

描述 / Descriptions

TOLL-8L-Clip 封装 N 沟道场效应管。

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

特征 / Features

$V_{DS}(V)=60V$ $I_D=354A$

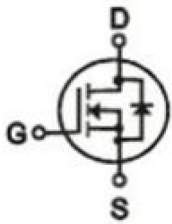
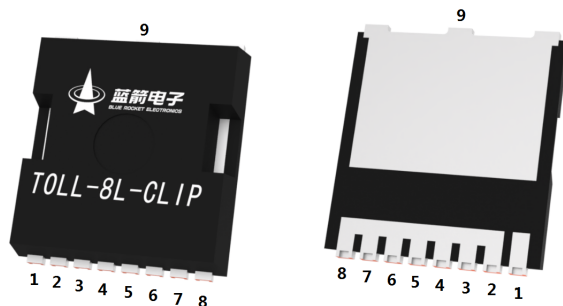
$R_{DS(ON)}@10V \leq 0.98m\Omega$ (Typ. $0.82m\Omega$)

无卤产品。HF Product.

用途 / Applications

BMS, 大功率逆变系统, 无人机, 轻型电动车。

BMS, High power inverter system, Drones, 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}	60	V
Drain Current - Continuous	I_D	354	A
Drain Current - Continuous	$I_D(T_c=100^{\circ}\text{C})$	251	A
Drain Current – Pulsed	I_{DM}	1416	A
Gate-Source Voltage	V_{GS}	± 20	V
Power Dissipation	P_{tot}	230	W
Continuous-Source Current	$I_S(T_c=25^{\circ}\text{C})$	354	A
Single Pulse Avalanche Energy($L=1.0\text{mH}$)	E_{AS}	1250	mJ
Junction and Storage Temperature Range	T_j, T_{stg}	-55 to 175	$^{\circ}\text{C}$
Thermal resistance, junction - ambient	Steady-State $R_{\theta JA}$	44	$^{\circ}\text{C/W}$
Thermal resistance, junction - case	Steady-State $R_{\theta JC}$	0.65	

Note 1 : Surface Mounted on 1 in² pad area, $t \leq 10$ sec.

Note 2 : Pulse test; pulse width $\leq 300 \mu\text{s}$, duty cycle $\leq 2\%$.

Note 3 : 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}	$I_D=250\mu\text{A}, V_{GS}=0\text{V}$	60			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=48\text{V}, V_{GS}=0\text{V}$			1	μA
Gate-Body leakage current	I_{GSS}	$V_{DS}=0\text{V}, V_{GS}=\pm 20\text{V}$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	2.0		4.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10\text{V}, I_D=50\text{A}$		0.82	0.98	m Ω
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=6\text{V}, I_D=30\text{A}$		1.52	1.98	
Diode Forward Voltage	V_{SD}	$I_S=50\text{A}, V_{GS}=0\text{V}$			1.3	V
Input Capacitance	C_{iss}	$V_{DS}=30\text{V}, V_{GS}=0\text{V}, f=1.0\text{MHz}$		6108		pF
Output Capacitance	C_{oss}			2088		
Reverse Transfer Capacitance	C_{rss}			87		
Total Gate Charge	Q_g	$V_{GS}=10\text{V}, I_{DS}=50\text{A}, V_{DS}=30\text{V}$		151		nC
Gate Source Charge	Q_{gs}			34		
Gate Drain Charge	Q_{gd}			35		

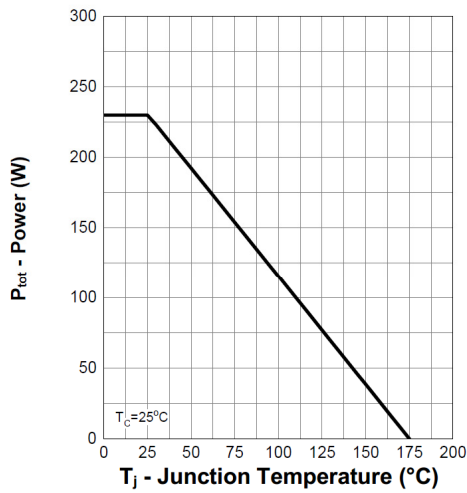
电性能参数 / Electrical Characteristics(Ta=25°C)

