

BRCS006N06SHTP

Rev.A Mar.-2026

描述 / Descriptions

TOLT-16L 封装 N 沟道场效应管。

N-Channel MOSFET in a TOLT-16L Plastic Package .

特征 / Features

$V_{DS}(V)=60V$ $I_D=650A$

$R_{DS(ON)}@10V \leq 0.6m\Omega$ (Typ. 0.45 m Ω)

$R_{DS(ON)}@6V \leq 1.2m\Omega$ (Typ. 0.78 m Ω)

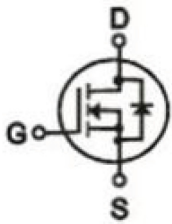
无卤产品。 HF Product.

用途 / Applications

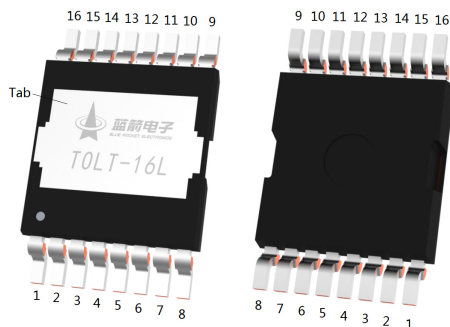
BMS, 无人机, 大功率逆变系统, 轻型电动车。

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

内部等效电路 / Equivalent Circuit



引脚排列 / Pinning



PIN1、2、3、4、5、6、7: S

PIN8: G

PIN9、10、11、12、13、14、15、16、Tab: D

印章代码 / Marking

见印章说明。

See Marking Instructions.

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

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Drain-Source Voltage	V_{DS}	60	V
Drain Current(DC)	$I_D(T_C=25^{\circ}\text{C})$	650	A
	$I_D(T_C=100^{\circ}\text{C})$	460	A
Drain Current – Pulsed ^{*,**}	I_{DM}	2054	A
Gate-Source Voltage	V_{GS}	± 20	V
Power Dissipation	P_{tot}	468	W
Single Pulse Avalanche Energy	E_{AS}	7455	mJ
Junction and Storage Temperature Range	T_j, T_{stg}	-55 to 175	$^{\circ}\text{C}$
Thermal resistance, junction – ambient ^{**}	$R_{\theta JA}$	50	$^{\circ}\text{C}/\text{W}$
Thermal resistance, junction – case ^{**}	$R_{\theta JC}$	0.32	

Notes:

* : Pulse width $\leq 300 \mu\text{s}$, duty cycle $\leq 2\%$

** : Surface Mounted on minimum footprint pad area

*** : 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		4	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10\text{V}, I_D=80\text{A}$		0.45	0.6	$\text{m}\Omega$
		$V_{GS}=6\text{V}, I_D=80\text{A}$		0.78	1.2	$\text{m}\Omega$
Diode Forward Voltage	V_{SD}	$I_S=5\text{A}, V_{GS}=0\text{V}$			1.3	V
Reverse Recovery Time	t_{rr}	$I_D = 50 \text{ A}, V_{DS} = 30 \text{ V}$ $di_{SD}/dt = 100 \text{ A}/\mu\text{s}$		69		nS
Reverse Recovery Charge	Q_{rr}			116		nC
Gate resistance	R_g	$V_{DS}=0\text{V}, V_{GS}=0\text{V}$ $f=1.0\text{MHz}$		2.4		Ω
Input Capacitance	C_{iss}	$V_{DS}=30\text{V}, V_{GS}=0\text{V}$ $f=1.0\text{MHz}$		12610		pF
Output Capacitance	C_{oss}			4650		
Reverse Transfer Capacitance	C_{rss}			1250		

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
Total Gate Charge	Q_g	$V_{GS}=10V, V_{DS}=30V$ $I_{DS}=50A$		214		nC
Gate Source Charge	Q_{gs}			41		
Gate Drain Charge	Q_{gd}			54		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V, V_{DS}=30V$ $R_G=3\Omega, I_D=50A$		36.7		ns
Turn-On Rise Time	t_r			173		
Turn-Off Delay Time	$t_{d(off)}$			135		
Turn-Off Fall Time	t_f			92.8		

