

描述 / Descriptions

TOLL-8L 封装 N 沟道场效应管。

N-Channel MOSFET in a TOLL-8L Plastic Package .

特征 / Features

$V_{DS}(V)=100V$ $I_D=330A$

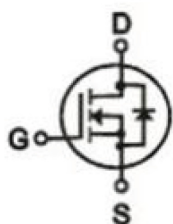
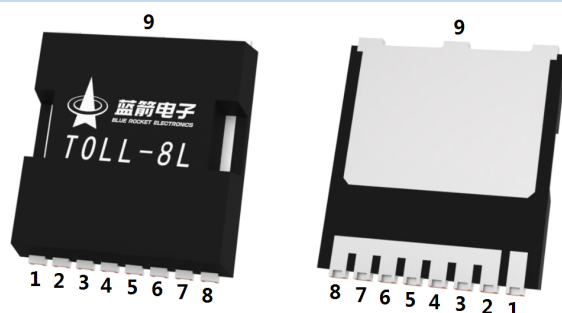
$R_{DS(ON)}@10V \leq 1.5m\Omega$ (Typ. $1.2m\Omega$)

符合 AEC-Q101 标准高可靠性要求，无卤产品。 Qualified to AEC-Q101 Standards for High Reliability, HF Product.

用途 / Applications

DC/DC 转换器、电源开关、电机驱动，满足汽车应用的严格要求。

DC/DC converter, Power switch, Motor drives, Meet the stringent requirements of automotive applications.

内部等效电路 / Equivalent Circuit**引脚排列 / Pinning**

PIN1: G PIN2、3、4、5、6、7、8: S PIN9: D

印章代码 / Marking

见印章说明。

See Marking Instructions.

极限参数 / Absolute Maximum Ratings($T_c=25^{\circ}\text{C}$)

参数 Parameter		符号 Symbol	数值 Rating	单位 Unit
Drain-Source Voltage		V_{DS}	100	V
Drain Current - Continuous		I_D	330	A
Drain Current – Pulsed		I_{DM}	1320	A
Gate-Source Voltage		V_{GS}	± 20	V
Power Dissipation		P_{tot}	431	W
Single Pulse Avalanche Energy($V_{DS}=75\text{V}, V_{GS}=10\text{V}, L=0.3\text{mH}$)		E_{AS}	540	mJ
Junction and Storage Temperature Range		T_j, T_{stg}	-55 to 150	$^{\circ}\text{C}$
Thermal resistance, junction - ambient	Steady-State	$R_{\theta JA}$	40	$^{\circ}\text{C}/\text{W}$
Thermal resistance, junction - case	Steady-State	$R_{\theta JC}$	0.29	

电性能参数 / Electrical Characteristics($T_a=25^{\circ}\text{C}$)

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}	$I_D=250\mu\text{A}, V_{GS}=0\text{V}$	100			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=100\text{V}, V_{GS}=0\text{V}$			1	μA
Gate-Body leakage current	I_{GSS}	$V_{DS}=0\text{V}, V_{GS}=\pm 20\text{V}$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	2.2	3.0	3.8	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10\text{V}, I_D=100\text{A}$		1.2	1.5	$\text{m}\Omega$
Diode Forward Voltage	V_{SD}	$I_S=100\text{A}, V_{GS}=0\text{V}$		0.85	1.1	V
Gate Resistance	R_g	$f=1\text{MHz}$		1		Ω
Input Capacitance	C_{iss}	$V_{DS}=50\text{V}, V_{GS}=0\text{V}, f=1.0\text{MHz}$		15800		pF
Output Capacitance	C_{oss}			1930		
Reverse Transfer Capacitance	C_{rss}			75		
Total Gate Charge	Q_g	$V_{GS}=10\text{V}, I_D=100\text{A}, V_{DS}=50\text{V}$		260		nC
Gate Source Charge	Q_{gs}			75		
Gate Drain Charge	Q_{gd}			76		

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
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V$ $V_{DS}=50V$ $R_G=6\ \Omega$ $I_D=100A$		81		ns
Turn-On Rise Time	t_r			178		
Turn-Off Delay Time	$t_{d(off)}$			167		
Turn-Off Fall Time	t_f			68		
Reverse Recovery Time	t_{rr}	$I_{DS}=50A,$ $V_{DS}=50V$ $di/dt=100\ A/\mu s$		92		ns
Reverse Recovery Charge	Q_{rr}			200		nC

