

# BRCS016N12SHTL

Rev.A Feb.-2026

## / Descriptions

TOLL-8L N

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

## / Features

$V_{DS}(V)=120V$   $I_D=330A$

$R_{DS(ON)}@10V$  1.6m (Typ. 1.17m )

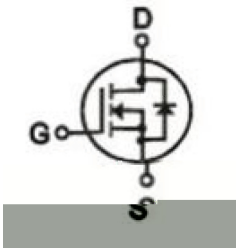
HF Product.

## / Applications

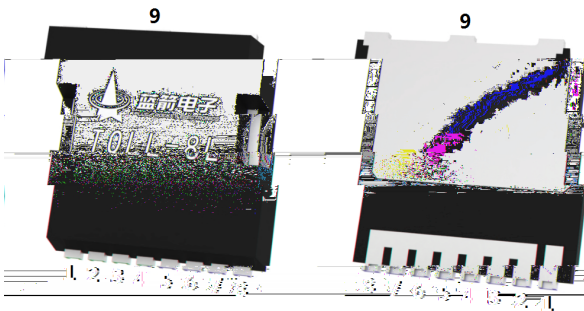
DC/DC

Motor control and drives, Battery management, DC/DC converter.

## / Equivalent Circuit



## / Pinning



PIN1: G      PIN2、3、4、5、6、7、8: S      PIN9: D

## / Marking

See Marking Instructions.

/ Absolute Maximum Ratings( $T_C=25$  )

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	120	V
Drain Current(DC)	$I_D(T_C=25^\circ C)$	330	A
	$I_D(T_C=100^\circ C)$	258	A
Drain Current – Pulsed	$I_{DM}$	1320	A
Gate-Source Voltage	$V_{GS}$	$\pm 20$	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	
Thermal resistance, junction - case	$R_{JC}$	0.29	/W
Thermal resistance, junction - Ambient	$R_{JA}$	40	

/ Electrical Characteristics( $T_a=25$  )

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$BV_{DSS}$	$I_D=250\mu A, V_{GS}=0V$	119	121		V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=110V, V_{GS}=0V$			1	$\mu A$
Gate-Body leakage current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 20V$			$\pm 100$	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2.2	3.0	4.0	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=40A$		1.17	1.6	m
Diode Forward Voltage	$V_{SD}$	$I_S=40A, V_{GS}=0V$		0.85	1.1	V
Reverse Recovery Time	$t_{rr}$	$I_F = 100 A$		100		ns
Reverse Recovery Charge	$Q_{rr}$	$dI_{SD}/dt = 100 A/\mu s$		280		nC
Input Capacitance	$C_{iss}$	$V_{DS}=60V, V_{GS}=0V$ $f=1.0MHz$		13427		pF
Output Capacitance	$C_{oss}$			2786		
Reverse Transfer Capacitance	$C_{rss}$			108		
Gate resistance	$R_g$	$f=1.0MHz$		1.3		
Total Gate Charge	$Q_g$	$V_{GS}=10V, V_{DS}=50V$ $I_{DS}=100A$		189		nC
Gate Source Charge	$Q_{gs}$			70		
Gate Drain Charge	$Q_{gd}$			20		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V, V_{DS}=50V$ $R_G=1.6$		131		nS
Turn-On Rise Time	$t_r$			143		
Turn-Off Delay Time	$t_{d(off)}$			71		
Turn-Off Fall Time	$t_f$			70		