电参数曲线图 / Electrical Characteristic Curve

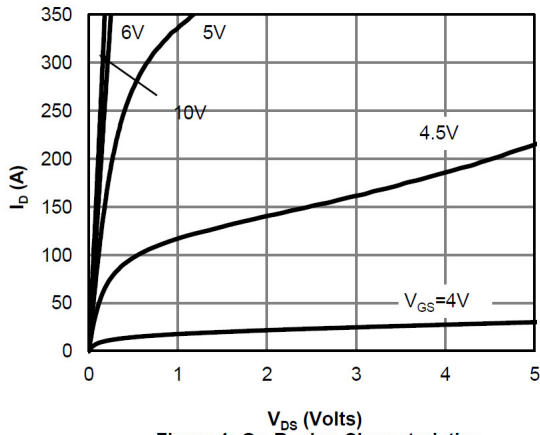


Figure 1: On-Region Characteristics

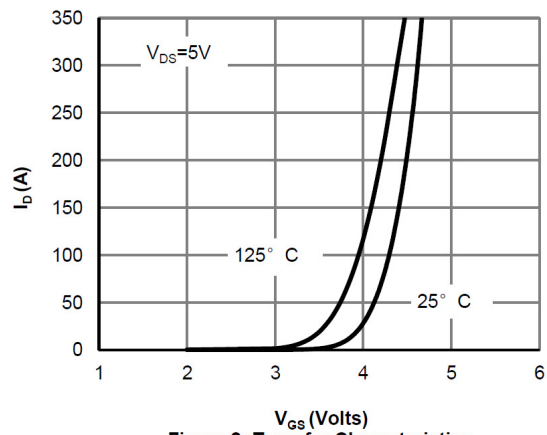


Figure 2: Transfer Characteristics

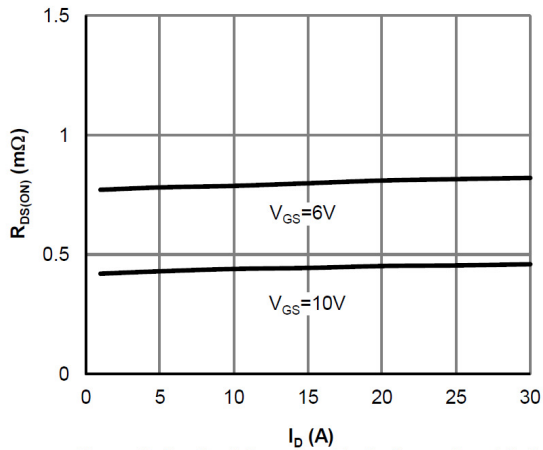


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

