

BRCS016N12SHTL

Rev.A Feb.-2026

描述 / Descriptions

TOLL-8L 封装 N 沟道场效应管。
N-Channel MOSFET in a TOLL-8L Plastic Package .

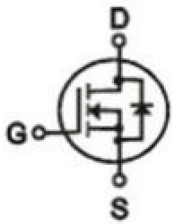
特征 / Features

$V_{DS}(V)=120V$ $I_D=330A$
 $R_{DS(ON)}@10V \leq 1.6m\Omega$ (Typ. 1.17m Ω)
无卤产品。 HF Product.

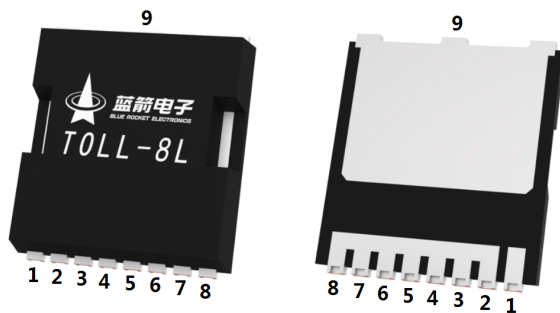
用途 / Applications

电机控制和驱动、电池管理、DC/DC 转换器。
Motor control and drives, Battery management, DC/DC converter.

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}	120	V
Drain Current(DC)	$I_D(T_C=25^{\circ}\text{C})$	330	A
	$I_D(T_C=100^{\circ}\text{C})$	258	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	E_{AS}	2601	mJ
Junction and Storage Temperature Range	T_j, T_{stg}	-55 to 150	$^{\circ}\text{C}$
Thermal resistance, junction - case	$R_{\theta JC}$	0.29	$^{\circ}\text{C}/\text{W}$
Thermal resistance, junction - Ambient	$R_{\theta JA}$	40	

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}	$I_D=250\mu\text{A}, V_{GS}=0\text{V}$	119	121		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=110\text{V}, V_{GS}=0\text{V}$			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	4.0	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10\text{V}, I_D=40\text{A}$		1.17	1.6	$\text{m}\Omega$
Diode Forward Voltage	V_{SD}	$I_S=40\text{A}, V_{GS}=0\text{V}$		0.85	1.1	V
Reverse Recovery Time	t_{rr}	$I_F = 100\text{A}$		100		ns
Reverse Recovery Charge	Q_{rr}	$di_{SD}/dt = 100\text{A}/\mu\text{s}$		280		nC
Input Capacitance	C_{iss}	$V_{DS}=60\text{V}, V_{GS}=0\text{V}$ $f=1.0\text{MHz}$		13427		pF
Output Capacitance	C_{oss}			2786		
Reverse Transfer Capacitance	C_{rss}			108		
Gate resistance	R_g	$f=1.0\text{MHz}$		1.3		Ω
Total Gate Charge	Q_g	$V_{GS}=10\text{V}, V_{DS}=50\text{V}$ $I_{DS}=100\text{A}$		189		nC
Gate Source Charge	Q_{gs}			70		
Gate Drain Charge	Q_{gd}			20		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10\text{V}, V_{DS}=50\text{V}$ $R_G=1.6\Omega$		131		nS
Turn-On Rise Time	t_r			143		
Turn-Off Delay Time	$t_{d(off)}$			71		
Turn-Off Fall Time	t_f			70		