/ Electrical Characteristic Curve

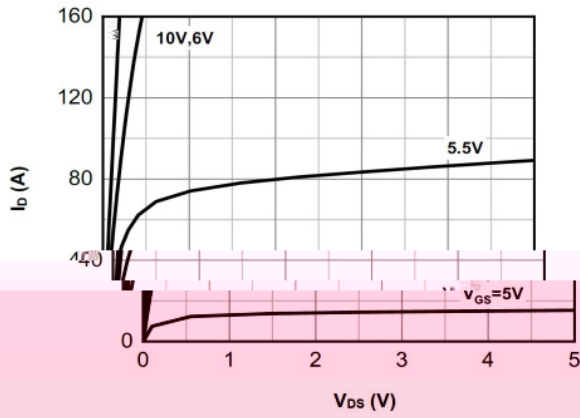


Figure 1 Output Characteristics

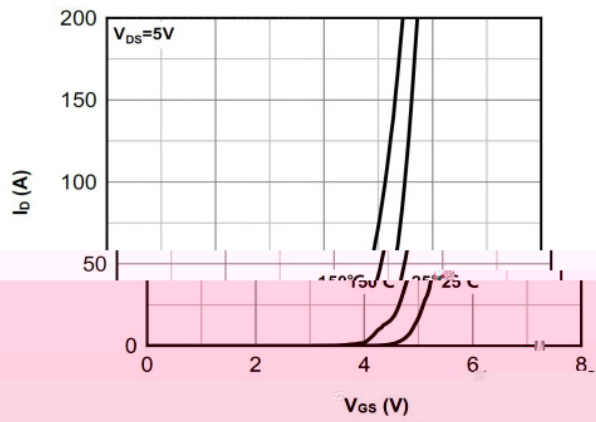


Figure 2 Transfer Characteristics

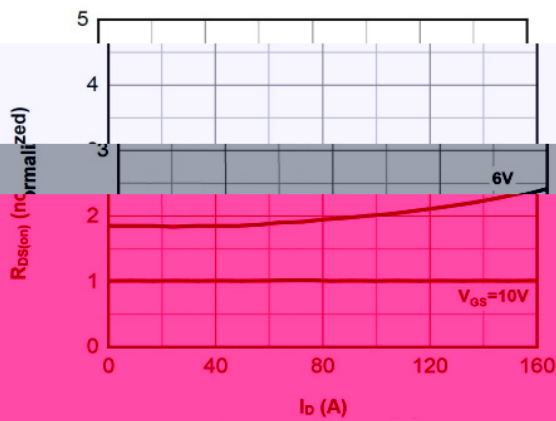


Figure 3  $R_{DS(on)}$  Drain Current

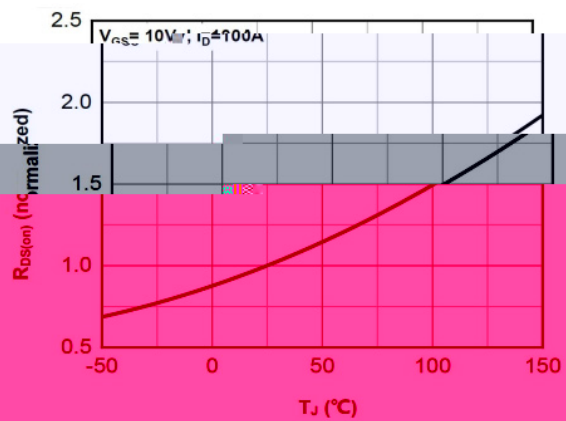


