

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

$V_{DS}(V)=100V$ $I_D=275A$

$R_{DS(ON)}@10V \leq 1.7m\Omega$ (Typ. $1.5m\Omega$)

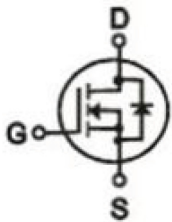
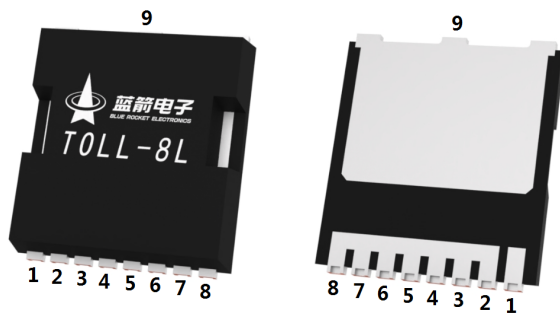
$R_{DS(ON)}@6V \leq 3.0m\Omega$ (Typ. $2.2m\Omega$)

无卤产品。 HF Product.

用途 / Applications

电池管理系统、无人机、大功率逆变器系统、轻型电动车。

BMS, Drones, High power inverter system, Light electric vehicles.

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
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current(DC)	$I_D(T_c=25^{\circ}\text{C})$	275	A
	$I_D(T_c=100^{\circ}\text{C})$	194	A
Drain Current – Pulsed	I_{DM}	1100	A
Power Dissipation	P_{tot}	263	W
Junction and Storage Temperature Range	T_j, T_{stg}	-55 to 175	$^{\circ}\text{C}$
Continuous-Source Current	I_S	275	A
Single Pulse Avalanche Energy ($V_{DD}=50\text{V}, L=1.0\text{mH}$)	E_{AS}	2450	mJ
Thermal resistance, junction - Ambient	$R_{\theta JA}$	45	$^{\circ}\text{C/W}$
Thermal resistance, junction - case	$R_{\theta JC}$	0.57	

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
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	2		4	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=80\text{V}, V_{GS}=0\text{V}$			1	μA
Gate-Body leakage current	I_{GSS}	$V_{DS}=0\text{V}, V_{GS}=\pm 20\text{V}$			± 100	nA
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10\text{V}, I_D=50\text{A}$		1.5	1.7	$\text{m}\Omega$
		$V_{GS}=6\text{V}, I_D=30\text{A}$		2.2	3.0	
Diode Forward Voltage	V_{SD}	$I_S=50\text{A}, V_{GS}=0\text{V}$			1.3	V
Reverse Recovery Time	t_{rr}	$I_F=50\text{A}, V_{GS}=0\text{V}$		126		ns
Reverse Recovery Charge	Q_{rr}	$dI_{SD}/dt=100\text{A}/\mu\text{s}$		379		nC
Input Capacitance	C_{iss}	$V_{DS}=50\text{V}, V_{GS}=0\text{V}$ $f=1.0\text{MHz}$		6599		pF
Output Capacitance	C_{oss}			3510		
Reverse Transfer Capacitance	C_{rss}			126		
Total Gate Charge	Q_g	$V_{GS}=10\text{V}, V_{DS}=50\text{V}$ $I_{DS}=50\text{A}$		103		nC
Gate Source Charge	Q_{gs}			38		
Gate Drain Charge	Q_{gd}			20		
Turn-On Delay Time	$t_{d(on)}$	$V_{GEN}=10\text{V}, V_{DS}=50\text{V}$ $R_G=3.9\Omega, R_L=1\Omega$ $I_{DS}=50\text{A}$		23		nS
Turn-On Rise Time	t_r			78		
Turn-Off Delay Time	$t_{d(off)}$			68		
Turn-Off Fall Time	t_f			64		

电参数曲线图 / Electrical Characteristic Curve

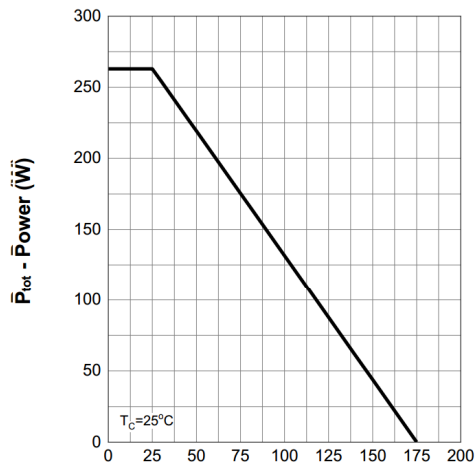
 T_J - Junction Temperature ($^\circ\text{C}$)

