

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. 1.35m Ω)

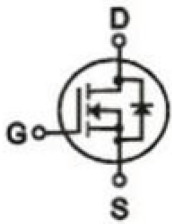
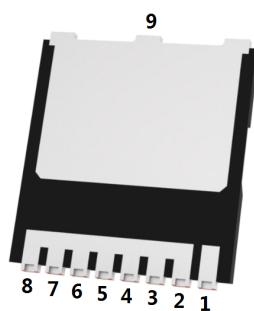
$R_{DS(ON)}@6V \leq 3.0m\Omega$ (Typ. 2.2m Ω)

无卤产品。 HF Product.

用途 / Applications

BMS, 无人机, 大功率逆变系统, 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
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
Gate-Source Voltage	V_{GS}	± 20	V
Power Dissipation	P_{tot}	263	W
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
Junction and Storage Temperature Range	T_j, T_{stg}	-55 to 175	$^{\circ}\text{C}$
Thermal resistance, junction – ambient**	$R_{\theta JA}$	45	$^{\circ}\text{C/W}$
Thermal resistance, junction - case	$R_{\theta JC}$	0.57	

Notes:

* : Pulse width $\leq 300 \mu\text{s}$, duty cycle $\leq 2\%$ ** : Surface Mounted on 1 in² pad area, $t \leq 10\text{sec}$

*** : Limited by bonding wire

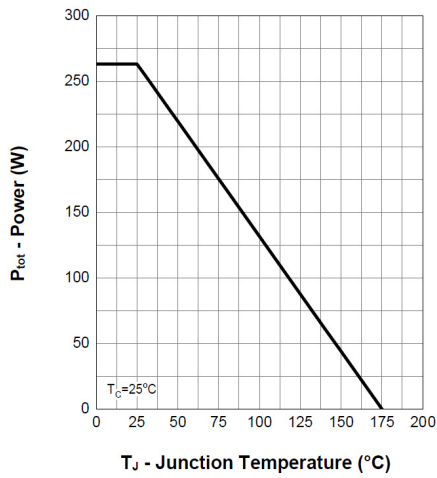
电性能参数 / Electrical Characteristics($T_a=25^{\circ}\text{C}$)

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}	$V_{DS}=80\text{V}, V_{GS}=0\text{V}$			1	μA
Gate-Body leakage current	I_{GSS}	$V_{DS}=0\text{V}, V_{GS}=\pm 20\text{V}$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	2		4	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10\text{V}, I_D=50\text{A}$		1.35	1.7	m Ω
		$V_{GS}=6\text{V}, I_D=30\text{A}$		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}	$I_F = 50 \text{ A}, V_{DS} = 50 \text{ V}$		126		ns
Reverse Recovery Charge	Q_{rr}	$dI_{SD}/dt = 100 \text{ A}/\mu\text{s}$		379		nC
Input Capacitance	C_{iss}	$V_{DS}=50\text{V} \quad V_{GS}=0\text{V}$ $f=1.0\text{MHz}$		6899		pF
Output Capacitance	C_{oss}			2078		
Reverse Transfer Capacitance	C_{rss}			44		

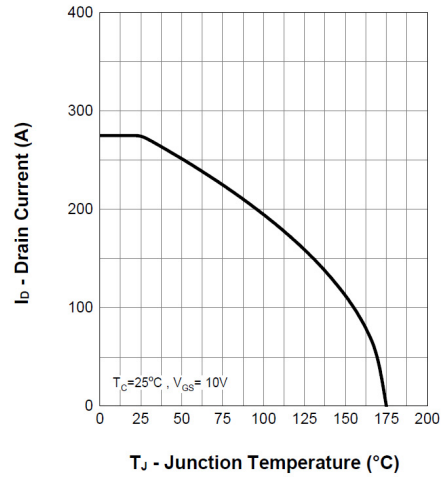
电性能参数 / Electrical Characteristics(Ta=25°C)

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
Total Gate Charge	Q_g	$V_{GS}=10V$, $V_{DS}=50V$ $I_{DS}=50A$		103		nC
Gate Source Charge	Q_{gs}			38		
Gate Drain Charge	Q_{gd}			20		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V$ $V_{DS}=50V$ $R_G=3.9\Omega$ $R_L=1\Omega$ $I_D=50A$		23		nS
Turn-On Rise Time	t_r			78		
Turn-Off Delay Time	$t_{d(off)}$			68		
Turn-Off Fall Time	t_f			64		

