

BRCS015N10SHTLQ

Rev.A Jun.-2025

/ Descriptions

TOLL-8L N

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

/ Features

$V_{DS}(V)=100V$ $I_D=330A$

$R_{DS(ON)}@10V \leq 1.5m\Omega$ (Typ.1.2m Ω)

AEC-Q101

HF Product.

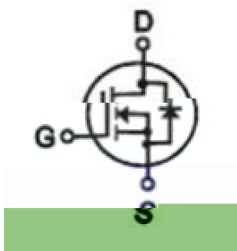
Qualified to AEC-Q101 Standards for High Reliability,

/ Applications

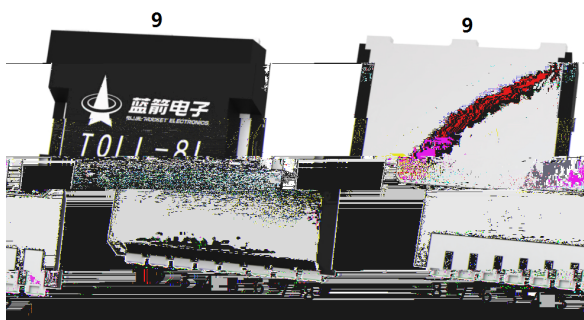
DC/DC

DC/DC converter, Power switch, Motor drives, Meet the stringent requirements of automotive applications.

/ Equivalent Circuit



/ Pinning



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

/ Marking

See Marking Instructions.

/ Absolute Maximum Ratings($T_C=25^\circ\text{C}$)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	100	V
Drain Current - Continuous		I_D	330	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($V_{DS}=75\text{V}, V_{GS}=10\text{V}, L=0.3\text{mH}$)		E_{AS}	540	mJ
Junction and Storage Temperature Range		T_j, T_{stg}	-55 to 150	
Thermal resistance, junction - ambient	Steady-State	$R_{\theta JA}$	40	
Thermal resistance, junction - case	Steady-State	$R_{\theta JC}$	0.29	

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	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}	$V_{DS}=100\text{V}, V_{GS}=0\text{V}$			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	3.8	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10\text{V}, I_D=100\text{A}$		1.2	1.5	m
Diode Forward Voltage	V_{SD}	$I_S=100\text{A}, V_{GS}=0\text{V}$		0.85	1.1	V
Gate Resistance	R_g	$f=1\text{MHz}$		1		
Input Capacitance	C_{iss}	$V_{DS}=50\text{V}, V_{GS}=0\text{V}, f=1.0\text{MHz}$		15800		pF
Output Capacitance	C_{oss}			1930		
Reverse Transfer Capacitance	C_{rss}			75		
Total Gate Charge	Q_g	$V_{GS}=10\text{V}, V_{DS}=50\text{V}, I_D=100\text{A}$		260		nC
Gate Source Charge	Q_{gs}			75		
Gate Drain Charge	Q_{gd}			76		

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V$ $V_{DS}=50V$ $R_G=6\Omega$ $I_D=100A$		81		ns
Turn-On Rise Time	t_r			178		
Turn-Off Delay Time	$t_{d(off)}$			167		
Turn-Off Fall Time	t_f			68		
Reverse Recovery Time	t_{rr}	$I_{DS}=50A,$ $V_{DS}=50V$ $di/dt=100 A/\mu s$		92		ns
Reverse Recovery Charge	Q_{rr}			200		nC