Fig1. Power Capability

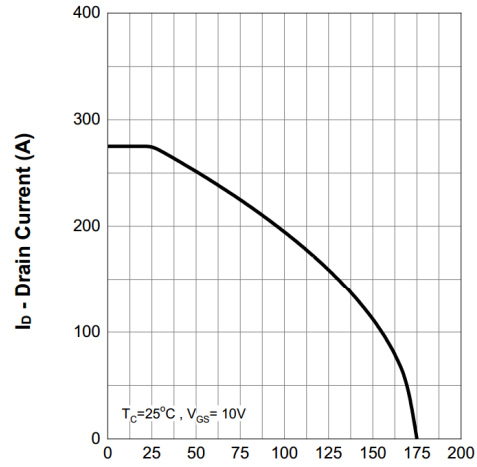
 T_J - Junction Temperature ($^\circ\text{C}$)

Fig2. Current Capability

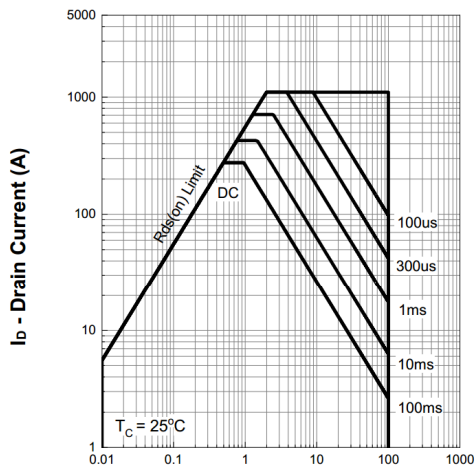
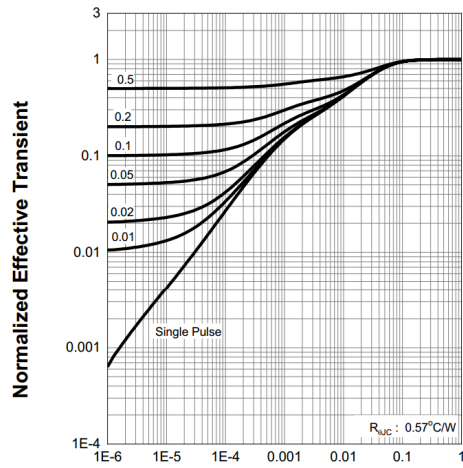
 V_{DS} - Drain-Source Voltage (V)

Fig3. Safe Operating Area



Square Wave Pulse Duration (sec)

Fig4. Transient Thermal Impedance

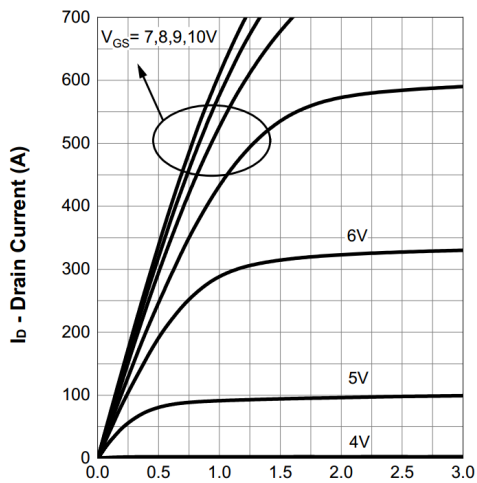
 V_{DS} - Drain-Source Voltage (V)

Fig5. Output Characteristics

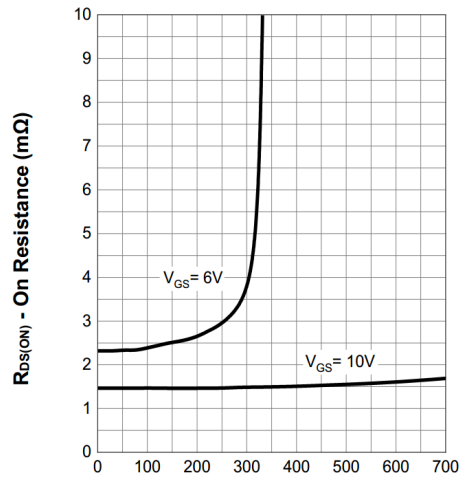
 I_D - Drain Current (A)

Fig6. On Resistance

电参数曲线图 / Electrical Characteristic Curve

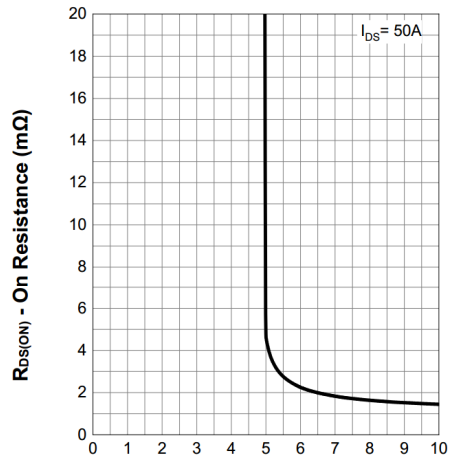
 V_{GS} - Gate-Source Voltage (V)

