

# AP4953

## P-Channel Power MOSFET

### 描述 / Descriptions

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

### 特征 / Features

超高密度设计，导通电阻小，可靠性好。

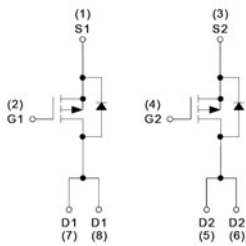
Super high dense cell design for low  $R_{DS(ON)}$ , Rugged and reliable.

### 用途 / Applications

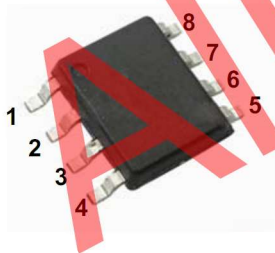
用于电源管理，便携式设备和电池供电系统。

Power Management in Notebook computer, Portable Equipment and Battery powered systems.

### 内部等效电路 / Equivalent Circuit



### 引脚排列 / Pinning



PIN 1 : S1    PIN 2 : G1    PIN 3 : S2    PIN 4 : G2

PIN 5 : D2    PIN 6 : D2    PIN 7 : D1    PIN 8 : D1

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### 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	$V_{DSS}$	-30	V
Gate-Source Voltage	$V_{GSS}$	±20	V
Continuous Drain Current	$I_D^*$	-4.9	A
Pulsed Drain Current	$I_{DM}^*$	-20	A
Diode Continuous Forward Current	$I_S^*$	-2.0	A
Power Dissipation for Single Operation	$P_D^*(Ta=25^\circ C)$	2	W
Power Dissipation for Single Operation	$P_D^*(Ta=100^\circ C)$	0.8	W
Maximum Junction Temperature	$T_j$	150	°C
Storage Temperature Range	$T_{stg}$	-55 ~ 150	°C
Thermal Resistance-Junction to Ambient	$R_{\theta JA}^*$	62.5	°C/W

Note:

\* Surface Mounted on 1in2 pad area, t ≤ 10sec.

### 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	$BV_{DSS}$	$V_{GS}=0V$ $I_{DS}=-250\mu A$	-30			V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-24V$ $V_{GS}=0V$			-1	μA
		$V_{DS}=-24V$ $V_{GS}=0V$ $T_j=85^\circ C$			-30	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_{DS}=-250\mu A$	-1.0	-1.45	-2.0	V
Gate Leakage Current	$I_{GSS}$	$V_{GS}=\pm 20V$ $V_{DS}=0V$			±100	nA
Drain-Source On-state Resistance	$R_{DS(on)}^a$	$V_{GS}=-10V$ $I_{DS}=-4.9A$		53	60	mΩ
		$V_{GS}=-4.5V$ $I_{DS}=-3.6A$		80	95	
Diode Forward Voltage	$V_{SD}^a$	$V_{GS}=0V$ $I_{SD}=-3.0A$		-0.7	-1.3	V
Total Gate Charge	$Q_g^b$	$V_{DS}=-15V$ $V_{GS}=-10V$ $I_{DS}=-4.9A$		22.6	30	nC
Gate-Source Charge	$Q_{gs}^b$			4.7		nC
Gate-Drain Charge	$Q_{gd}^b$			2.0		nC