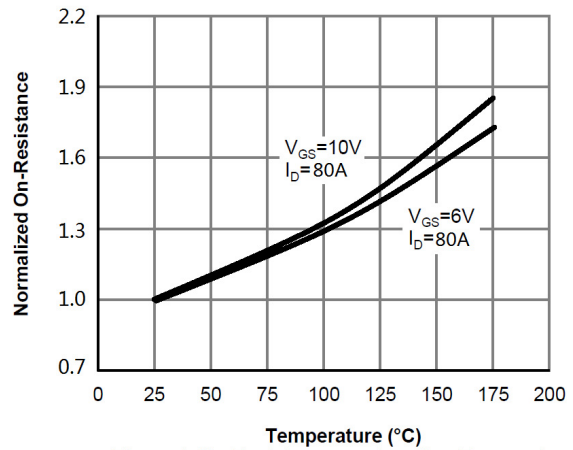


Figure 4: On-Resistance vs. Junction Temperature

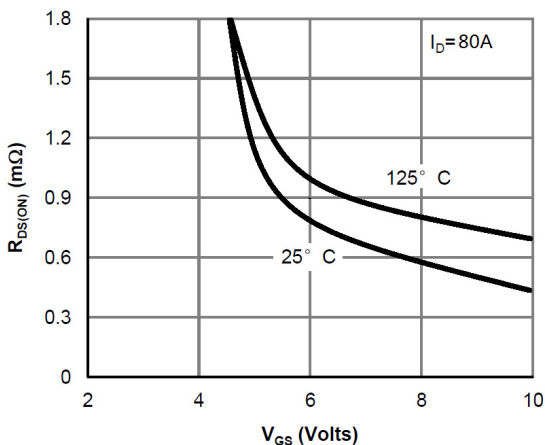


Figure 5: On-Resistance vs. Gate-Source Voltage

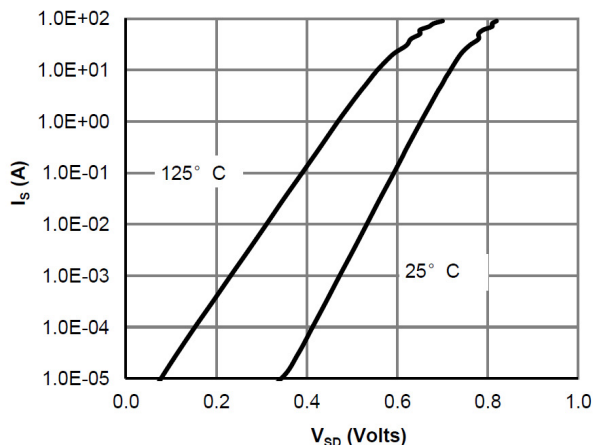


Figure 6: Body-Diode Characteristics

电参数曲线图 / Electrical Characteristic Curve

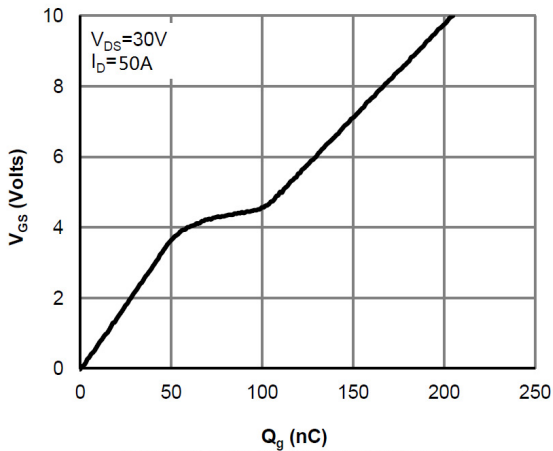