/ Electrical Characteristic Curve

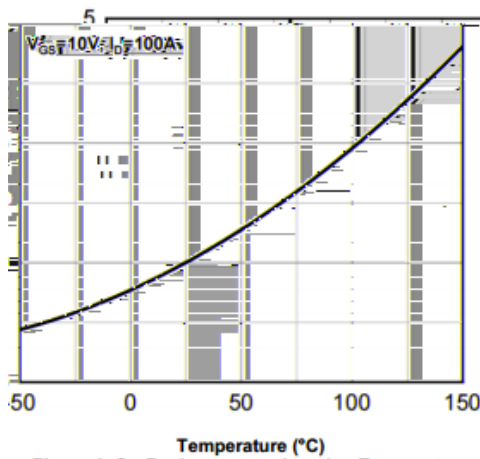
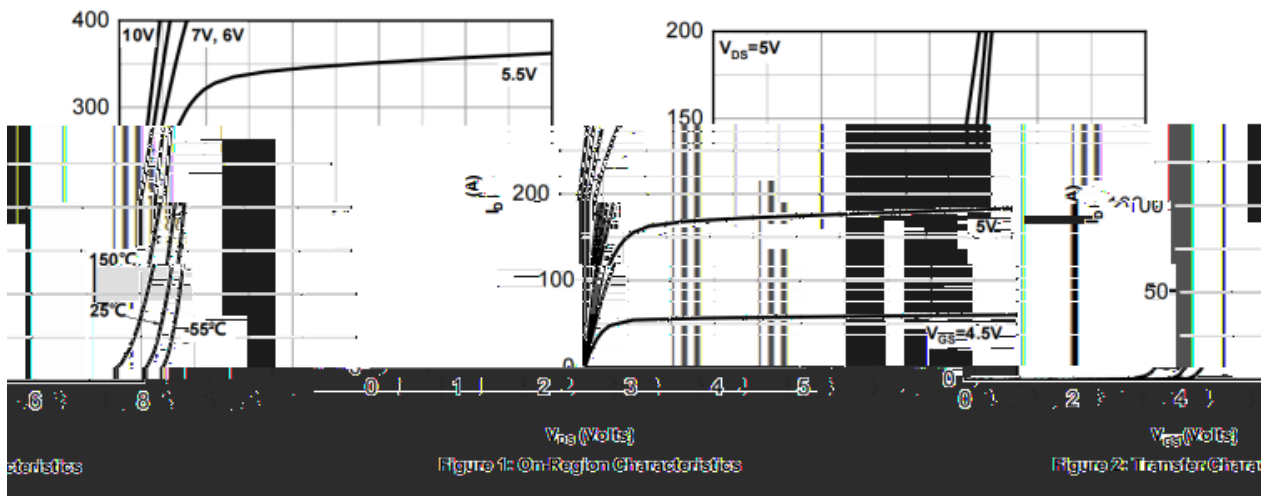