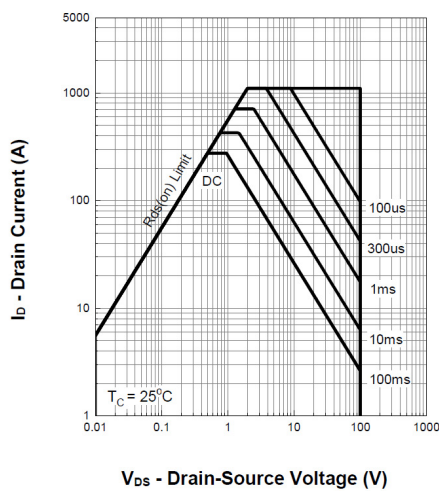
电参数曲线图 / Electrical Characteristic Curve



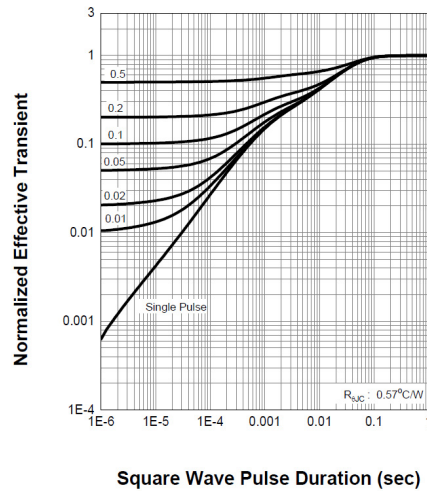
1. Power Capability



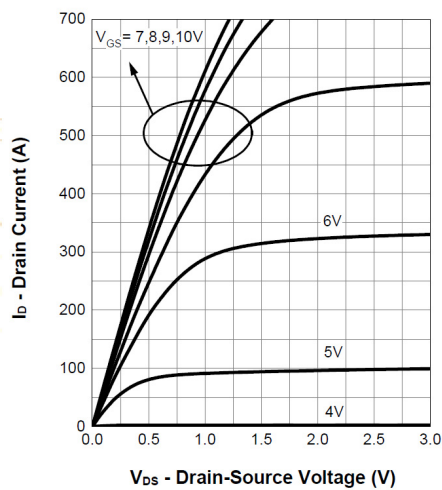
2. Current Capability



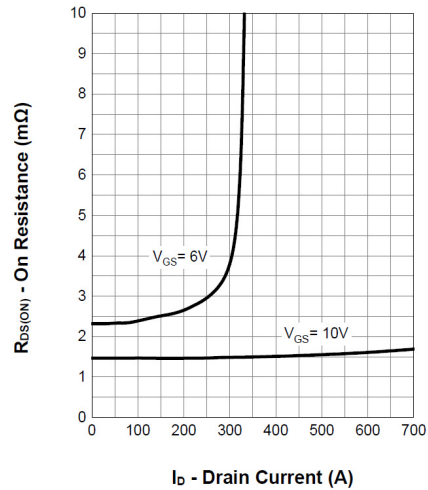
3. Safe Operating Area



4. Transient Thermal Impedance



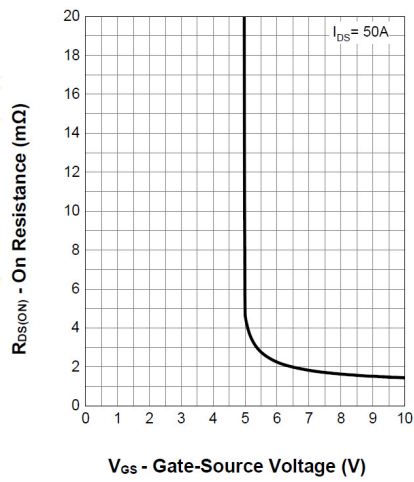
5. Output Characteristics



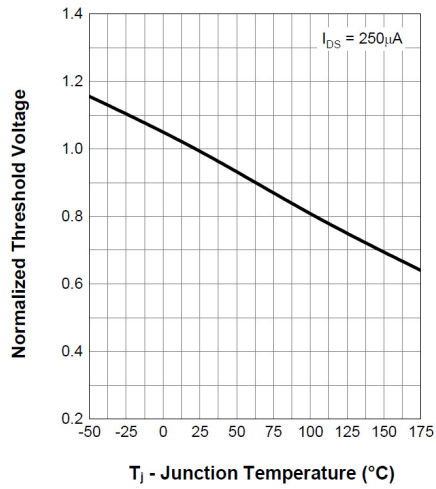
6. On Resistance

C

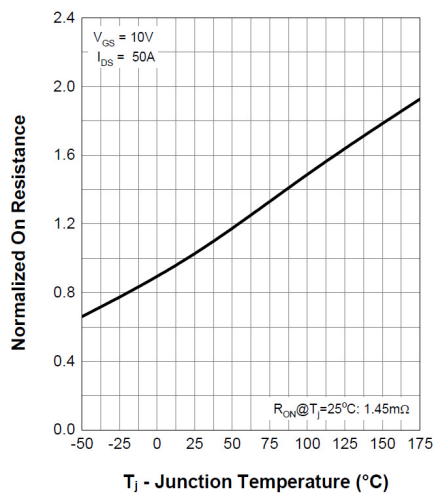
电参数曲线图 / Electrical Characteristic Curve