Figure 4  $R_{DS(on)}$  Drain Current Temperature

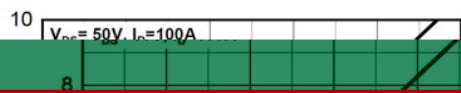


Figure 5 Gate Charge

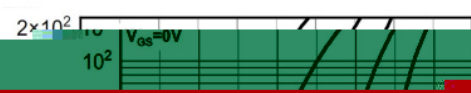
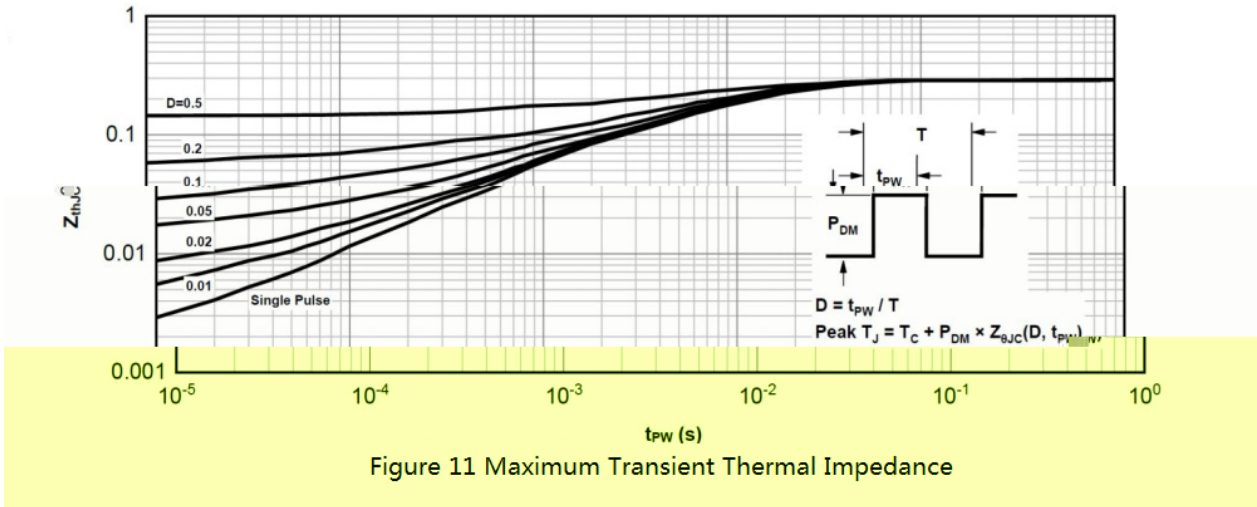
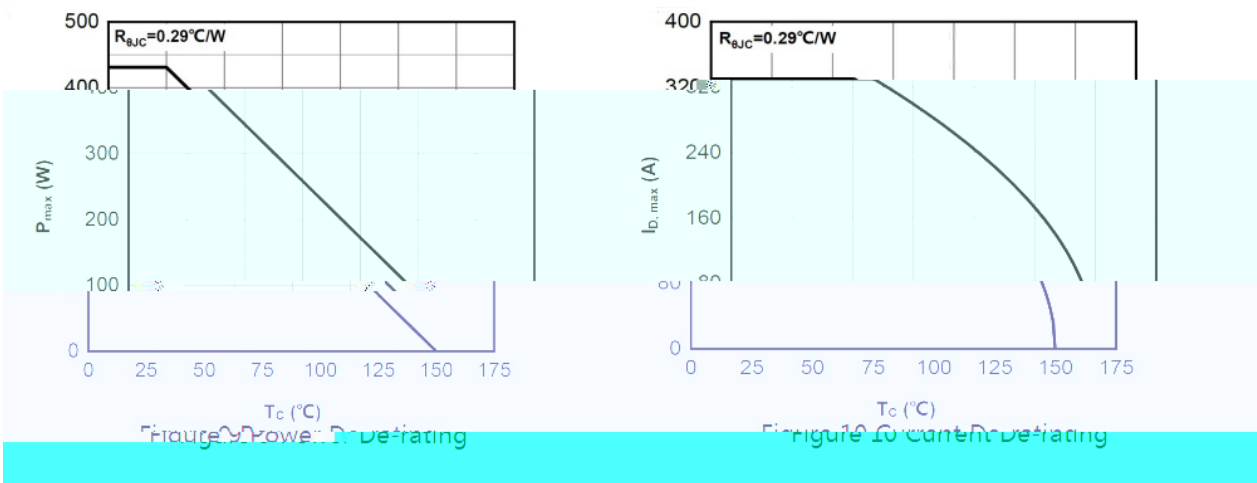
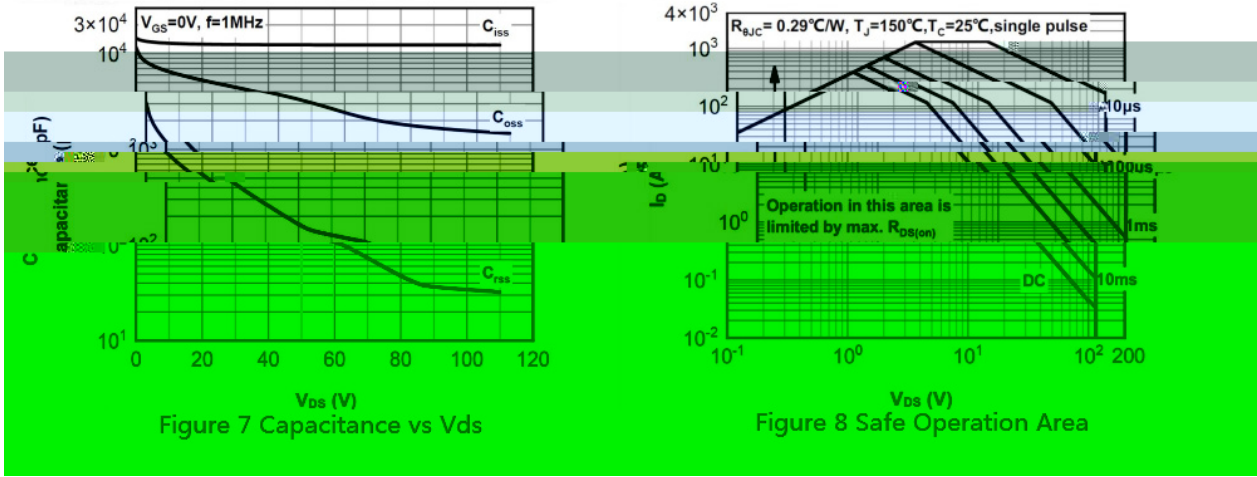
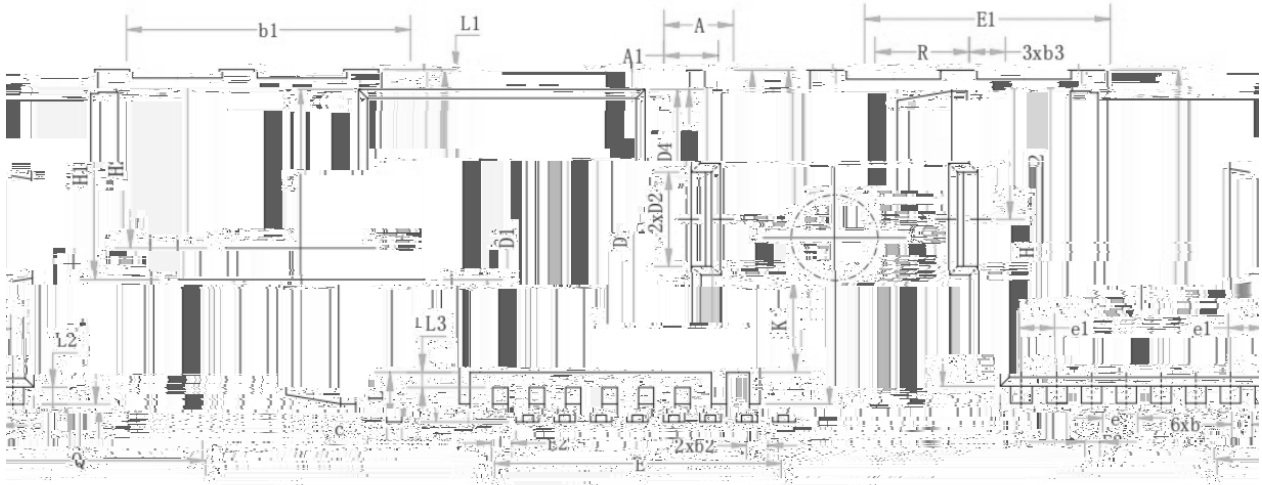