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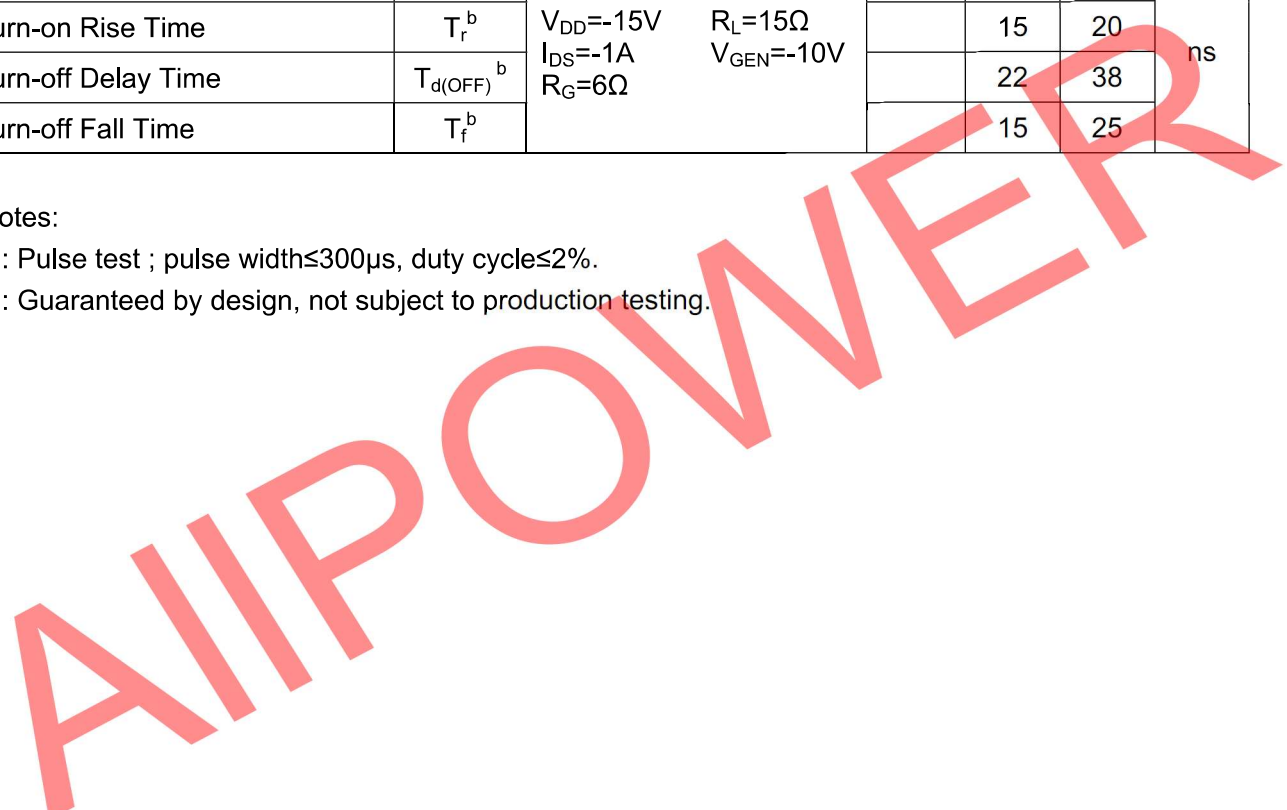
**电性能参数 / Electrical Characteristics(Ta=25°C)**

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
Gate Resistance	$R_G^b$	$V_{GS}=0V$ $V_{DS}=0V$ $F=1MHz$		11		$\Omega$
Input Capacitance	$C_{iss}^b$	$V_{GS}=0V$ $V_{DS}=-25V$ Frequency=1.0MHz		1260		pF
Output Capacitance	$C_{oss}^b$			400		
Reverse Transfer Capacitance	$C_{rss}^b$			220		
Turn-on Delay Time	$t_{d(ON)}^b$	$V_{DD}=-15V$ $R_L=15\Omega$ $I_{DS}=-1A$ $V_{GEN}=-10V$ $R_G=6\Omega$		10	18	ns
Turn-on Rise Time	$T_r^b$			15	20	
Turn-off Delay Time	$T_{d(OFF)}^b$			22	38	
Turn-off Fall Time	$T_f^b$			15	25	

Notes:

a : Pulse test ; pulse width $\leq 300\mu s$ , duty cycle $\leq 2\%$ .

