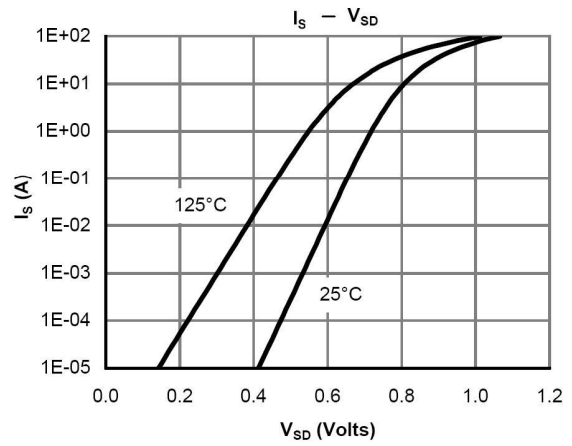
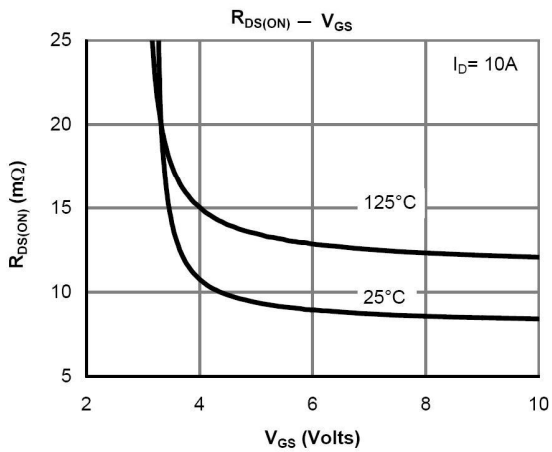
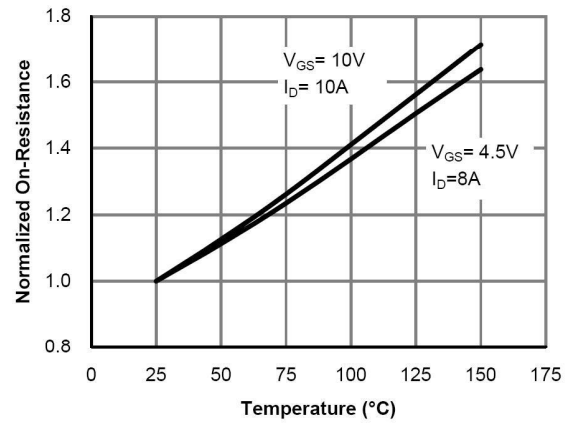
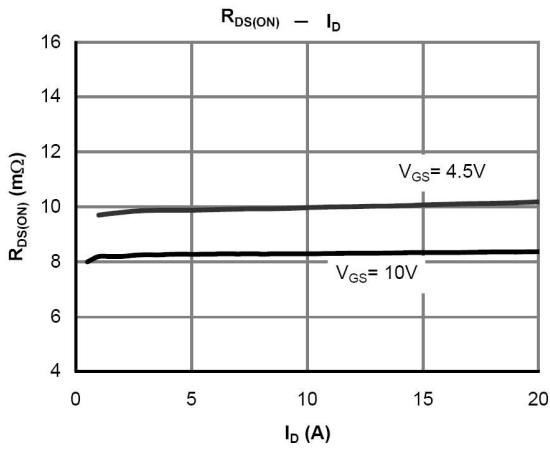
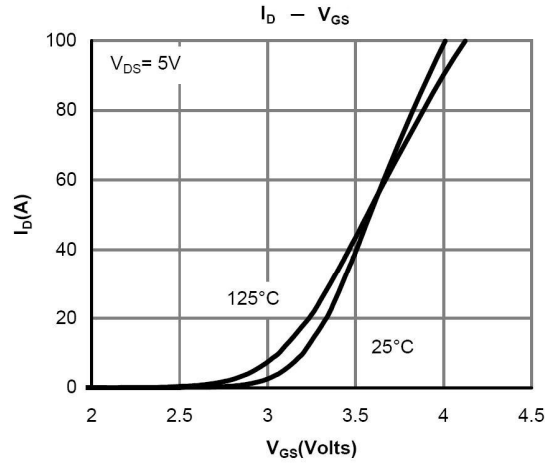
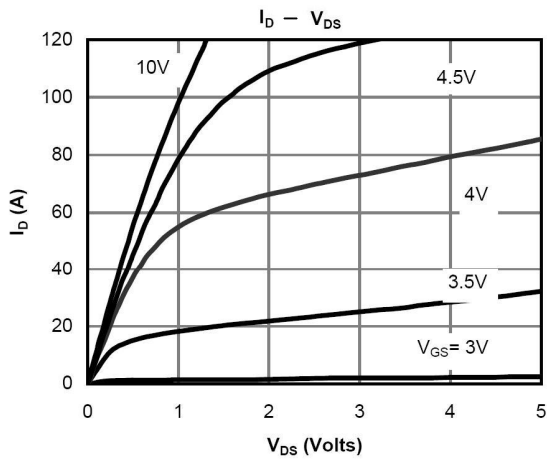
D. The static characteristics in Figures 1 to 6 are obtained using $t \leq 300\mu s$ pulses, duty cycle 0.5% max.