电参数曲线图 / Electrical Characteristic Curve

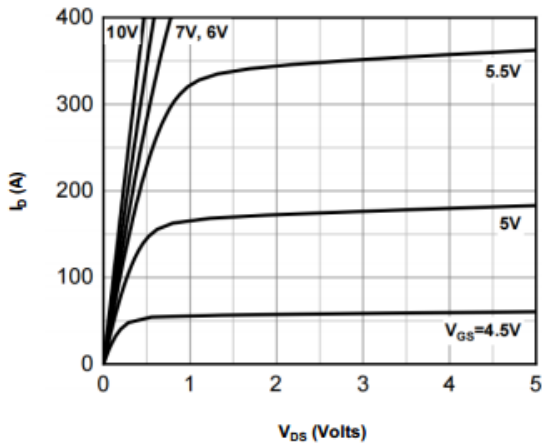


Figure 1: On-Region Characteristics

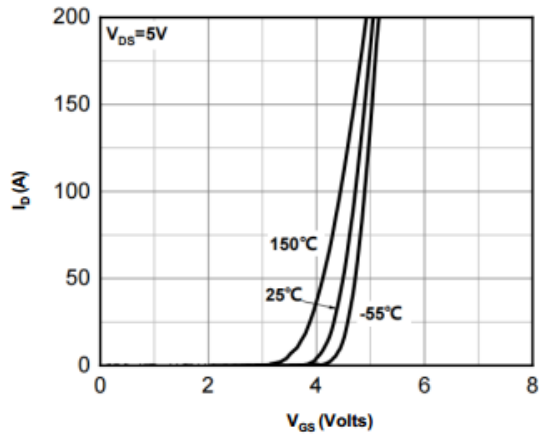


Figure 2: Transfer Characteristics

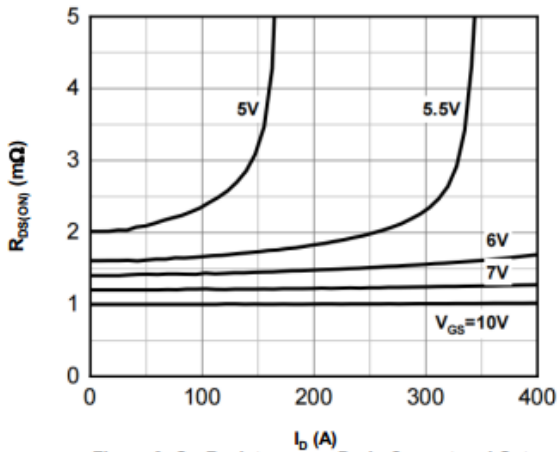


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

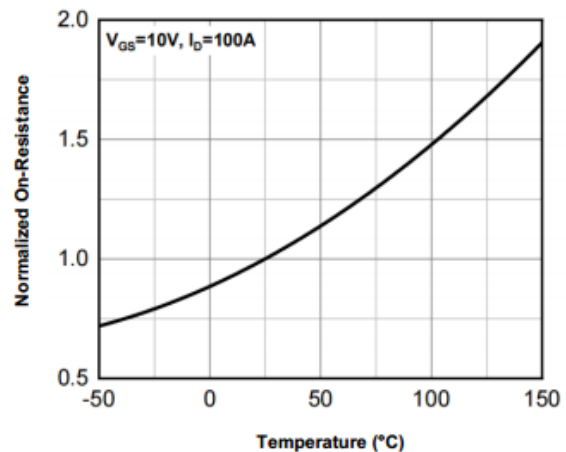


Figure 4: On-Resistance vs. Junction Temperature