电参数曲线图 / Electrical Characteristic Curve

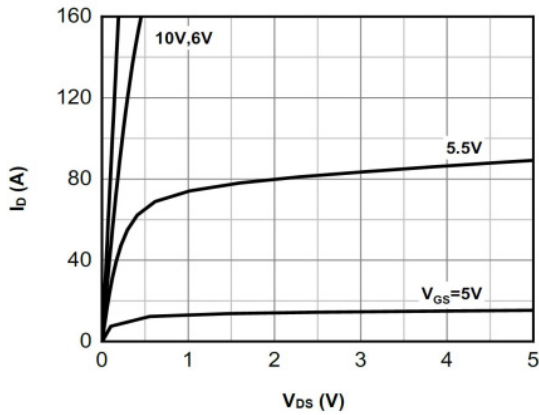


Figure 1 Output Characteristics

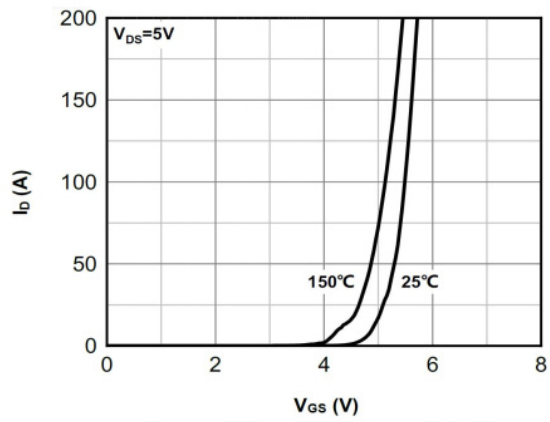


Figure 2 Transfer Characteristics

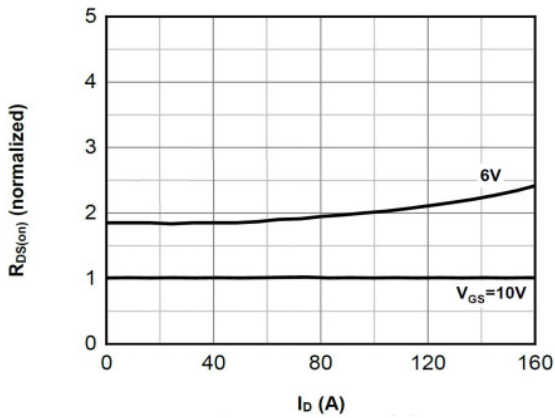


Figure 3 R_{DS(on)}-Drain Current

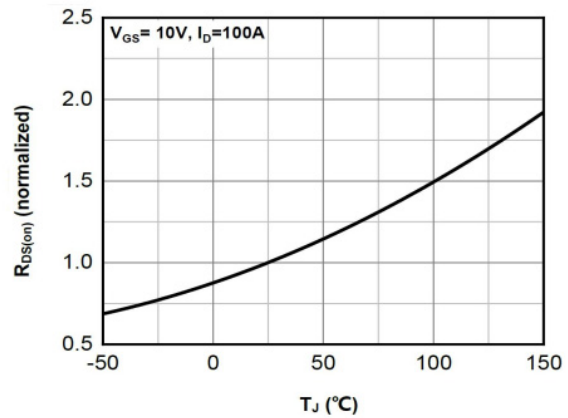


Figure 4 R_{DS(on)}-Junction Temperature

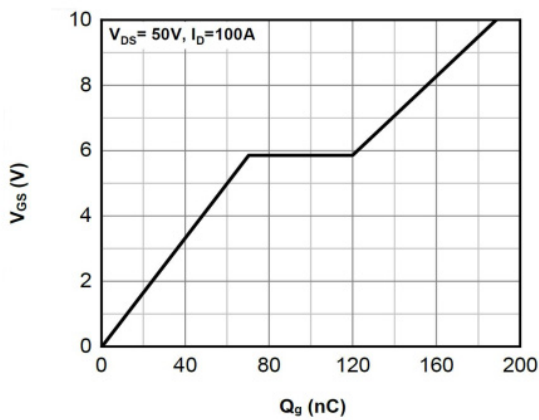


Figure 5 Gate Charge

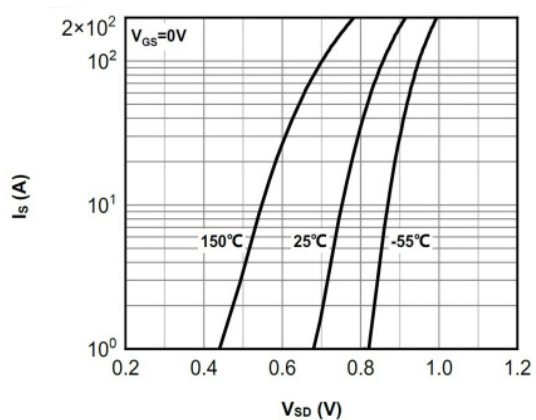