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	$t_{d(on)}$	$V_{GEN}=10V$ $V_{DS}=30V$ $R_L=0.6\Omega$ $R_G=3.9\Omega$ $I_{DS}=50A$		25		ns
Turn-On Rise Time	t_r			112		
Turn-Off Delay Time	$t_{d(off)}$			70		
Turn-Off Fall Time	t_f			72		
Reverse Recovery Time	t_{rr}	$I_{DS} = 50 A, V_{GS} = 0 V$		92		nS
Reverse Recovery Charge	Q_{rr}	$di_{SD}/dt = 100 A/\mu s$		105		nC

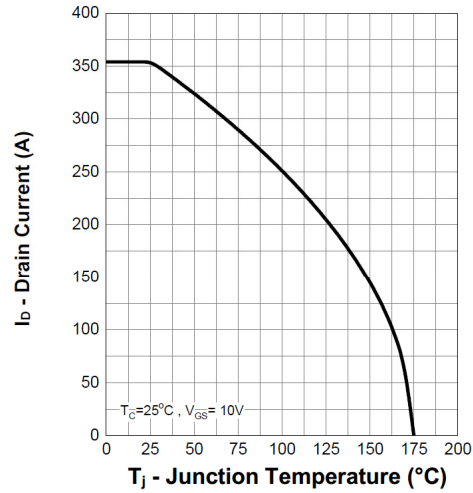
Note 1 : Pulse test; pulse width $\leq 300 \mu s$, duty cycle $\leq 2\%$.

Note 2 : Guaranteed by design, not subject to production testing.

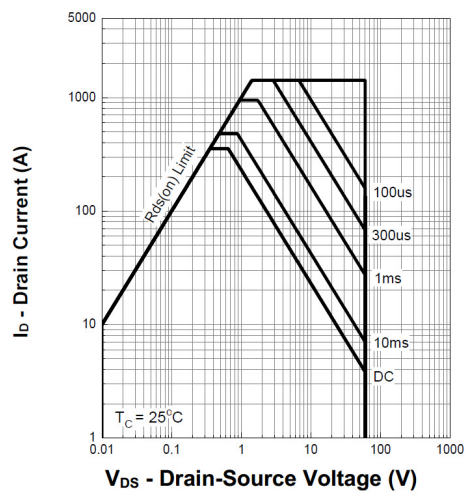
电参数曲线图 / Electrical Characteristic Curve