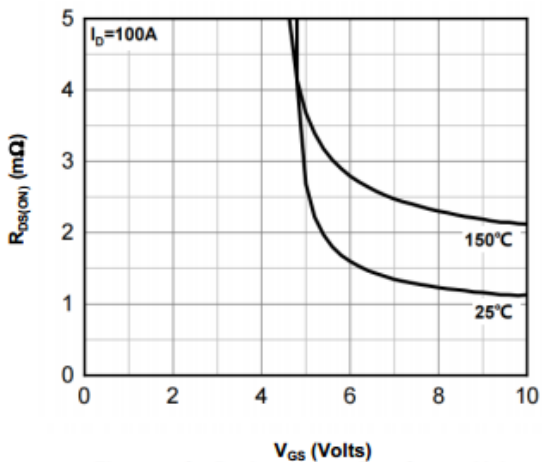


Figure 5: On-Resistance vs. Gate-Source Voltage

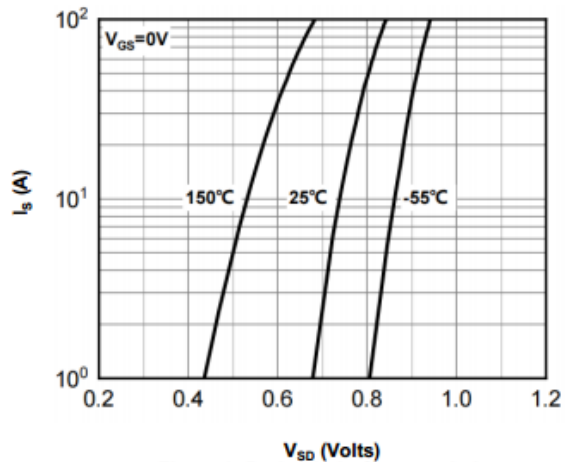
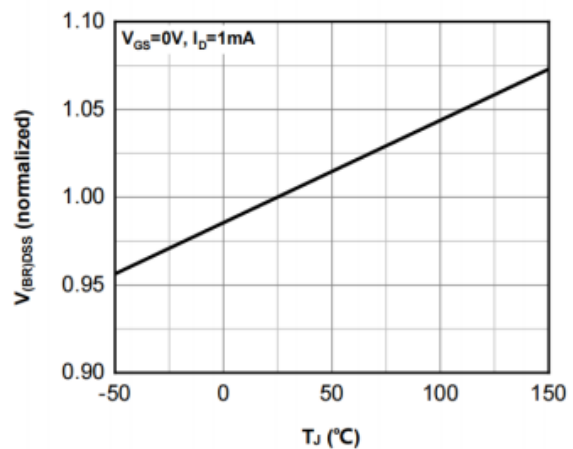
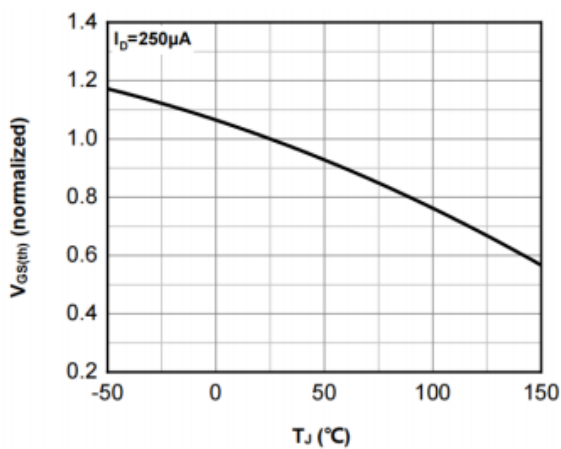
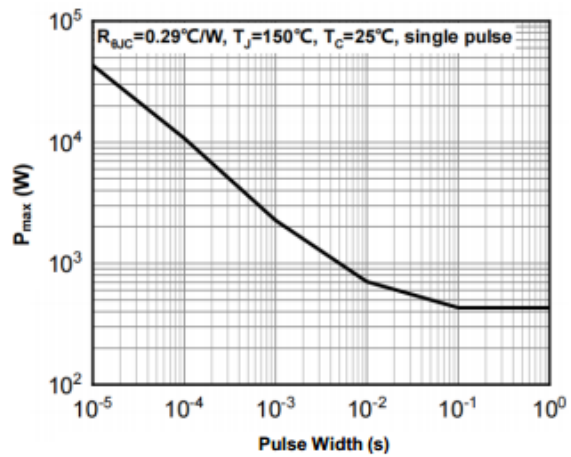
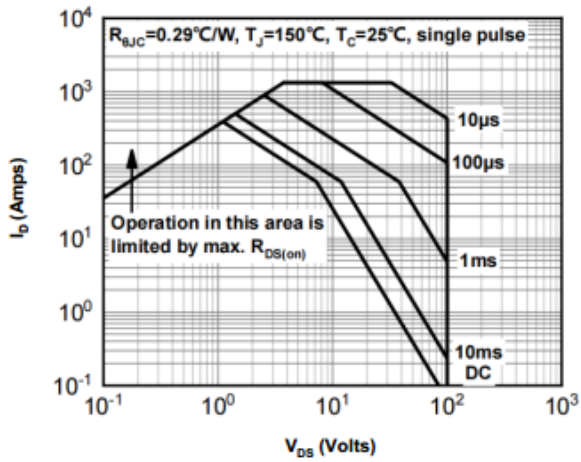
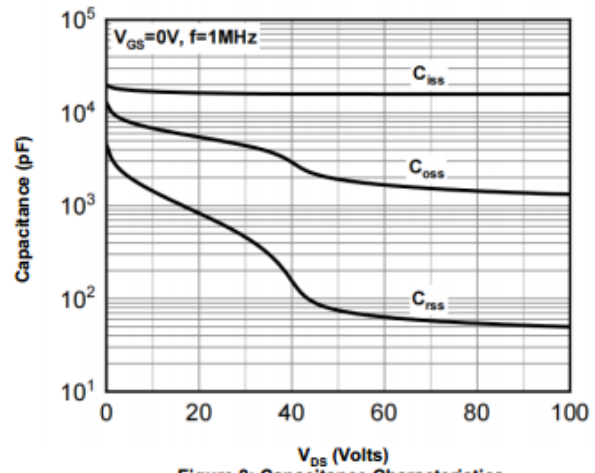
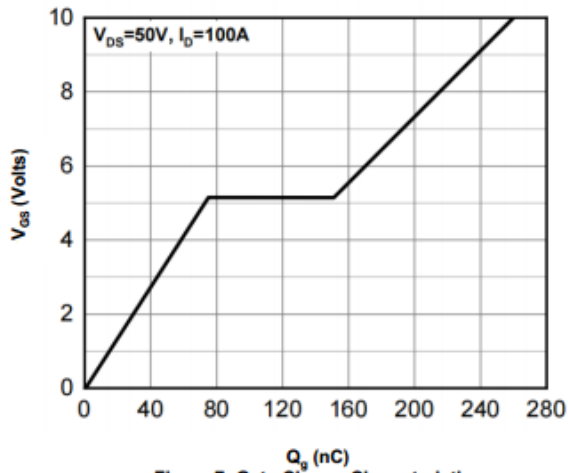