Figure 6 Source-Drain Diode Forward

电参数曲线图 / Electrical Characteristic Curve

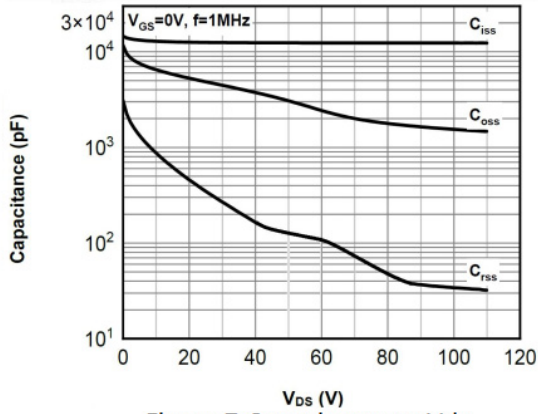


Figure 7 Capacitance vs Vds

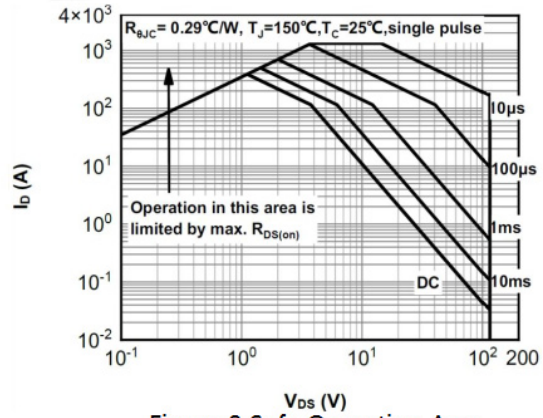


Figure 8 Safe Operation Area

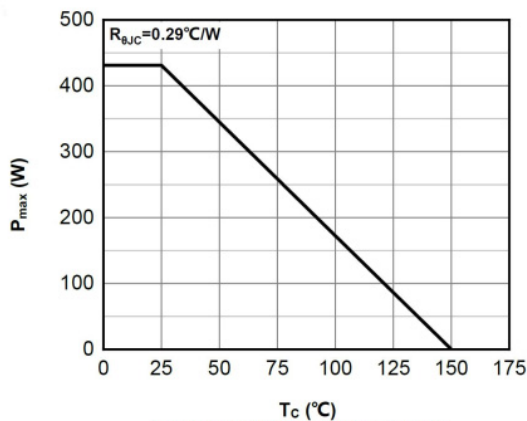


Figure 9 Power De-rating

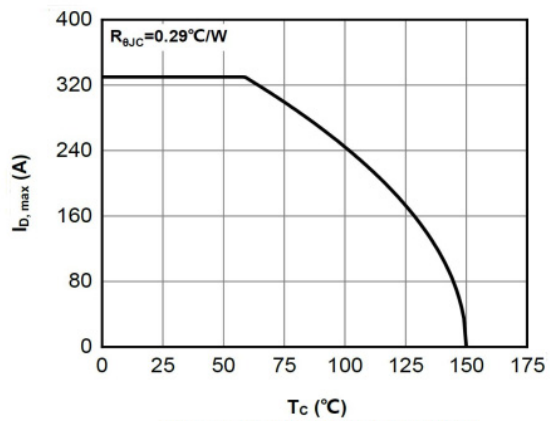


Figure 10 Current De-rating

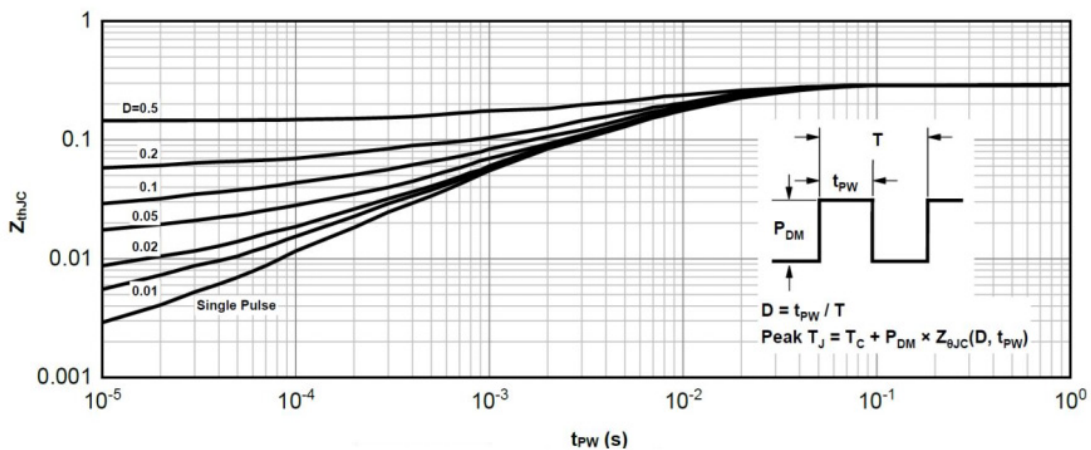
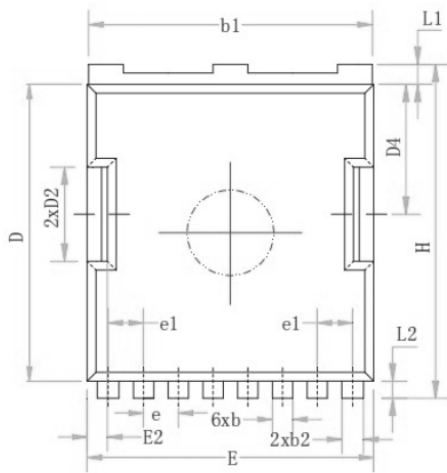
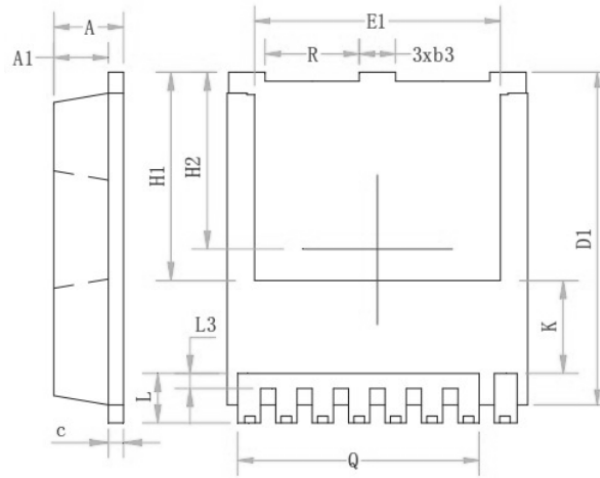