Figure 4: On-Resistance vs. Junction Temperature

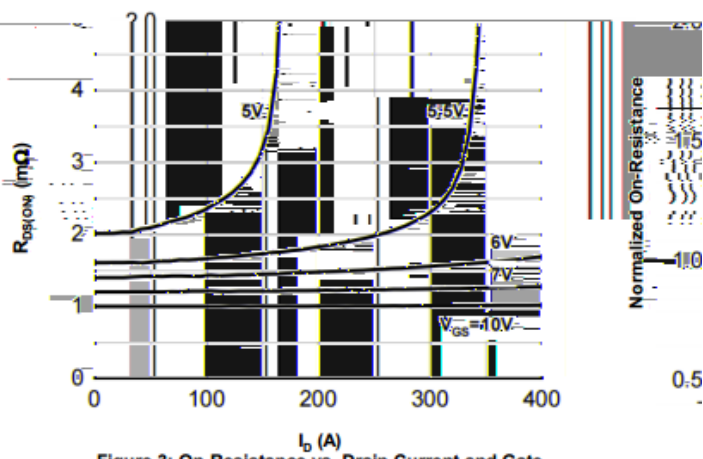


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

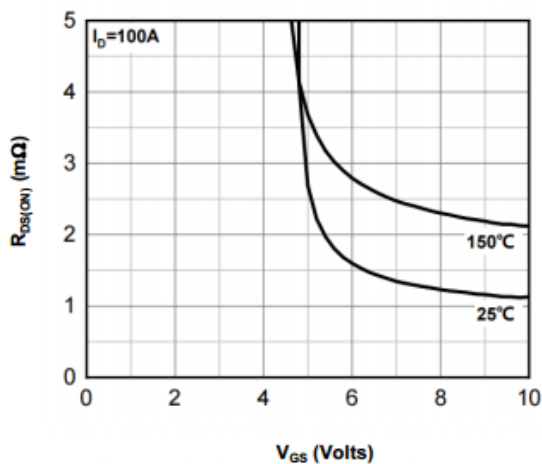


Figure 5: On-Resistance vs. Gate-Source Voltage