E. These tests are performed with the device mounted on 1 in2 FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^\circ C$. The SOA curve provides a single pulse rating.

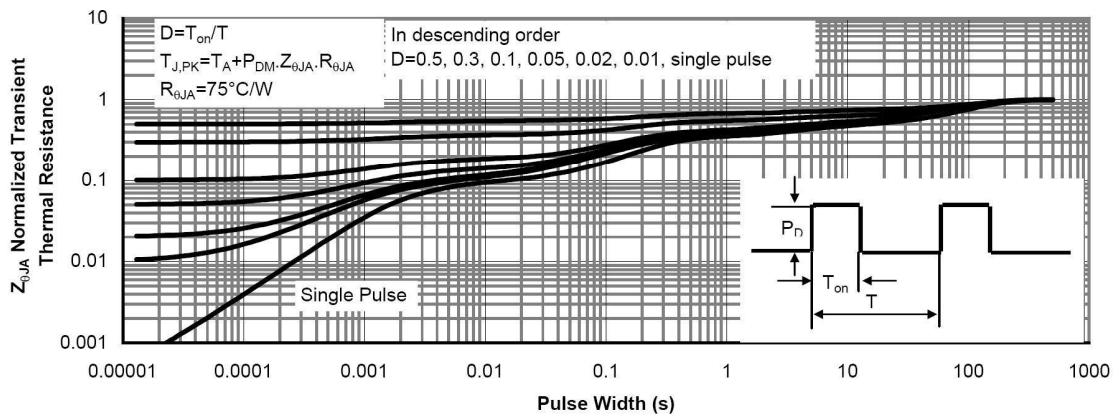
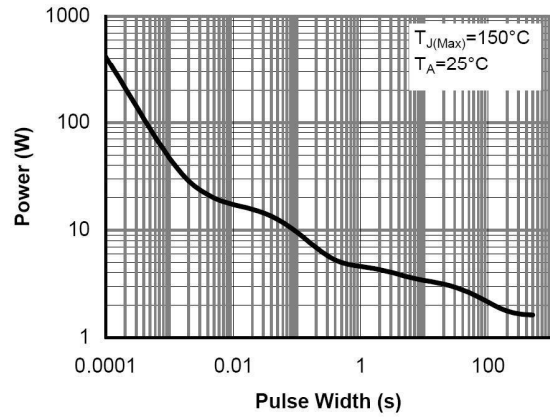
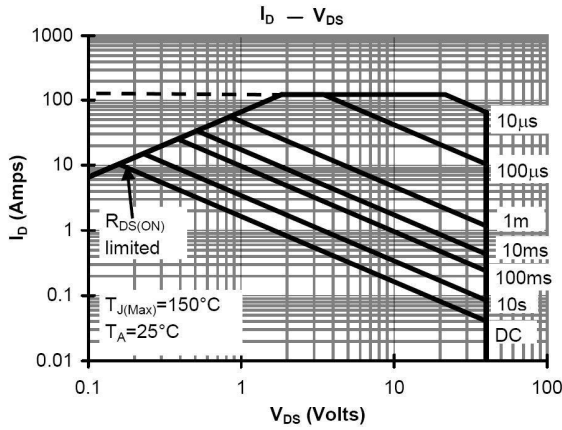
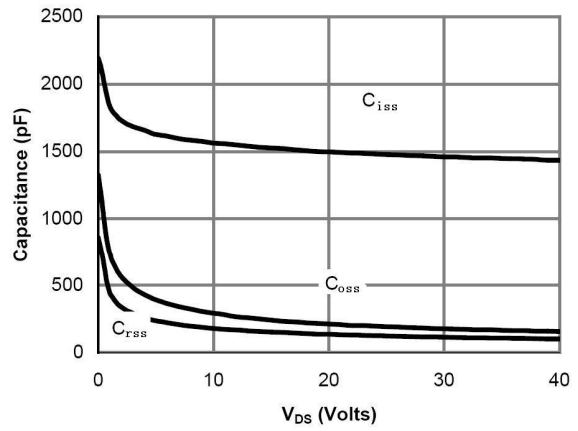
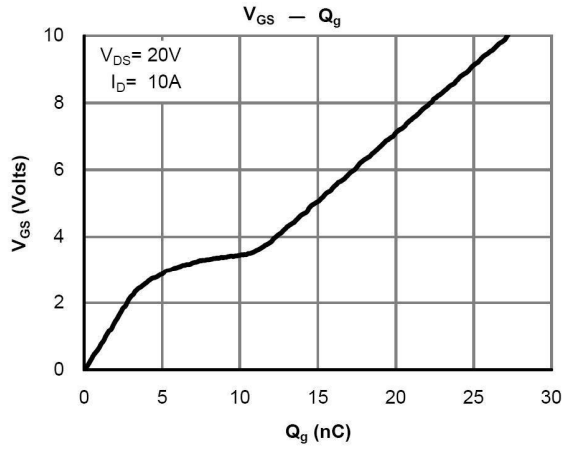
F. The current rating is based on the $t \leq 10s$ thermal resistance rating.