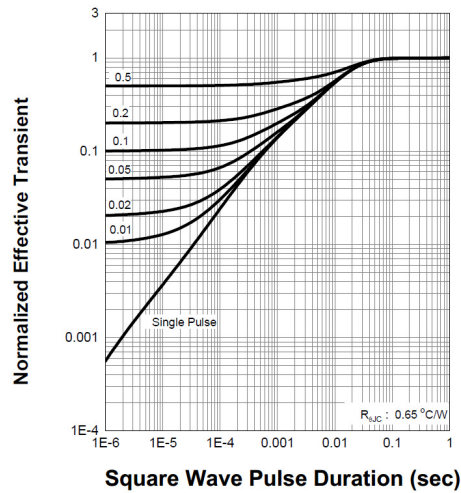
1. Power Capability



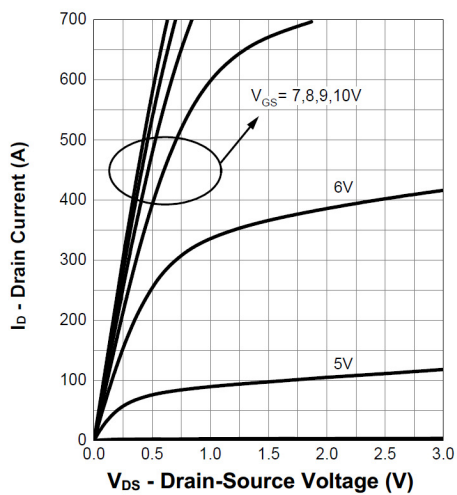
2. Current Capability



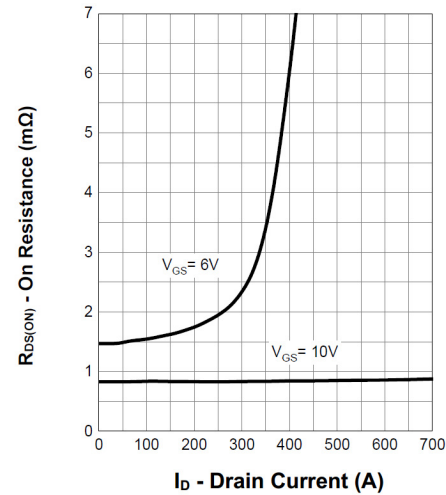
3. Safe Operating Area



4. Transient Thermal Impedance

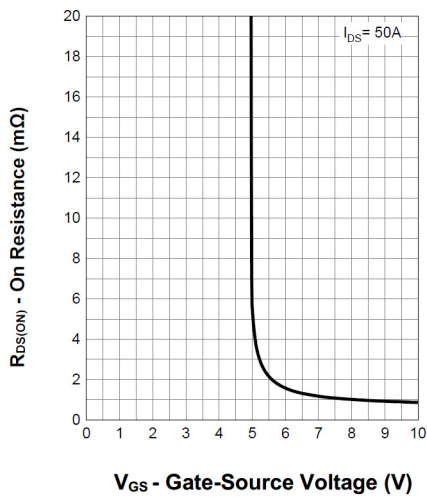


5. Output Characteristics

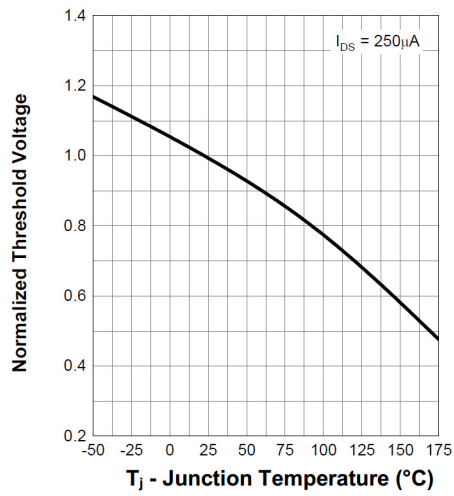


6. On Resistance

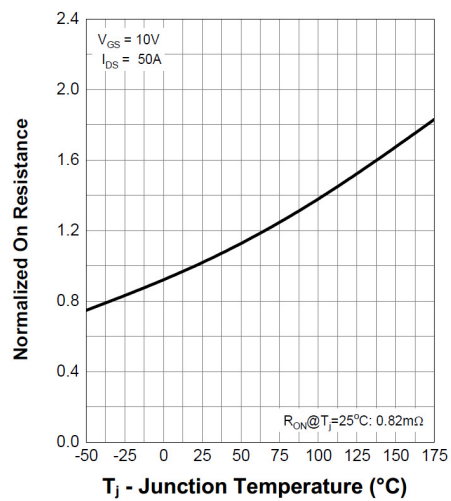
电参数曲线图 / Electrical Characteristic Curve