Figure 11 Maximum Transient Thermal Impedance

外形尺寸图 / Package Dimensions



Top View



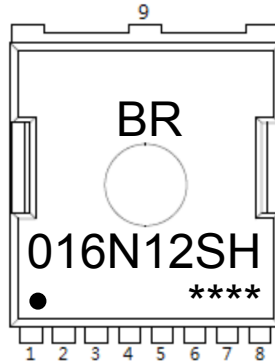
Bottom View



Side View

Symbol	Min	Typ	Max	Symbol	Min	Typ	Max
A	2.25	2.30	2.35	E	9.85	9.90	9.95
A1	1.75	1.80	1.85	E1	8.00	8.10	8.20
b	0.65	0.70	0.75	E2	0.65	0.70	0.75
b1	9.75	9.80	9.85	H	11.60	11.70	11.80
b2	0.70	0.75	0.80	H1	6.95 BSC		
b3	1.15	1.20	1.25	H2	5.90 BSC		
c	0.45	0.50	0.55	K	3.10 REF		
D	10.35	10.40	10.45	L	1.55	1.65	1.75
D1	11.00	11.10	11.20	L1	0.65	0.70	0.75
D2	3.25	3.30	3.35	L2	0.50	0.60	0.70
D4	4.50	4.55	4.60	L3	0.40	0.50	0.60
e	1.20 BSC			Q	7.95 REF		
e1	1.225 BSC			R	3.00	3.10	3.20

印章说明 / Marking Instructions



说明：

BR： 为公司代码

016N12SH： 为型号代码

****： 为生产批号代码，随生产批号变化

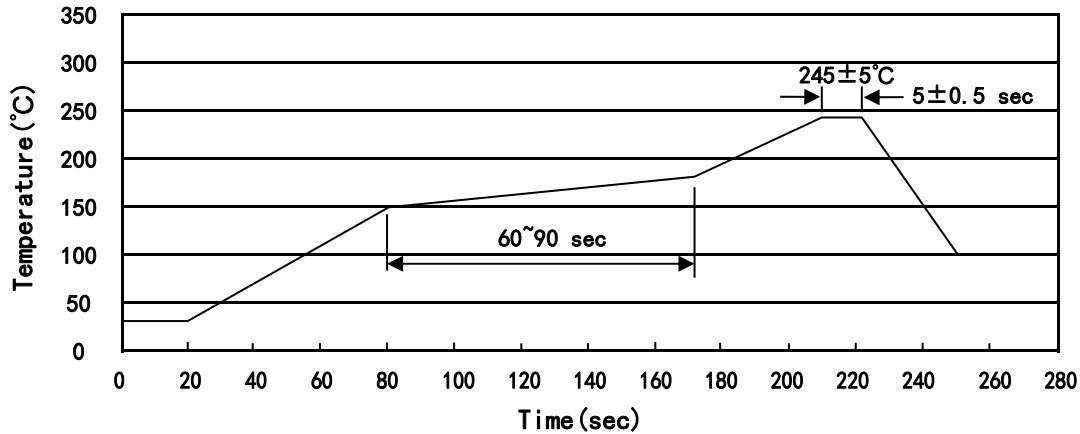
Note：

BR： Company Code

016N12SH： 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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