G. E_{AR} and I_{AR} ratings are based on low frequency and duty cycles to keep $T_j=25^\circ C$.

电参数曲线图 / Electrical Characteristic Curve



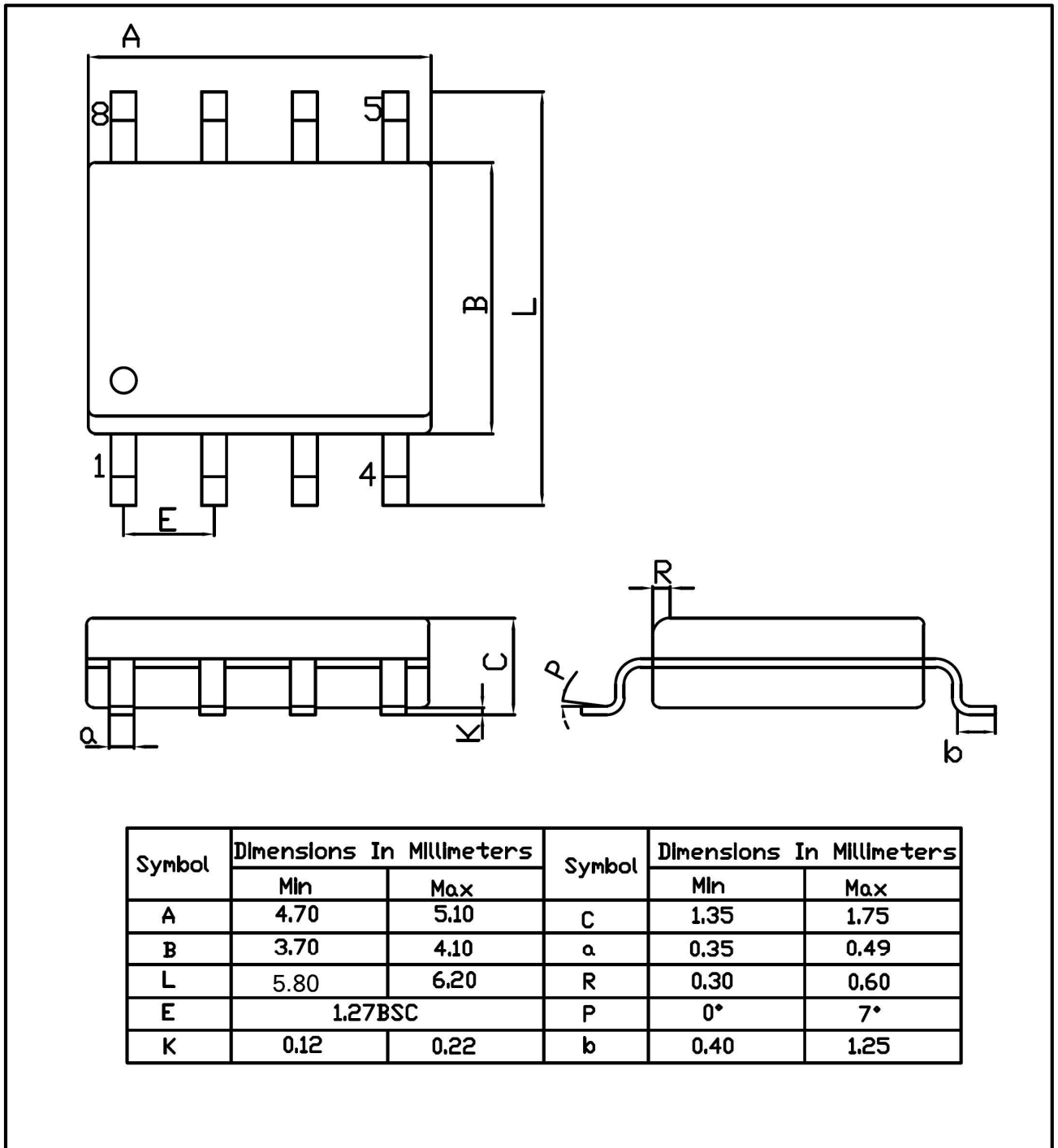
电参数曲线图 / Electrical Characteristic Curve



