

/ Descriptions

TOLL-8L N

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

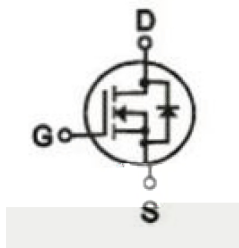
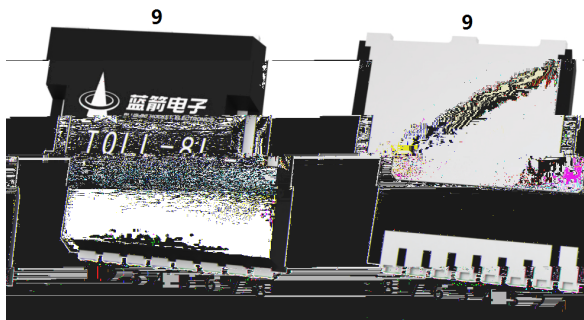
/ Features $V_{DS}(V)=100V$ $I_D=250A$ $R_{DS(ON)}@10V \leq 1.4m\Omega$ (Typ. $1.2m\Omega$)

。 HF Product.

/ Applications

DC/DC

DC/DC converter, Power switch, Motor drives.

/ 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	250	A
Drain Current - Continuous		$I_D(T_C=100^\circ\text{C})$	212	A
Drain Current – Pulsed		I_{DM}	1000	A
Gate-Source Voltage		V_{GS}	± 20	V
Power Dissipation		P_{tot}	313	W
Single Pulse Avalanche Energy($V_{DS}=50\text{V}, V_{GS}=10\text{V}, L=0.3\text{mH}$)		E_{AS}	626	mJ
Junction and Storage Temperature Range		T_j, T_{stg}	-55 to 150	
Thermal resistance, junction - ambient	Steady-State	$R_{\theta JA}$	40	/ W
Thermal resistance, junction - case	Steady-State	$R_{\theta JC}$	0.4	

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

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	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	2.5	3.3	4.1	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10\text{V}, I_D=100\text{A}$		1.2	1.4	$\text{m}\Omega$
Diode Forward Voltage	V_{SD}	$I_S=100\text{A}, V_{GS}=0\text{V}$		0.9	1.2	V
Reverse recovery time	t_{rr}	$V_{DS}=50\text{V}, I_F=50\text{A}$ $di/dt=100\text{A}/\mu\text{s}$		92		ns
Reverse recovery charge	Q_{rr}			236		nC
Gate Resistance	R_g	$f=1\text{MHz}$		1.7		Ω
Input Capacitance	C_{iss}	$V_{DS}=50\text{V}, V_{GS}=0\text{V}$ $f=1.0\text{MHz}$		12000		pF
Output Capacitance	C_{oss}			3000		
Reverse Transfer Capacitance	C_{rss}			128		
Total Gate Charge	Q_g	$V_{GS}=10\text{V}, I_D=100\text{A}$ $V_{DS}=50\text{V}$		230		nC
Gate Source Charge	Q_{gs}			67		
Gate Drain Charge	Q_{gd}			80		

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V$ $V_{DS}=50V$ $R_G=4.7\Omega$ $I_D=100A$		55		ns
Turn-On Rise Time	t_r			92		
Turn-Off Delay Time	$t_{d(off)}$			26		
Turn-Off Fall Time	t_f			35		

