

/ Descriptions

TOLL-8L N

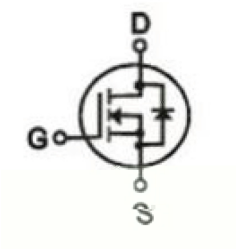
/ Features

$V_{DS}(V)=100V$ $I_D=259A$
 $R_{DS(ON)}@10V\leq 2.0m\Omega$ (Typ. $1.6m\Omega$)
HF Product.

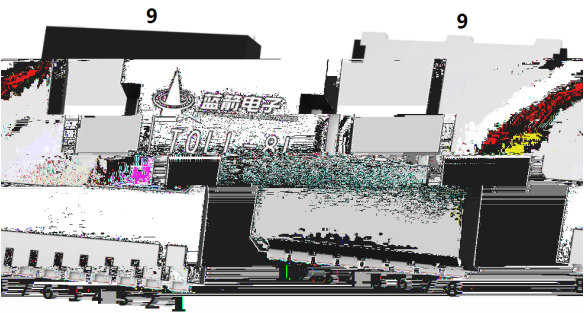
/ Applications

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	259	A
Drain Current – Pulsed		I_{DM}	1036	A
Gate-Source Voltage		V_{GS}	± 20	V
Power Dissipation		P_{tot}	250	W
Single Pulse Avalanche Energy($V_{DD}=50V, L=0.1mH$)		E_{AS}	205	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	$R_{\theta JC}$	0.5	

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=250\mu A, V_{GS}=0V$	100			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=100V, V_{GS}=0V$			1	μA
Gate-Body leakage current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2.2	3.0	3.8	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=100A$		1.6	2.0	m
Diode Forward Voltage	V_{SD}	$I_S=100A, V_{GS}=0V$		0.9	1.2	V
Gate Resistance	R_g	$f=1.0MHz$		1.2		
Input Capacitance	C_{iss}	$V_{DS}=50V, V_{GS}=0V, f=1.0MHz$		10120		pF
Output Capacitance	C_{oss}			1360		
Reverse Transfer Capacitance	C_{rss}			50		
Total Gate Charge	Q_g	$V_{GS}=10V, I_{DS}=100A, V_{DS}=50V$		176		nC
Gate Source Charge	Q_{gs}			47		
Gate Drain Charge	Q_{gd}			54		

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V$ $V_{DS}=50V$ $R_G=6\Omega$ $I_D=100A$		85		ns
Turn-On Rise Time	t_r			137		
Turn-Off Delay Time	$t_{d(off)}$			92		
Turn-Off Fall Time	t_f			98		
Reverse Recovery Time	t_{rr}	$I_F = 50 A, V_{DS} = 50 V$ $di_{SD}/dt = 100 A/\mu s$		79		ns
Reverse Recovery Charge	Q_{rr}			180		nC