Figure 6 Power Dissipation

/ Electrical Characteristic Curve



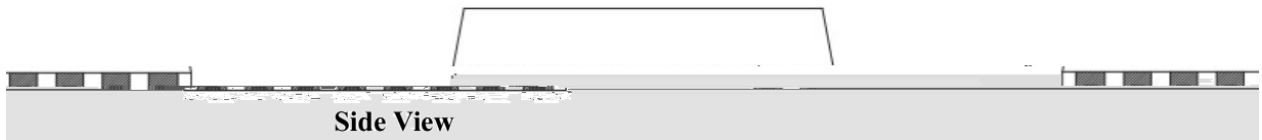
**/ Package Dimensions**



**Bottom View**

**Top View**

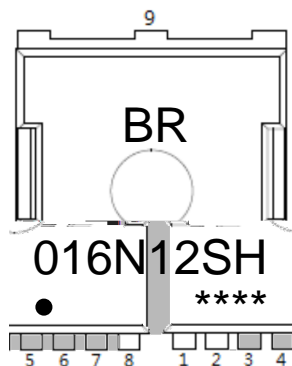
**E**



**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	H1	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

**/ Marking Instructions**



BR

016N12SH

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Note

BR                    Company Code

016N12SH        Product Type Code

\*\*\*\*:                Lot No. Code, code change with Lot No.

**( ) / Temperature Profile for IR Reflow Soldering(Pb-Free)**


**Note:**

- |   |           |             |   |
|---|-----------|-------------|---|
| 1 | 150 ~ 180 | 60 ~ 90sec; | 1.Preheating:150~180 , Time:60~90sec.   |
| 2 | 245±5     | 5±0.5sec;   | 2.Peak Temp.:245±5 , Duration:5±0.5sec. |
| 3 | 2 ~ 10    | /sec.       | 3. Cooling Speed: 2~10 /sec.            |

**/ Resistance to Soldering Heat Test Conditions**

260±5	10±1 sec.	Temp.:260±5	Time:10±1 sec
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**/ Packaging SPEC.**

/ REEL