Figure 7: Gate-Charge Characteristics

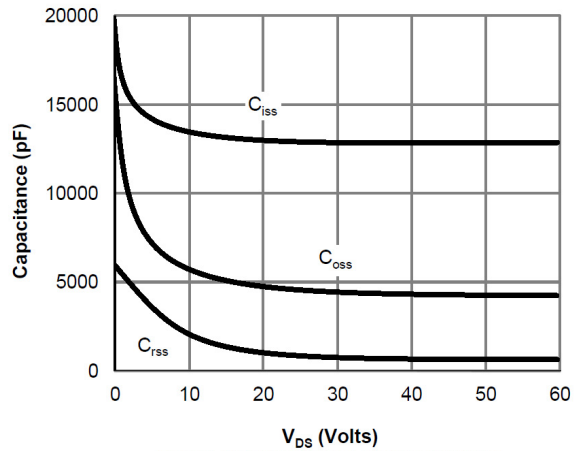


Figure 8: Capacitance Characteristics

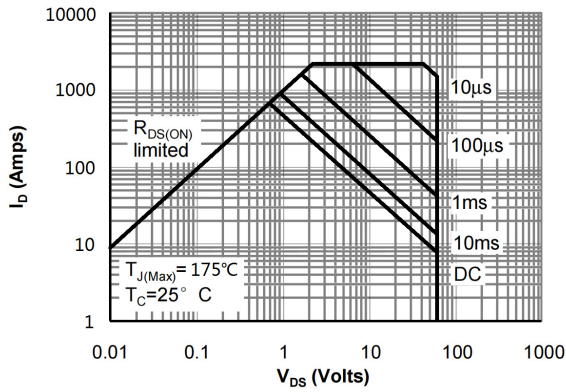


Figure 9: Maximum Forward Biased Safe Operating Area

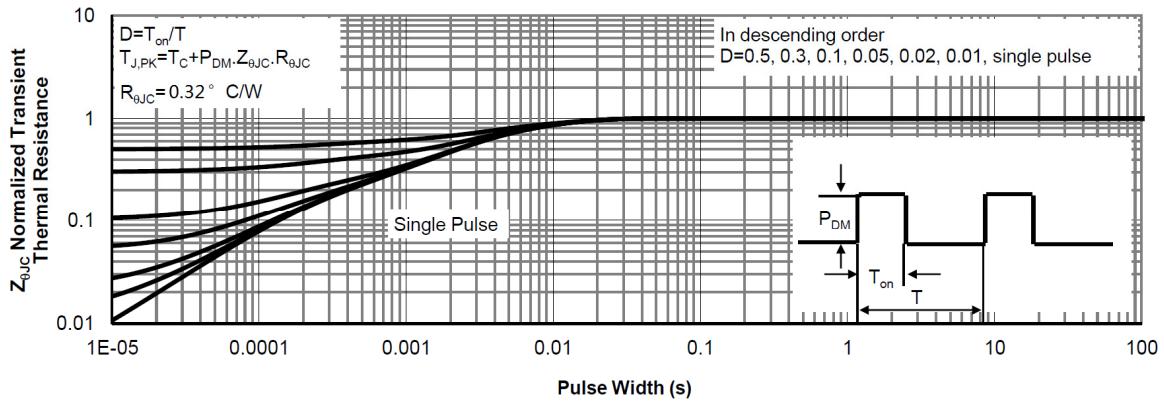
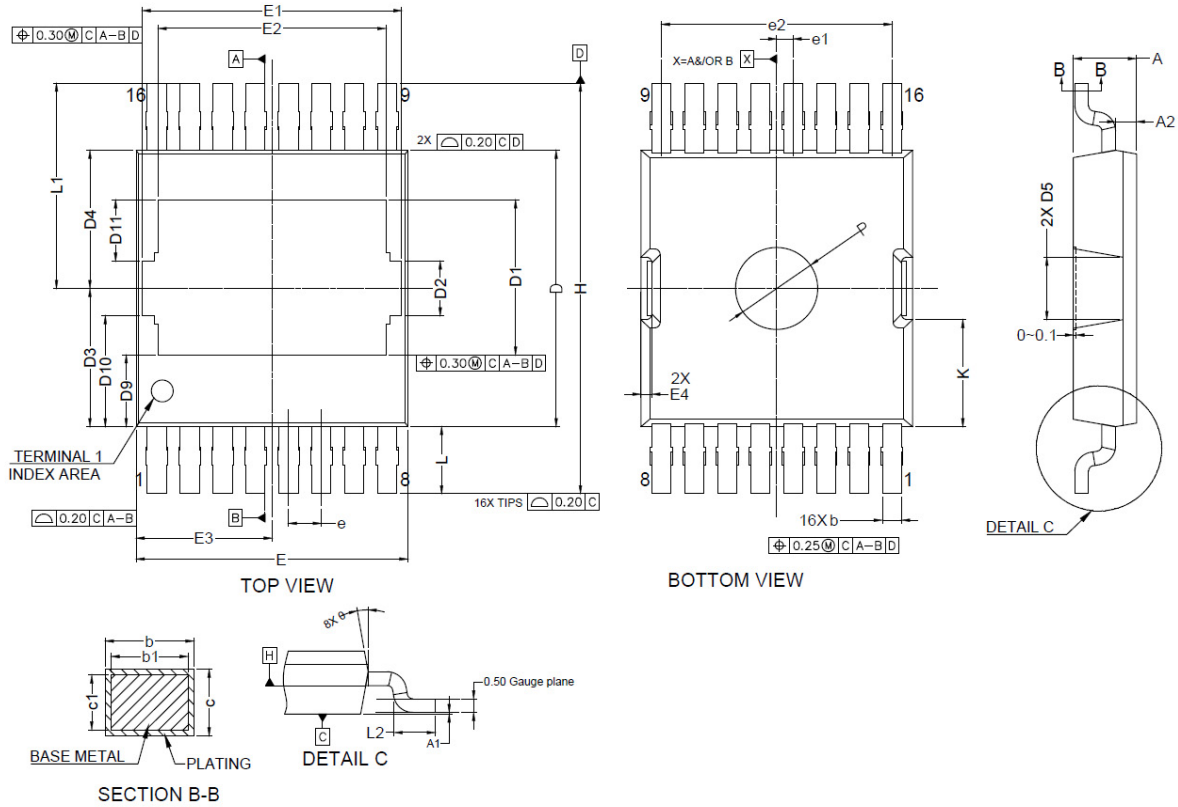