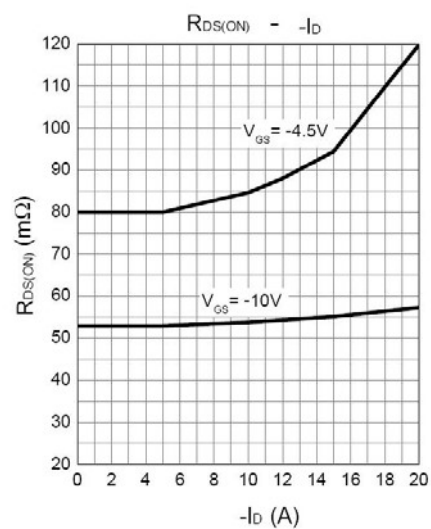
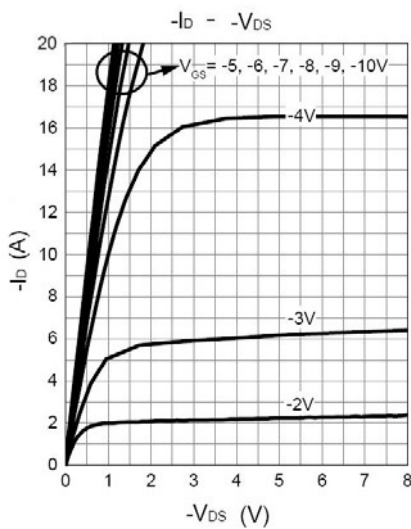
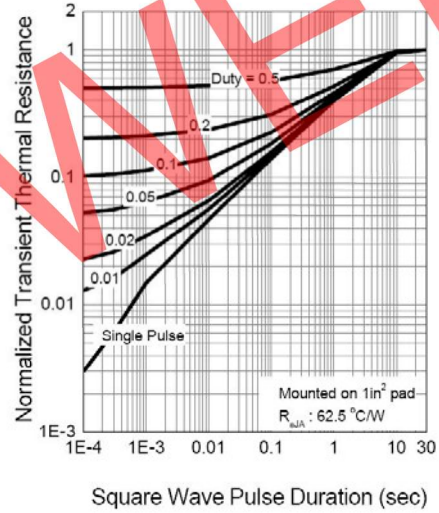
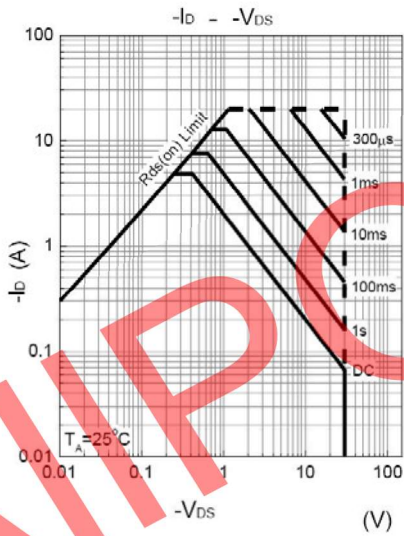
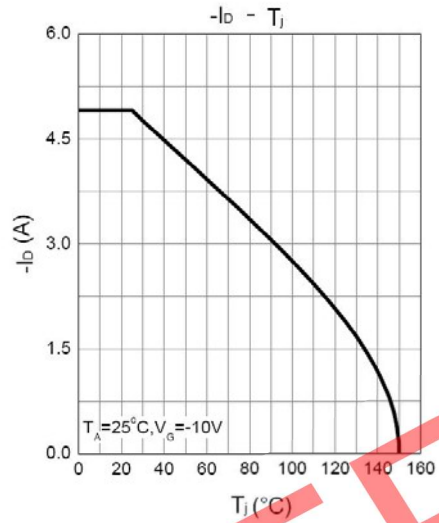
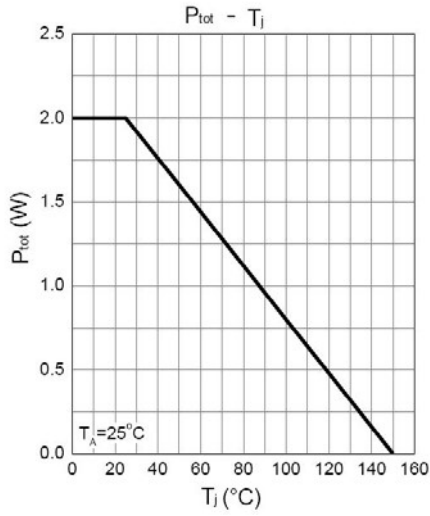
b : Guaranteed by design, not subject to production testing.