Figure 6: Body-Diode Characteristics

电参数曲线图 / Electrical Characteristic Curve



电参数曲线图 / Electrical Characteristic Curve

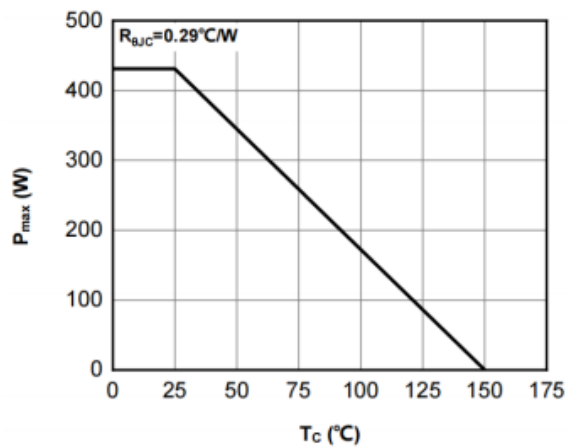


Figure 13: Max. Power Dissipation vs. Case Temperature

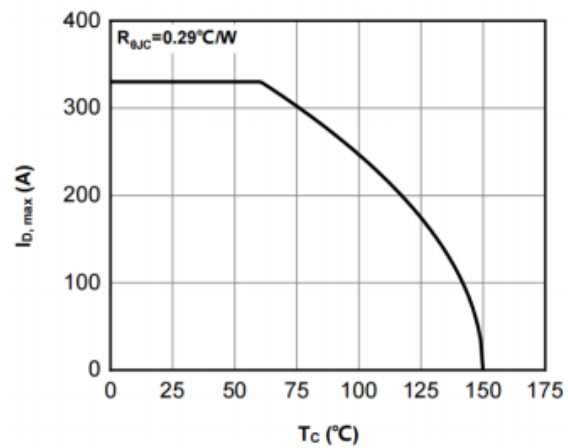


Figure 14: Max. Continuous Drain Current vs. Case Temperature

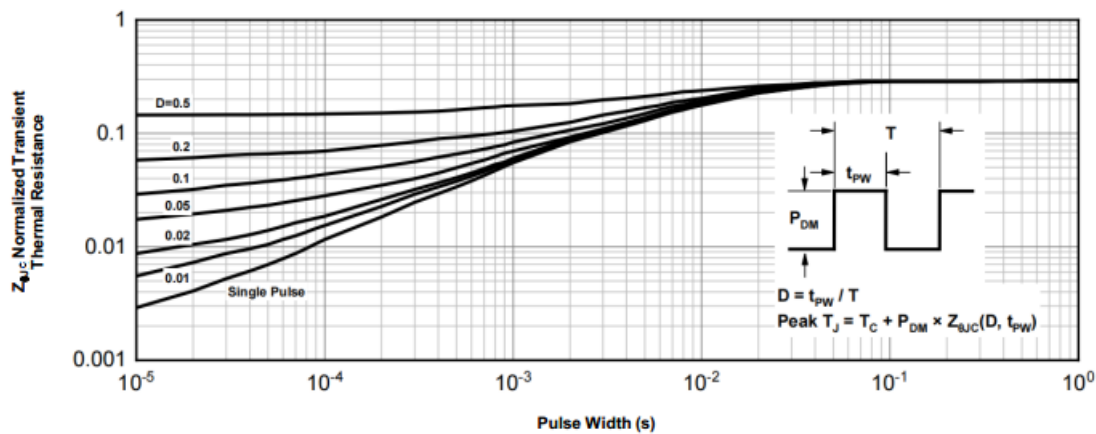
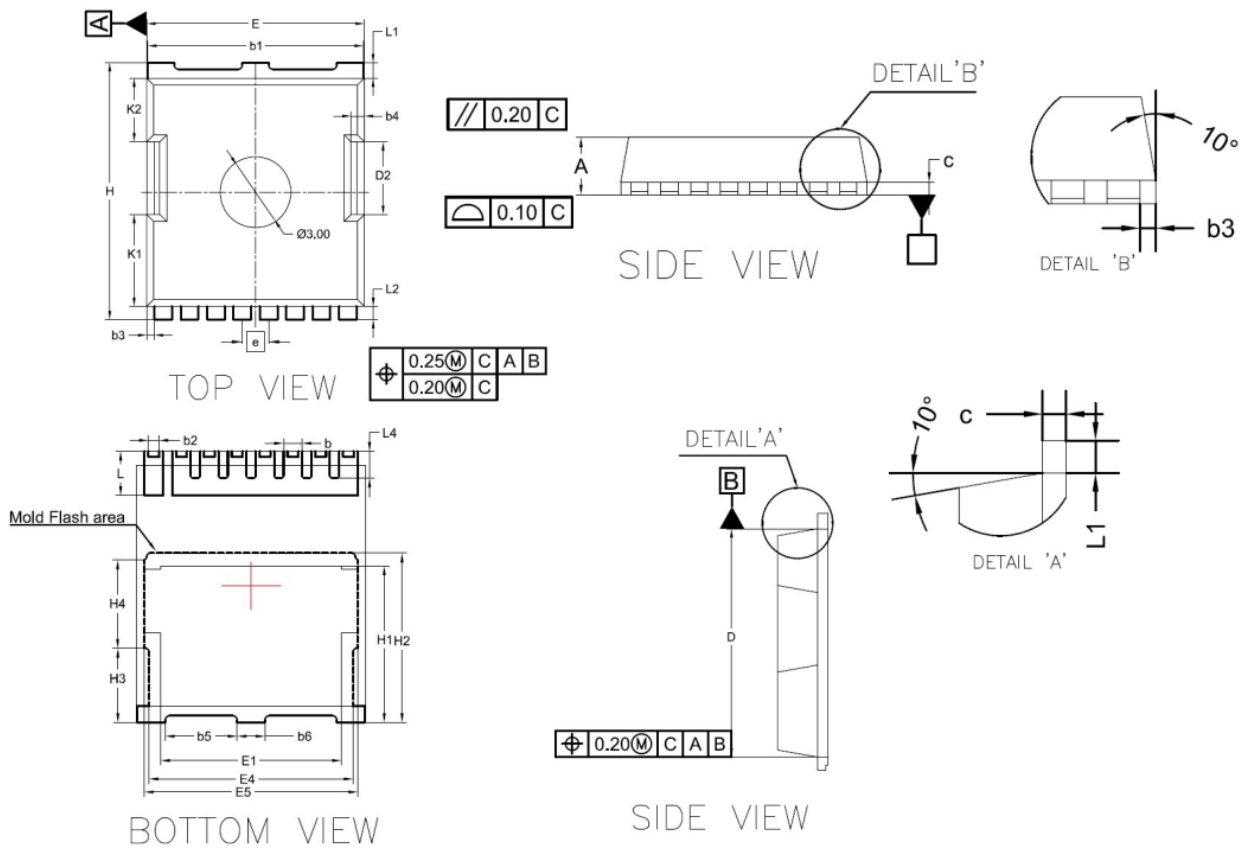