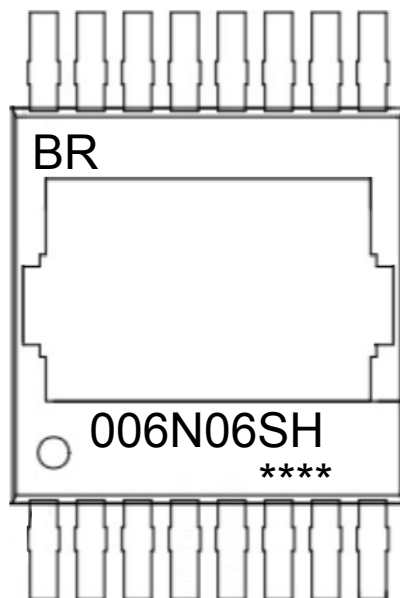
Figure 10: Normalized Maximum Transient Thermal Impedance

外形尺寸图 / Package Dimensions



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	2.20	2.35	E	9.70	10.10
A1	0.01	0.11	E1	9.26	9.66
A2	0.56	0.96	E2	8.10	8.50
b	0.60	0.85	E3	4.75	5.15
b1	0.60	0.80	E4	0.20	0.60
c	0.45	0.65	e	1.20 BSC	
c1	0.45	0.60	e1	0.60 BSC	
D	10.00	10.30	e2	8.40 BSC	
D1	5.47	5.87	H	14.80	15.20
D2	1.80	2.20	K	3.71	4.11
D3	4.85	5.25	L	2.25	2.65
D4	5.00	5.13	L1	7.30	7.70
D5	2.08	2.48	L2	1.30	1.70
D9	2.42	2.82	R	0.07	-
D10	3.85	4.25	P	2.90	3.10
D11	2.04	2.44	θ	4°	10°

印章说明 / Marking Instructions



说明：

BR： 为公司代码

006N06SH： 为型号代码

****： 为生产批号代码，随生产批号变化

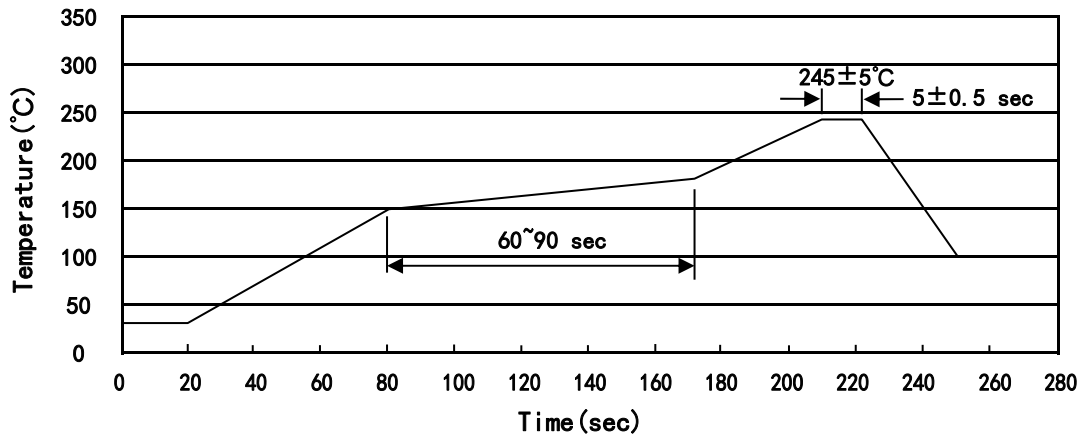
Note:

BR: Company Code

006N06SH: 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
TOLT-16L	1,300	1	1,300	4	5,200	13"×24	357×340×41	377×357×180

使用说明 / Notices

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