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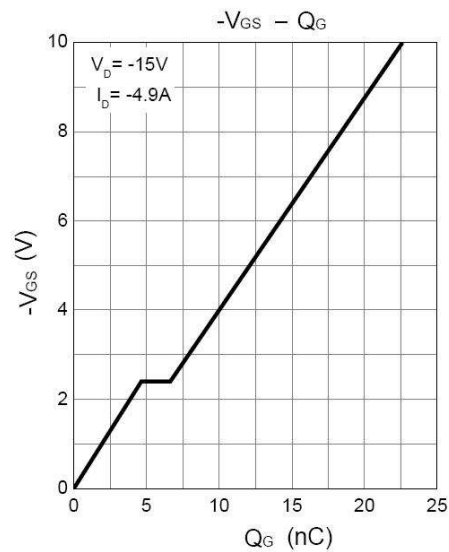
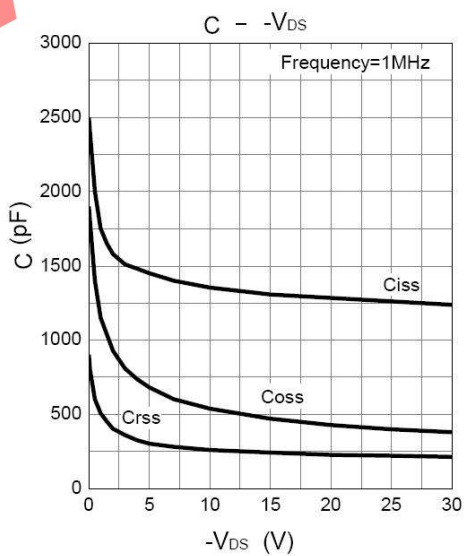
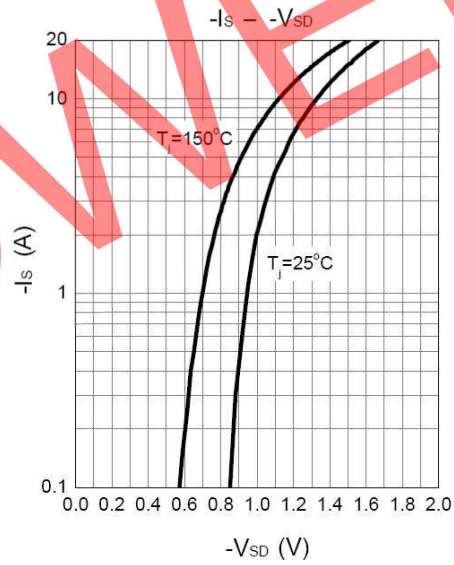
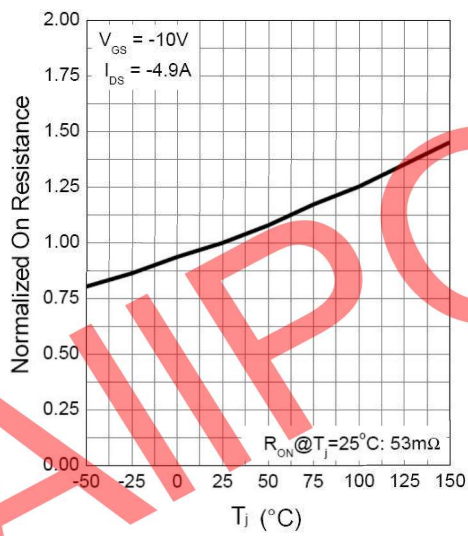
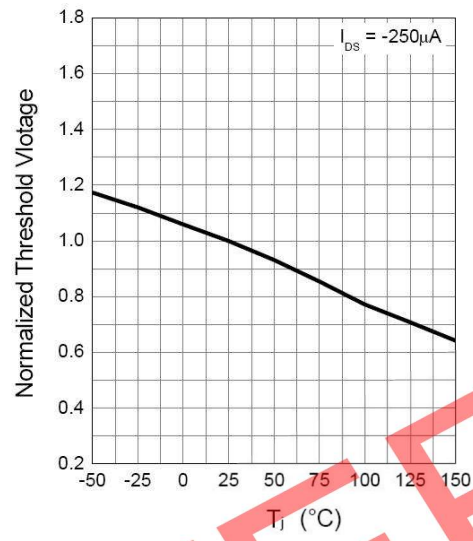
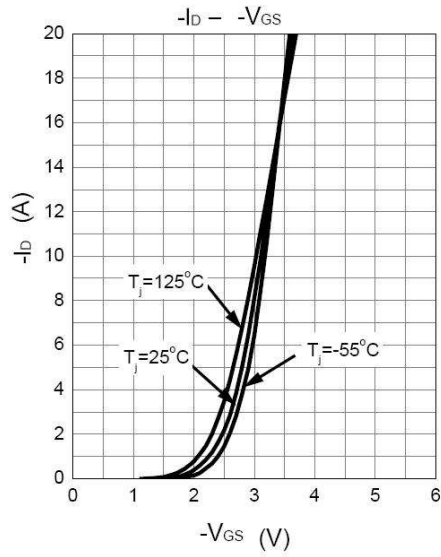
**电参数曲线图 / Electrical Characteristic Curve**