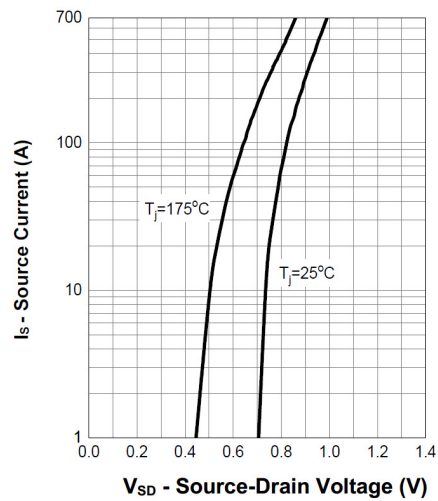
7. Transfer Characteristics



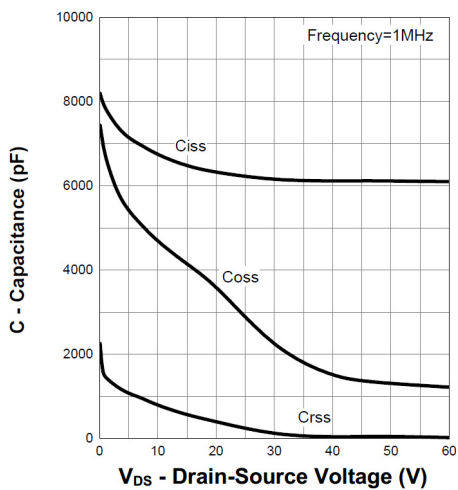
8. Normalized Threshold Voltage



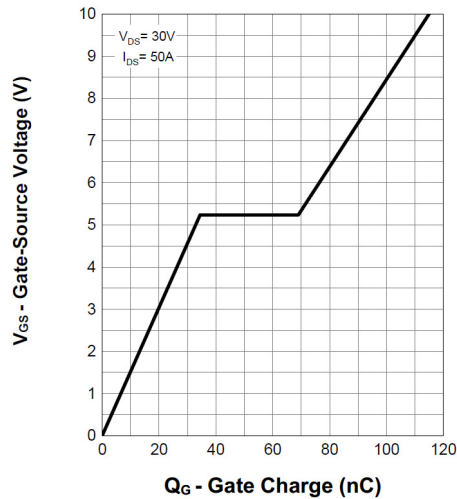
9. Normalized On Resistance



10. Diode Forward Current

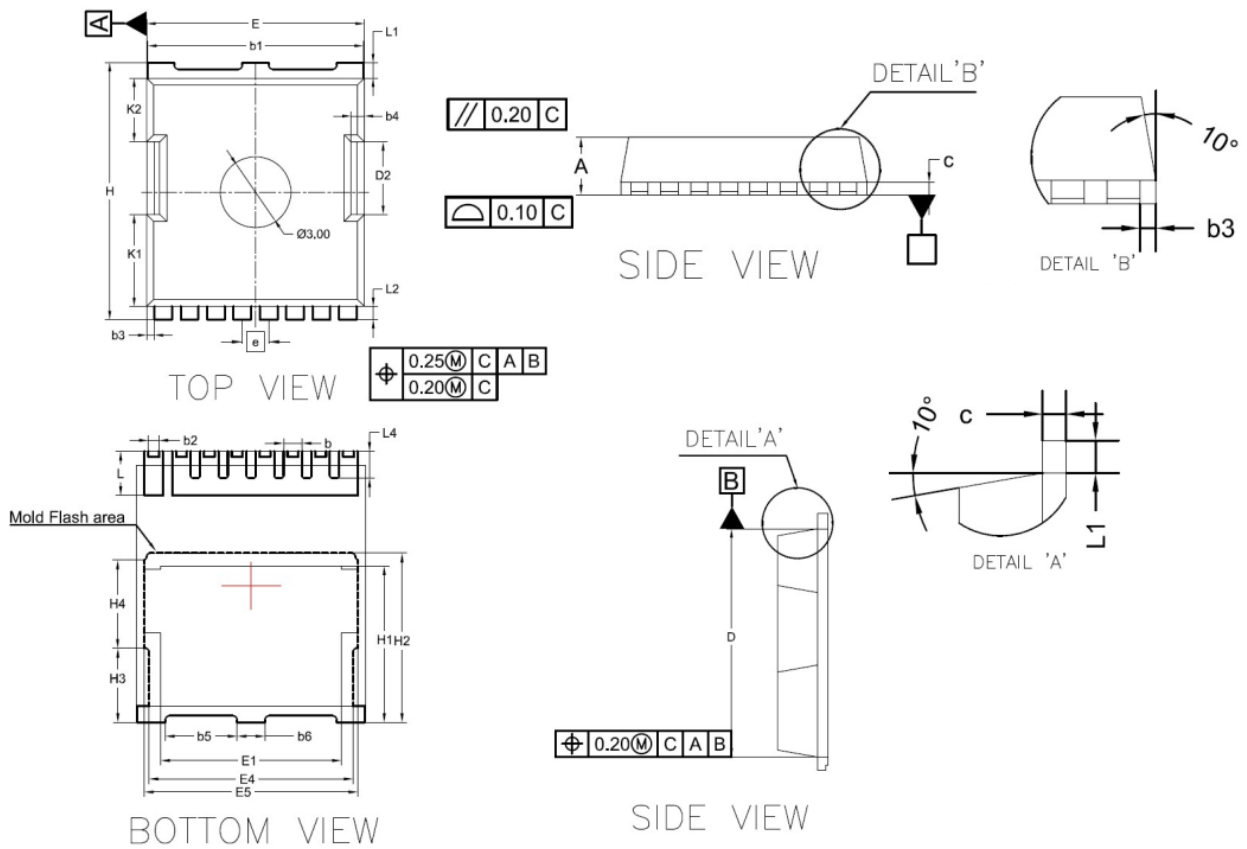


11. Capacitance



12. Gate Charge

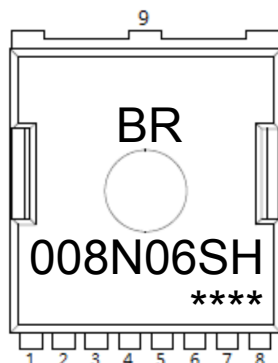
外形尺寸图 / Package Dimensions