Fig7. Transfer Characteristics

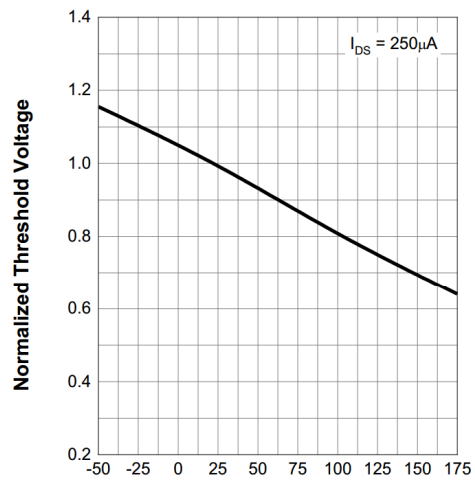
 T_J - Junction Temperature ($^{\circ}C$)

Fig8. Normalized Threshold Voltage

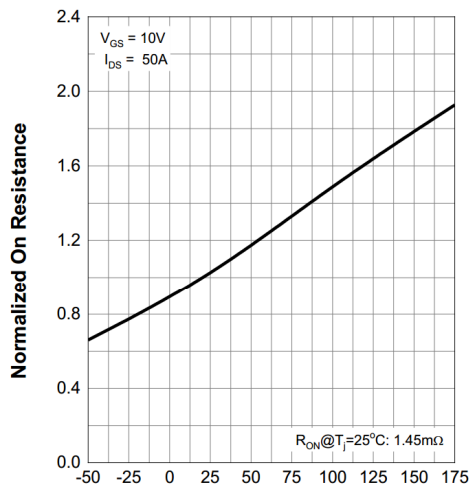
 T_J - Junction Temperature ($^{\circ}C$)

Fig9. Normalized On Resistance

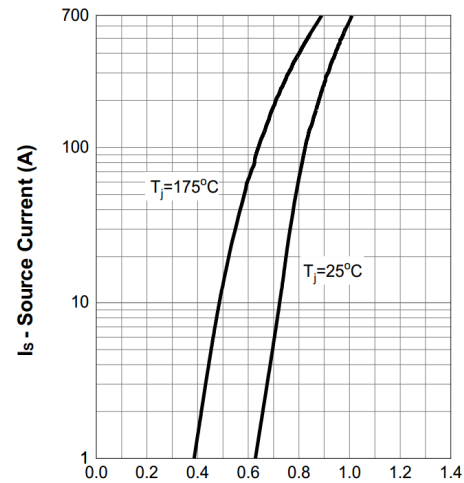
 V_{SD} - Source-Drain Voltage (V)

Fig10. Diode Forward Current

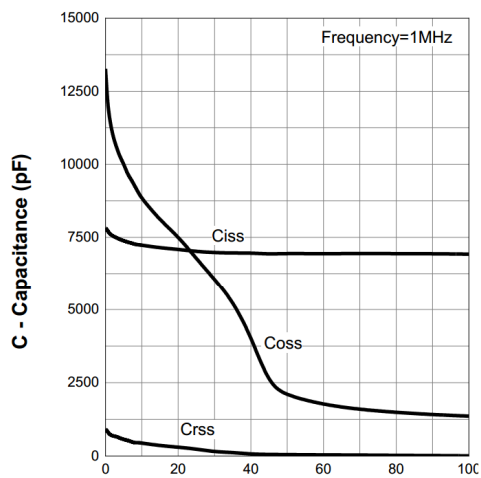
 V_{DS} - Drain-Source Voltage (V)