Figure 15: Normalized Maximum Transient Thermal Impedance

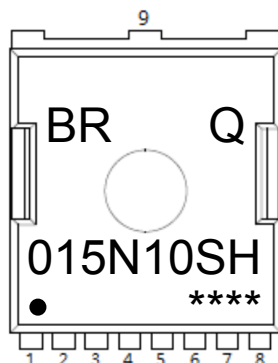
外形尺寸图 / Package Dimensions



Symbol	Dimensions In Millimeters			Symbol	Dimensions In Millimeters		
	MIN.	NOM.	MAX.		MIN.	NOM.	MAX.
A	2.200	2.300	2.400	b1	9.700	9.800	9.900
c	0.492	0.500	0.508	b1	0.420	0.460	0.500
D	10.280	10.380	10.480	b3	0.350		
E	9.800	9.900	10.000	b4	0.600		
e	1.20 BSC			b5	3.100		
H	11.580	11.680	11.780	b6	1.200		
H1	6.650	6.750	6.850	L	1.700	1.900	2.100
H2	7.300			L1	0.700		
H3	3.200			L2	0.600		
H4	3.800			L4	1.050	1.150	1.250
K1	4.180			L5	0.500	0.600	0.700
K2	2.900			E1	7.800		
D2	3.300			E4	8.800		
b	0.700	0.800	0.900	E5	9.200		



印章说明 / Marking Instructions



说明：

BR： 为公司代码

Q： 为汽车无卤产品标识

015N10SH： 为型号代码

****： 为生产批号代码，随生产批号变化

Note：

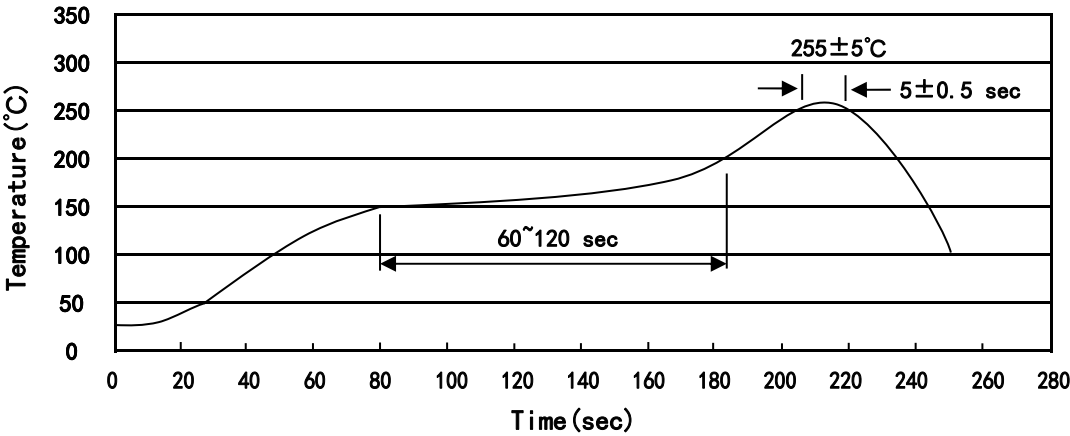
BR： Company Code

Q: Automobile halogen-free product Code

015N10SH： Product Type Code

****: 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：
- Note:
- 1、预热温度 150 ~ 200℃，时间 60 ~ 120sec;

1.Preheating:150~200℃, Time:60~120sec.

2、峰值温度 255±5℃，时间持续为 5±0.5sec;

2.Peak Temp.:255±5℃, Duration:5±0.5sec.

3、焊接制程冷却速度为 2 ~ 10℃/sec.

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
TOLL-8L	2,000	1	2,000	6	12,000	13"×24	360×360×50	380×335×366

使用说明 / Notices