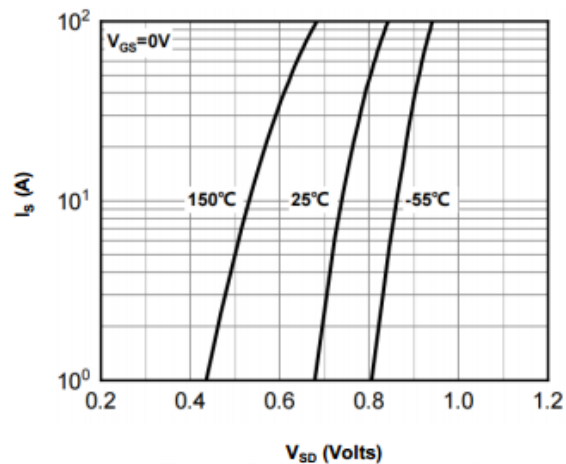
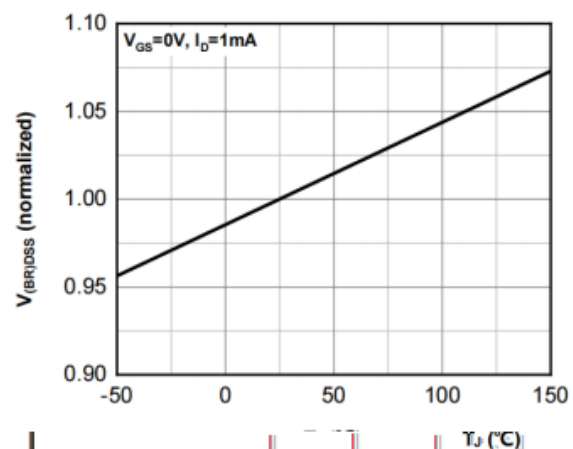
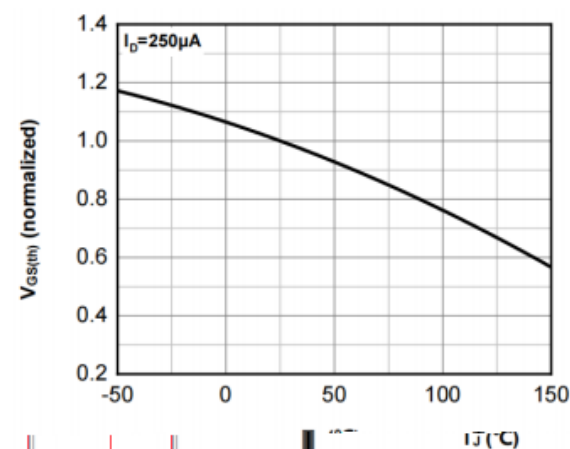
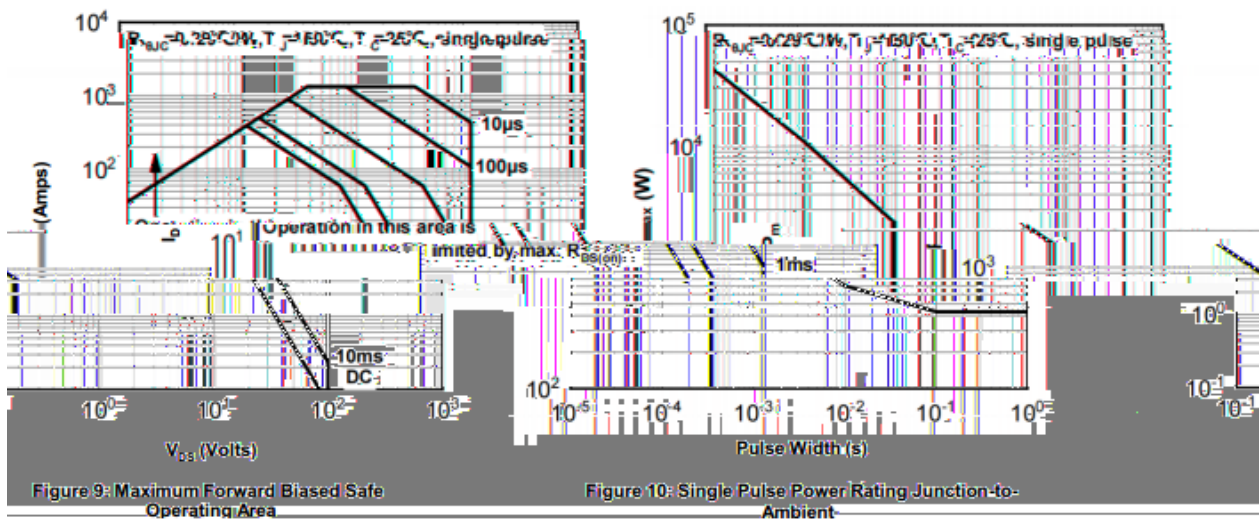
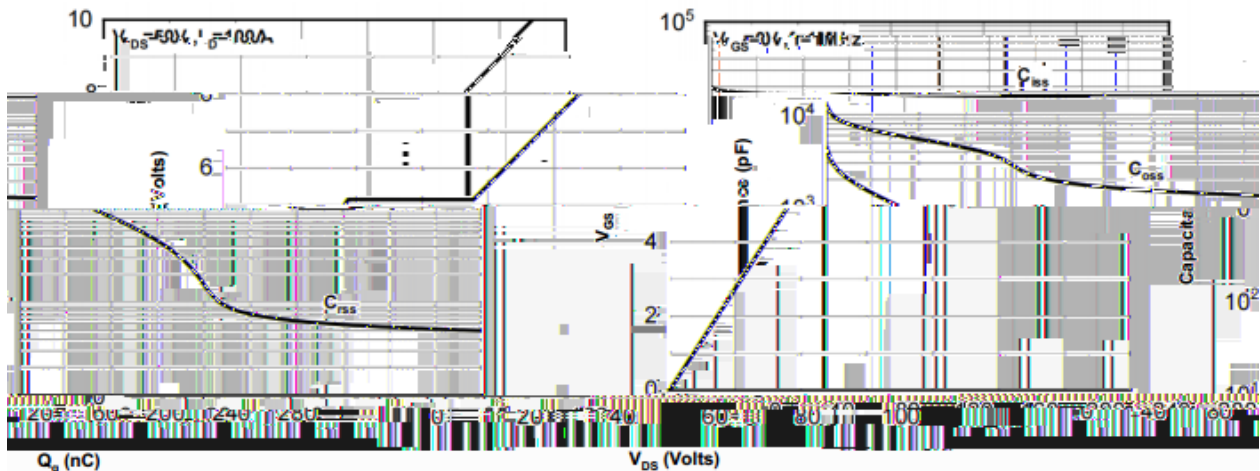
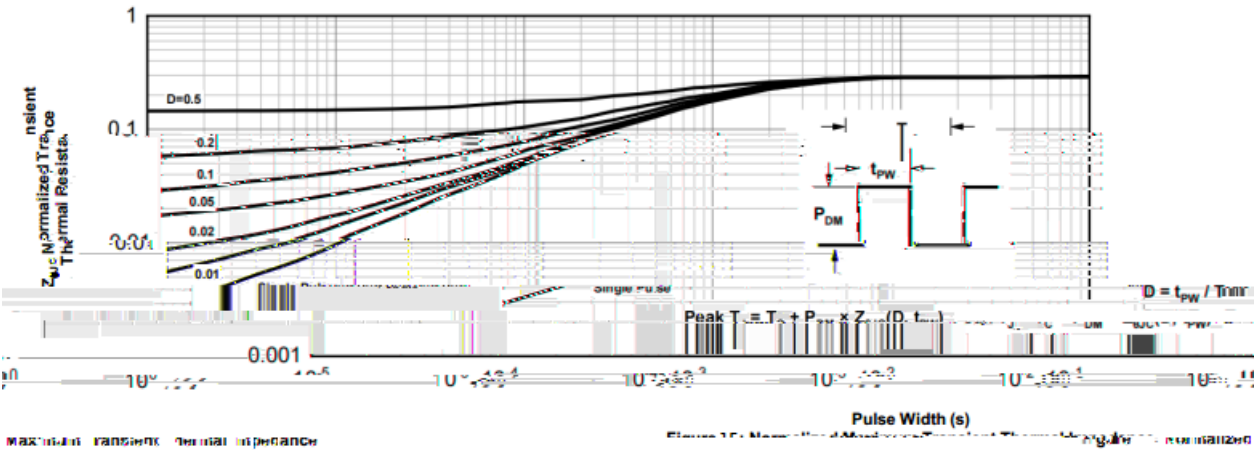