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电参数曲线图 / Electrical Characteristic Curve



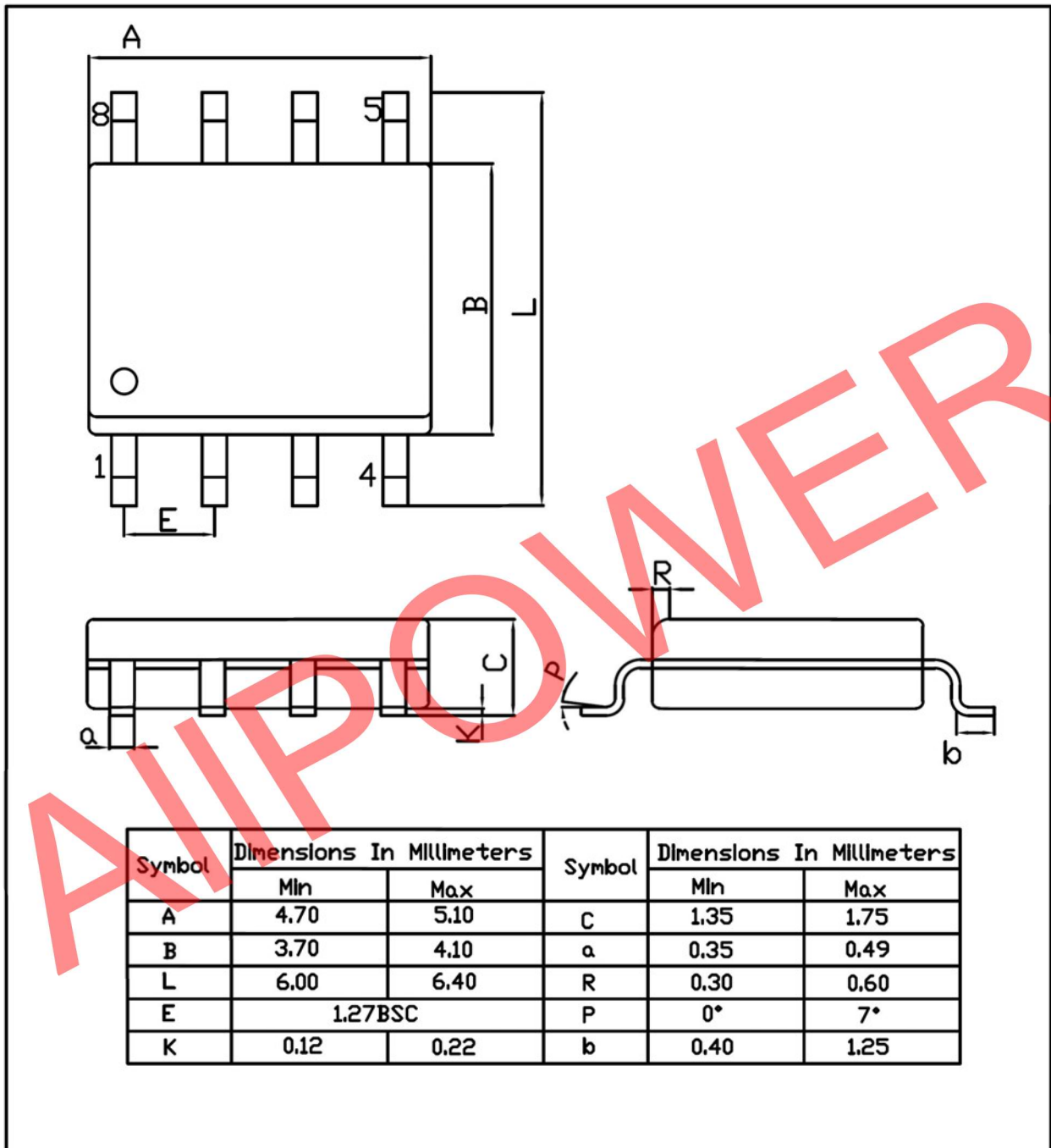
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外形尺寸图 / Package Dimensions