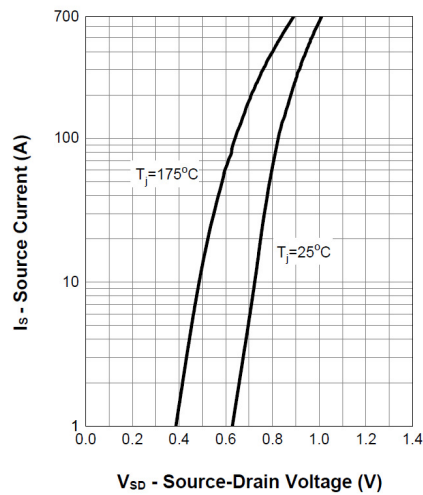
7. Transfer Characteristics



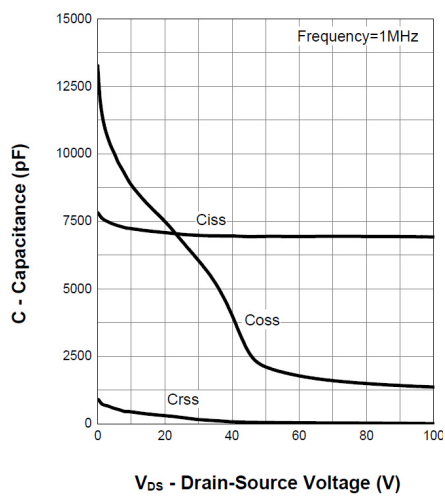
8. Normalized Threshold Voltage



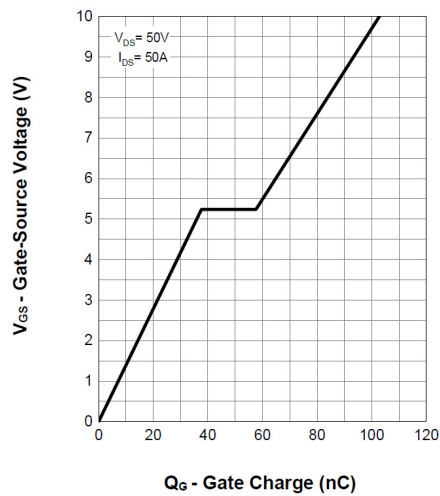
9. Normalized On Resistance



10. Diode Forward Current

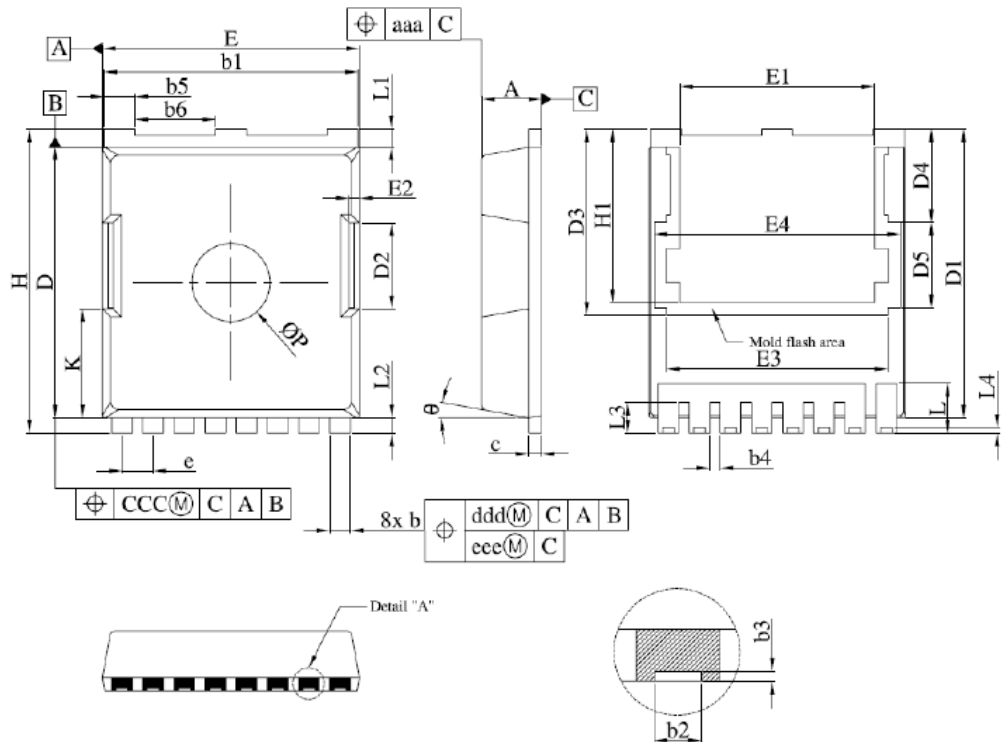


11. Capacitance

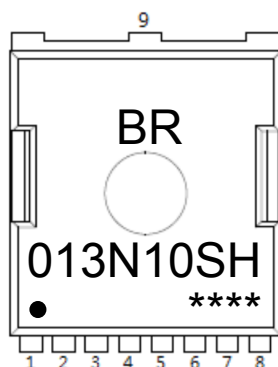