Fig11. Capacitance

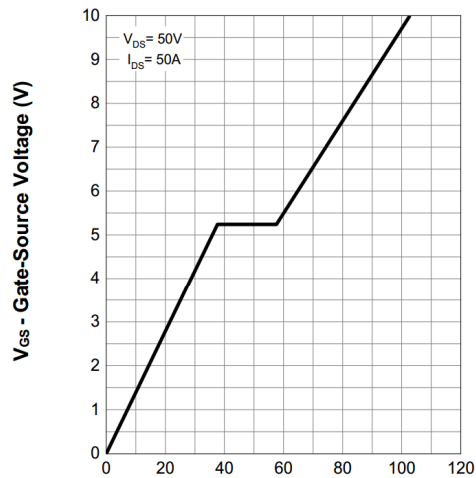
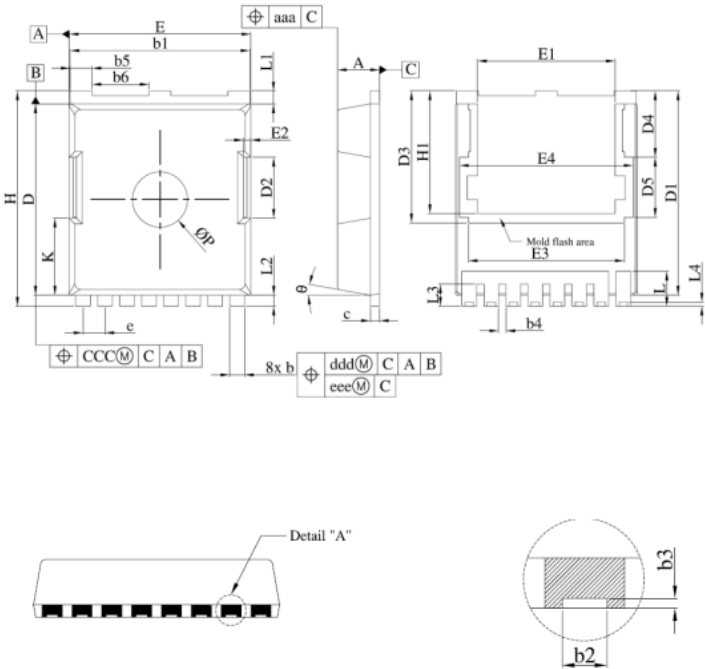
 Q_G - Gate Charge (nC)

Fig12. Gate Charge

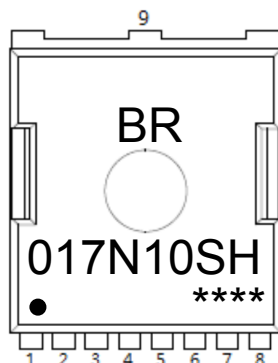
外形尺寸图 / Package Dimensions



Symbol	Dimensions In Millimeters		
	MIN.	NOM.	MAX.
A	2.20	2.30	2.40
b	0.70	0.80	0.90
b1	9.70	9.80	9.90
b2	0.36	0.45	0.55
b3	0.05	0.10	/
b4	0.30	0.40	0.50
b5	1.10	1.20	1.30
b6	3.00	3.10	3.20
c	0.40	0.50	0.60
D	10.28	10.38	10.55
D1	10.98	11.08	11.18
D2	3.20	3.30	3.40
D3	7.15		
D4	3.59		
D5	3.26		
e	1.10	1.20	1.30
E	9.80	9.90	10.00
E1	7.40	7.50	7.60
E2	0.30	0.40	0.50
E3	8.50		
E4	9.46		
H	11.50	11.68	11.85
H1	6.55	6.65	6.75
K	4.08	4.18	4.28
L	1.60	1.90	2.10
L1	0.50	0.70	0.90
L2	0.50	0.60	0.70
L3	1.00	1.20	1.30
L4	0.13	0.23	0.33
p	2.85	3.00	3.15
θ	10°REF		
aaa	0.20		
ccc	0.20		
ddd	0.25		
eee	0.20		



印章说明 / Marking Instructions



说明：

BR： 为公司代码

017N10SH： 为型号代码

****： 为生产批号代码，随生产批号变化

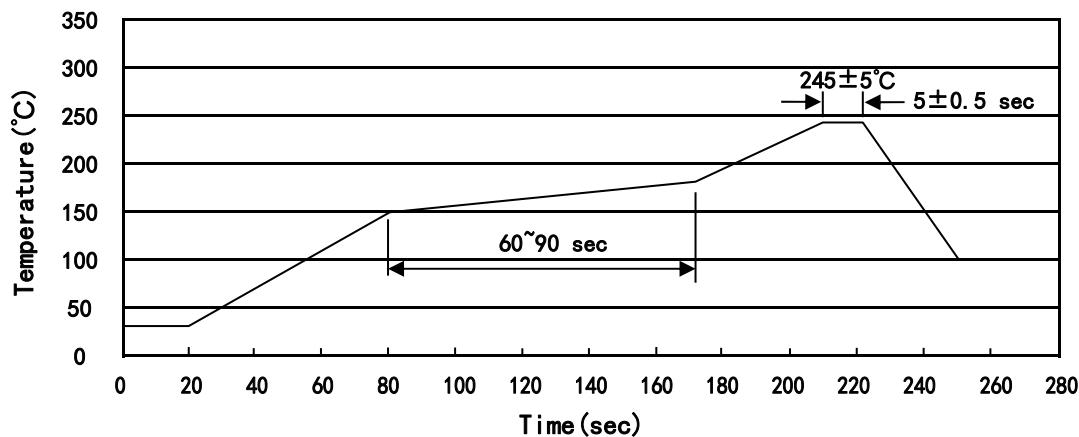
Note：

BR： Company Code

017N10SH： 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 :
- 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
TOLL-8L	2,000	1	2,000	6	12,000	13"×24	360×360×50	380×335×366

使用说明 / Notices

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