SOP-8

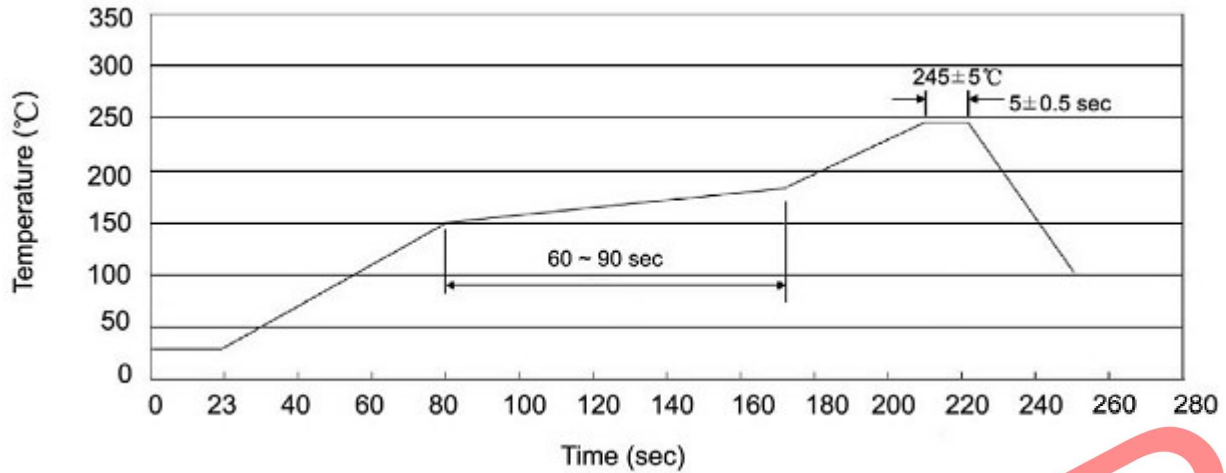
Unit:mm



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**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°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:25~150°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 <sup>3</sup> )		
	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**

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