/ Electrical Characteristic Curve

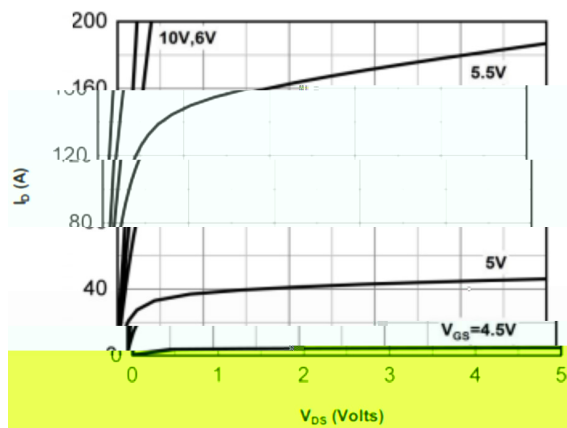


Figure 1: On-Region Characteristics

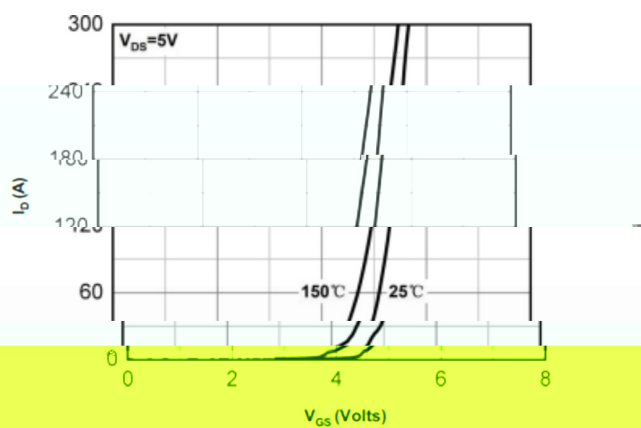


Figure 2: Transfer Characteristics

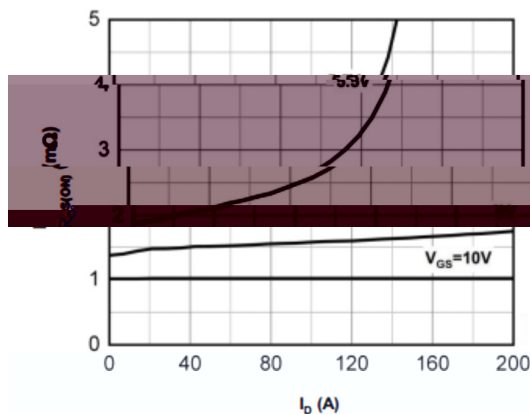


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

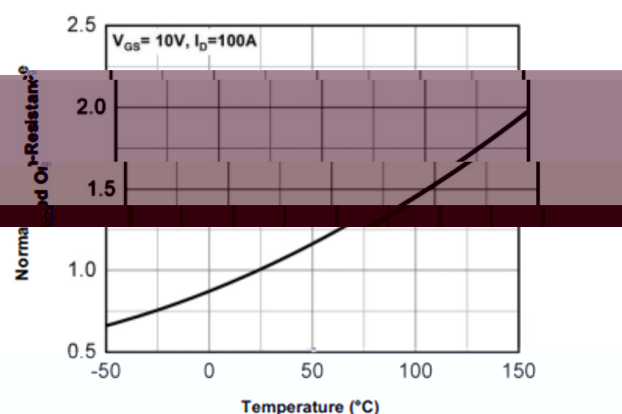
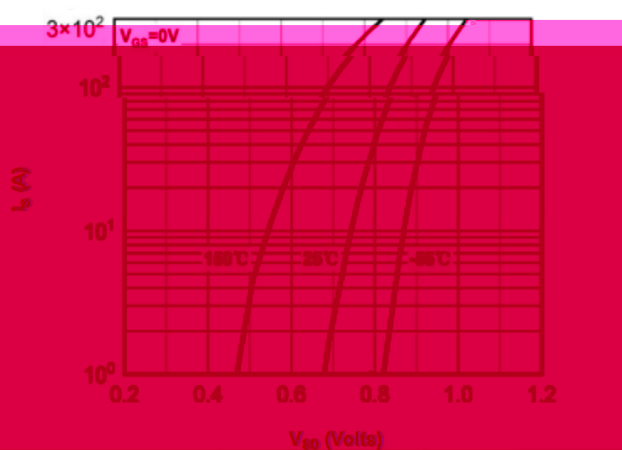
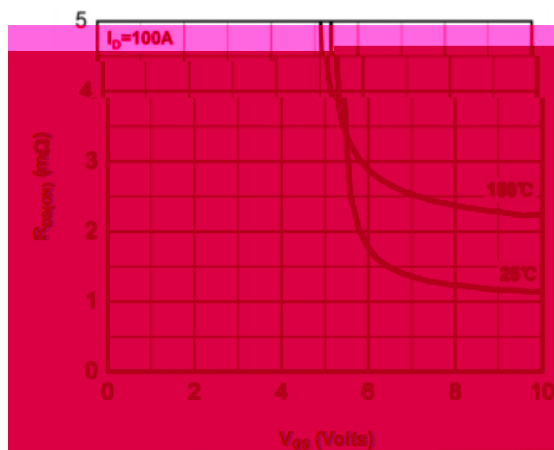