Symbol	Dimensions In Millimeters			Symbol	Dimensions In Millimeters		
	MIN.	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

008N06SH： 为型号代码

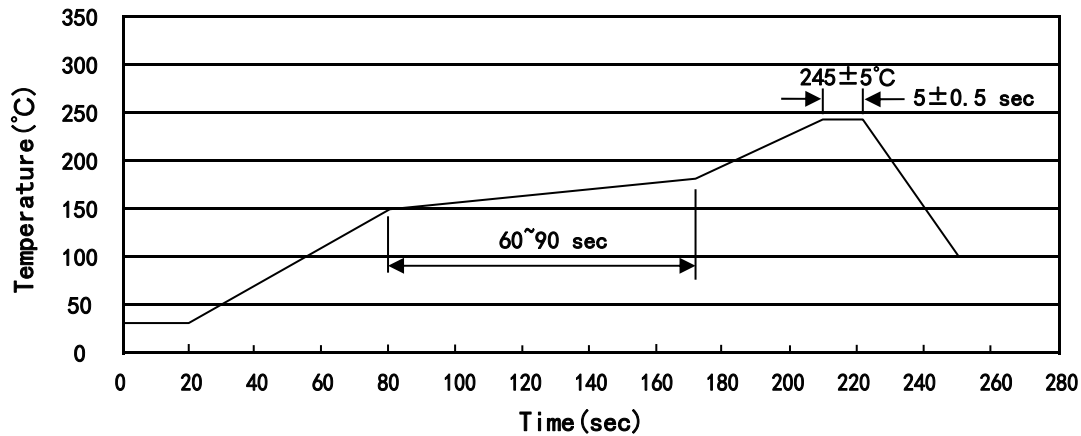
****： 为生产批号代码，随生产批号变化

Note：

BR： Company Code

008N06SH： 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-Clip	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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