12. Gate Charge

外形尺寸图 / Package Dimensions



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



说明：

BR： 为公司代码

013N10SH： 为型号代码

****： 为生产批号代码，随生产批号变化

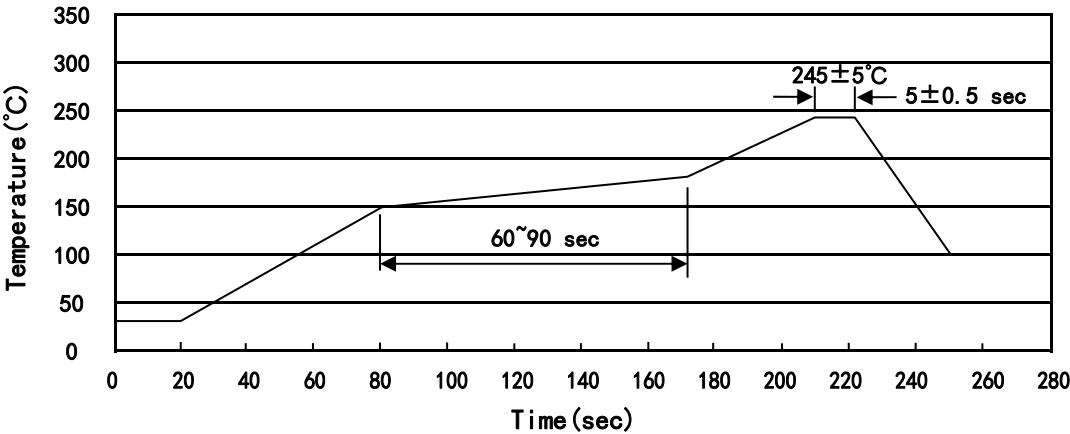
Note：

BR： Company Code

013N10SH： 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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