Figure 4: On-Resistance vs. Junction Temperature



/ Electrical Characteristic Curve

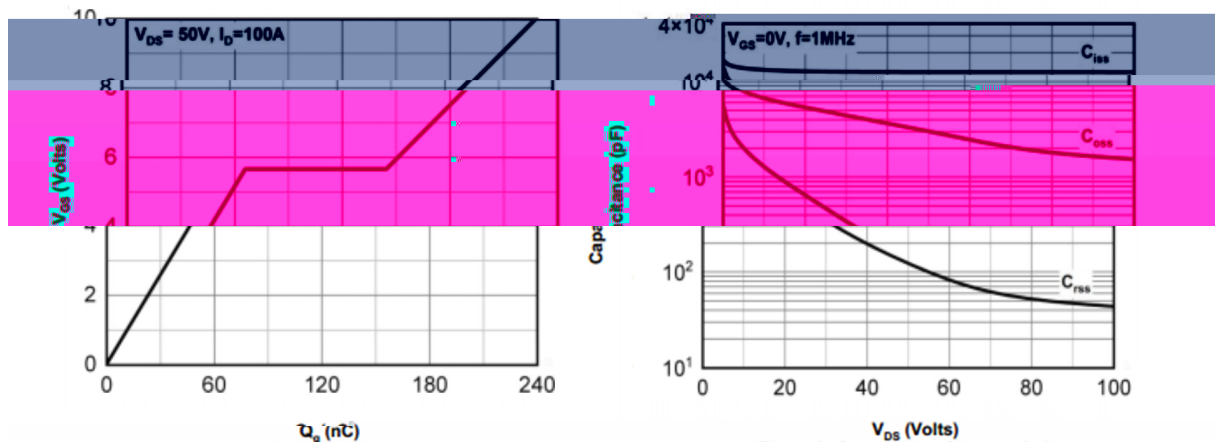


Figure 7: Gate Charge Characteristic

Figure 8: Capacitance Characteristics

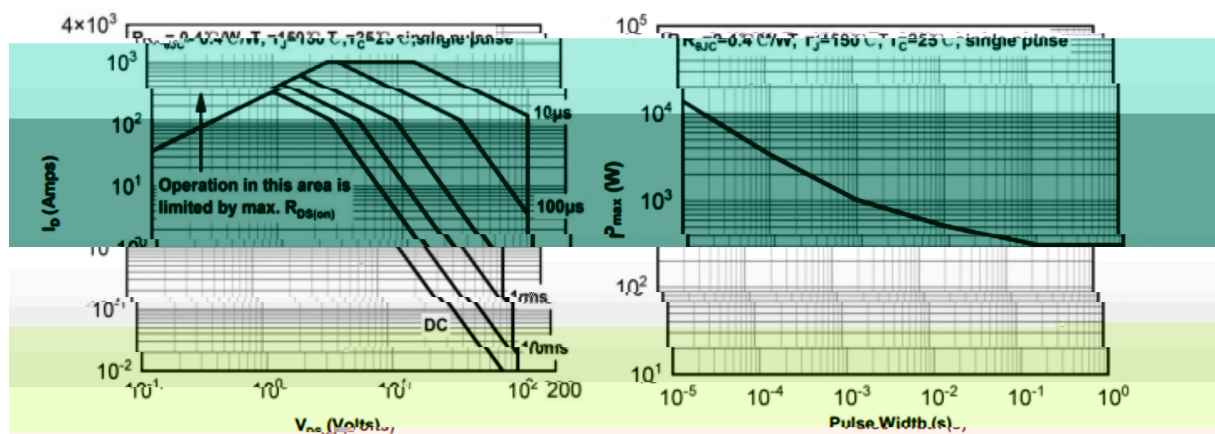
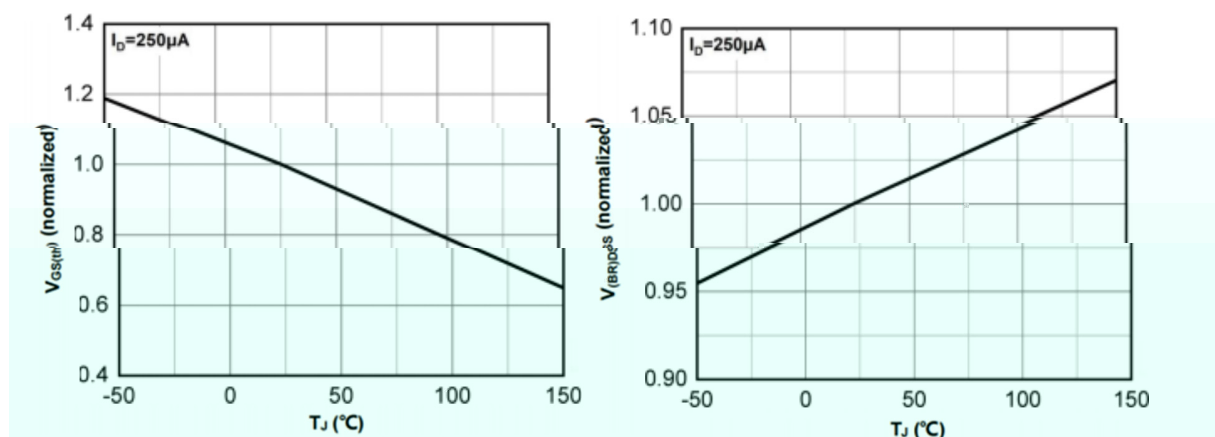