Figure 6: Body Diode Characteristics

/ Electrical Characteristic Curve

Figure 11: Normalized $V_{GS(th)}$ vs. Junction TemperatureFigure 12: Normalized $V_{(BR)DSS}$ vs. Junction Temperature

/ Electrical Characteristic Curve



The technical drawing illustrates a mechanical component through four primary views: Front View, Top View, Bottom View, and Side View.

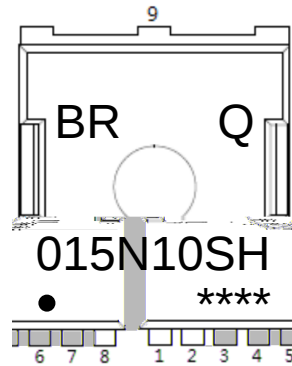
- Front View:** Shows the main profile with overall width E , height H , and a central circular feature with diameter $\varnothing 3.00$. Dimensions include b_1 , L_1 , K_1 , K_2 , D_2 , and b_4 .
- Top View:** Displays the plan view with length F and width G . It includes a section line A-A and a surface finish specification of $R_{a} 0.20 \mu m$ over area C.
- Bottom View:** Shows the underside with dimensions b_5 , b_6 , F_1 , E_4 , E_5 , H_1 , and H_2 .
- Side View:** Provides a cross-sectional view with dimensions A , C , and b_3 . It features a fillet radius R_1 and a chamfer angle of 10° . Surface finish specifications are given as $R_{a} 0.10 \mu m$ over area C and $R_{a} 0.25 \mu m$ over areas A and B.

Additional details include:

- DETAIL 'A':** A magnified view of the corner where the vertical face meets the horizontal base.
- DETAIL 'B':** A magnified view of the curved transition between two surfaces.
- DETAIL 'C':** A magnified view of the circular hole's edge.
- Mold Flash area:** Indicated on the right side of the drawing, showing the location of excess material from the molding process.

Symbol	Dimensions In Millimeters			Symbol	Dimensions In Millimeters		
	MIN.	NOM.	MAX.		MIN.	NOM.	MAX.

/ Marking Instructions

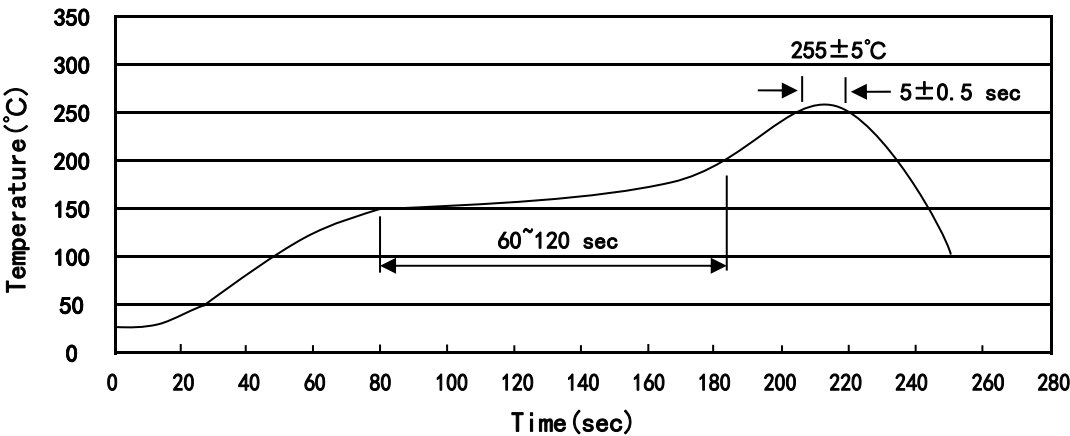


015N10SH

Note

BR	Company Code
Q:	Automobile halogen-free product Code
015N10SH	Product Type Code
****:	Lot No. Code, code change with Lot No.

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



Note:

- 1

150 200

60 120sec;

1.Preheating:150~200 , Time:60~120sec.
- 2

255 5

5 0.5sec;

2.Peak Temp.:255 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

/ Packaging SPEC.

/ REEL

Package Type	Units					Dimension (unit mm ³)		
	Units/Reel	Reels/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Reel	Inner Box	Outer Box
TOLL-8L	2,000	1	2,000	6	12,000	13"×24	360×360×50	380×335×366

/ Notices