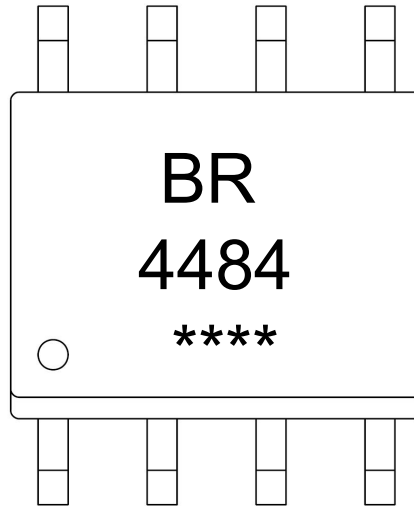
外形尺寸图 / Package Dimensions

SOP-8

Unit:mm



印章说明 / Marking Instructions



说明：

BR： 为公司代码

4484： 为型号代码

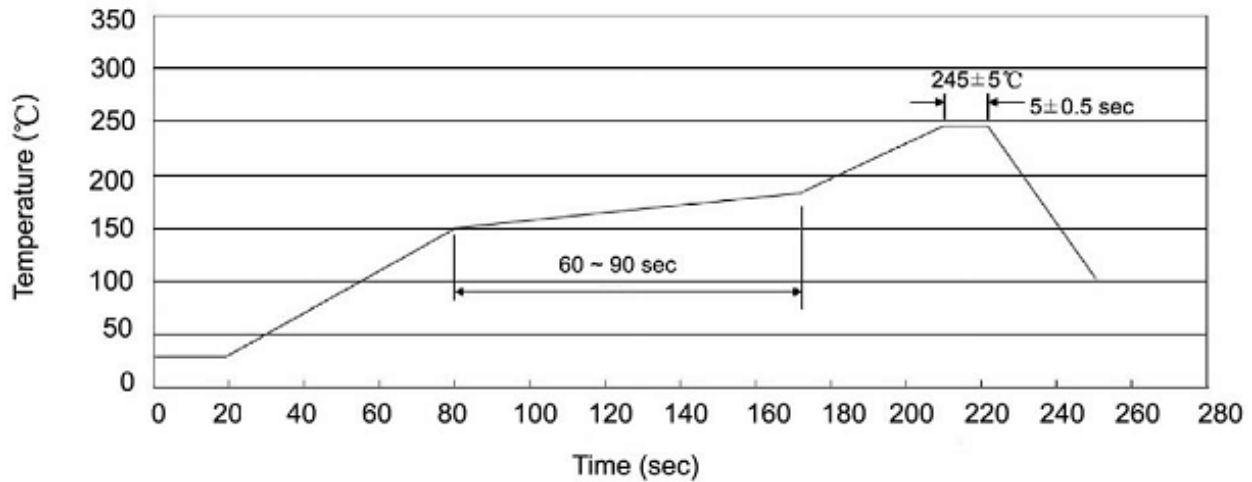
****： 为生产批号代码，随生产批号变化

Note:

BR: Company Code.

4484: 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 150~180°C，时间 60~90sec;
- 2、峰值温度 245±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:150~180°C, Time:60~90sec.
- 2.Peak Temp.:245±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