Figure 9: Maximum Power Dissipation and Operation Area

Figure 10: Single Pulse Power Rating and Operation Area

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

/ Electrical Characteristic Curve

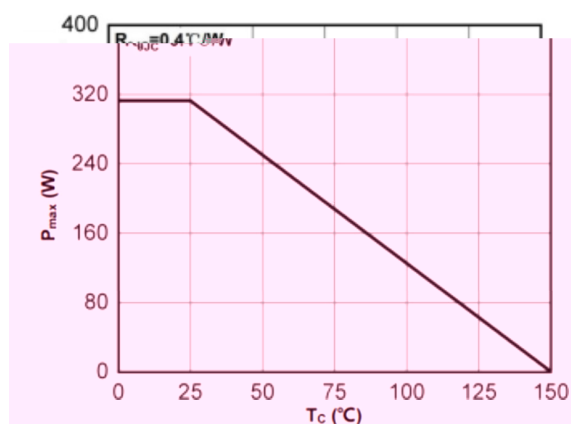


Figure 13: Max. Power Dissipation vs. Case Temperature

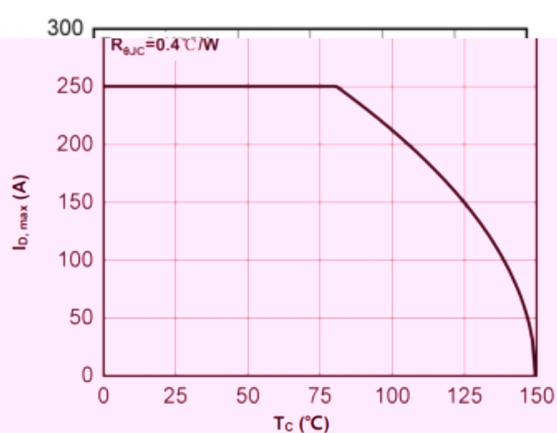
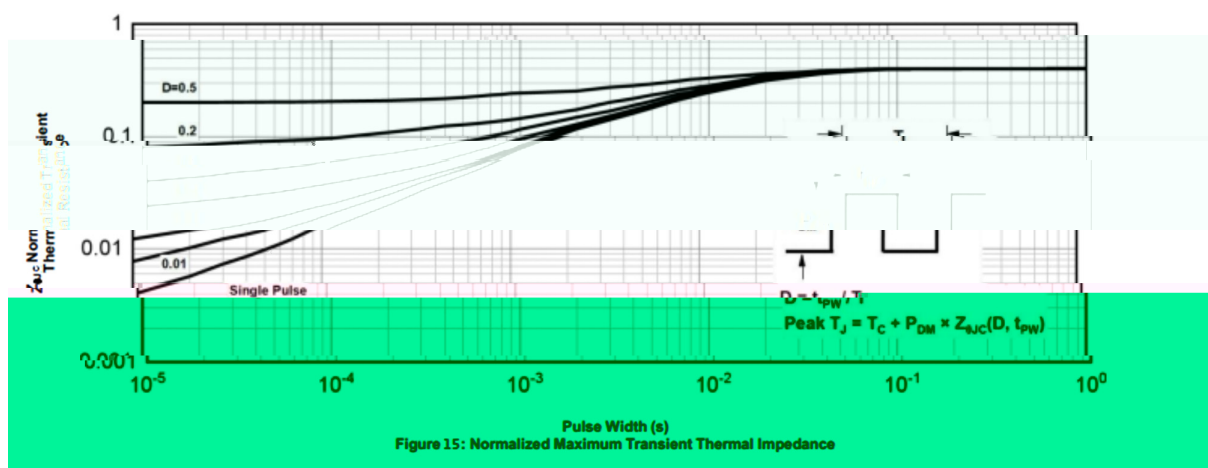
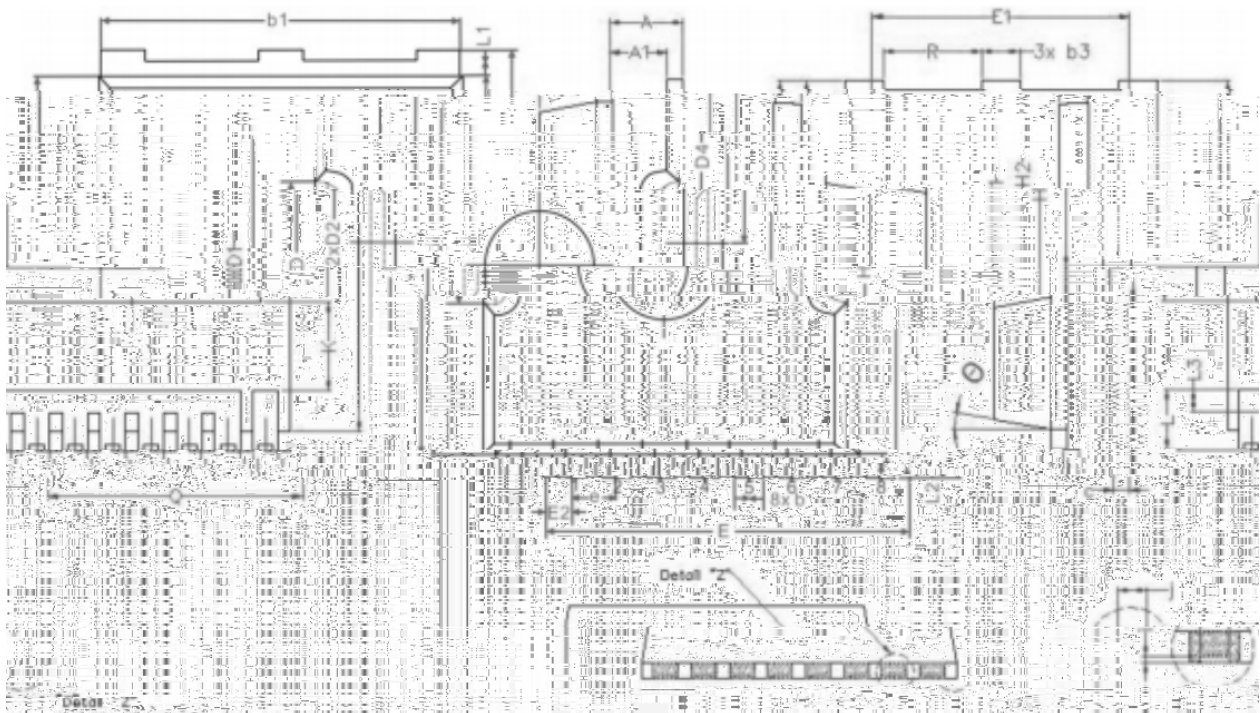


Figure 14: Max. Continuous Drain Current vs. Case Temperature



/ Package Dimensions



Symbol	Dimensions In Millimeters		
	Min	Typ	Max
A	2.20	2.30	2.40
A1	1.70	1.80	1.90
b	0.70	0.80	0.90
b1	9.70	9.80	9.90
b3	1.10	1.20	1.30
c	0.40	0.50	0.60
D	10.28	10.38	10.48
D1	10.98	11.08	11.18
D2	3.20	3.30	3.40
D4	4.45	4.55	4.65
E	9.80	9.90	10.00
E1	8.00	8.10	8.20
E2	0.60	0.70	0.80
e	1.20 BSC		
H	11.58	11.68	11.78
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BRCS015N10SHTL

Rev.B Jun.-2026



DATA SHEET

/ Marking Instructions

() / 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