/ Electrical Characteristic Curve

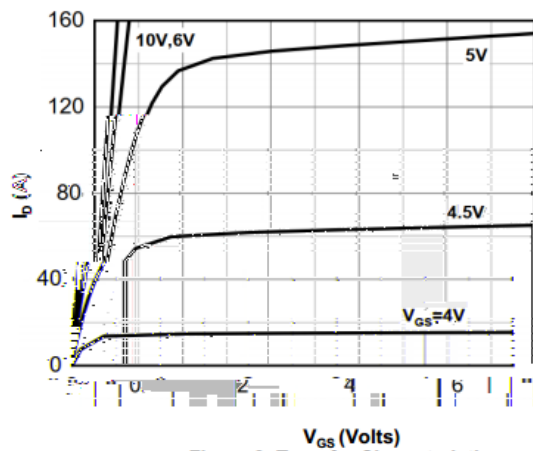


Figure 2: Transfer Characteristics

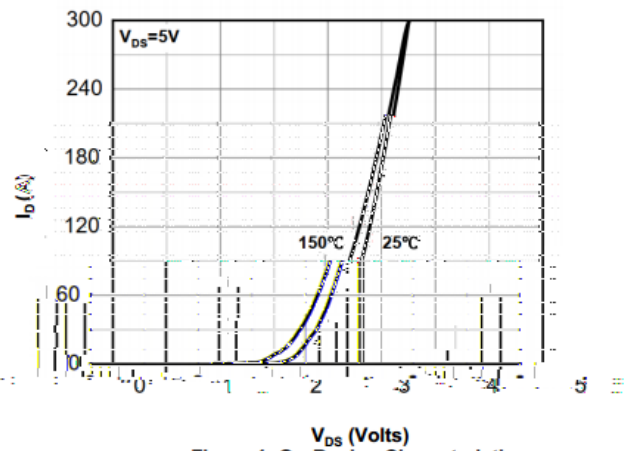


Figure 1: On-Region Characteristics

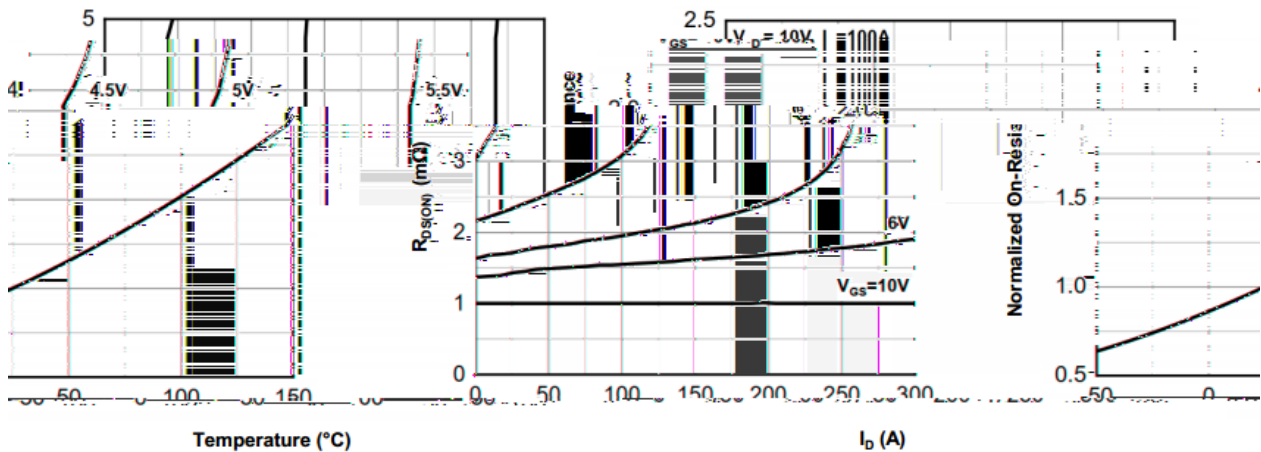


Figure 4: On-Resistance vs. Junction Temperature

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

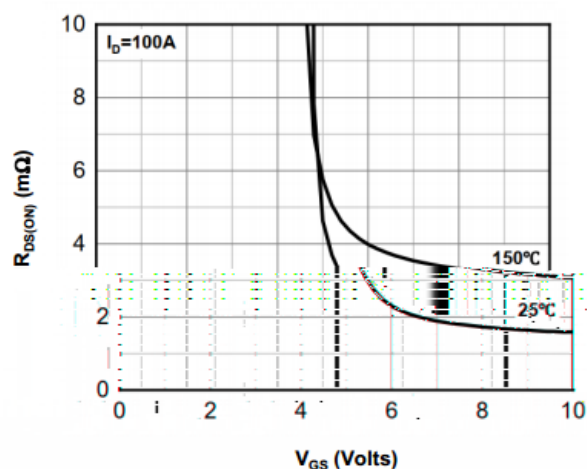


Figure 5: On-Resistance vs. Gate-Source Voltage

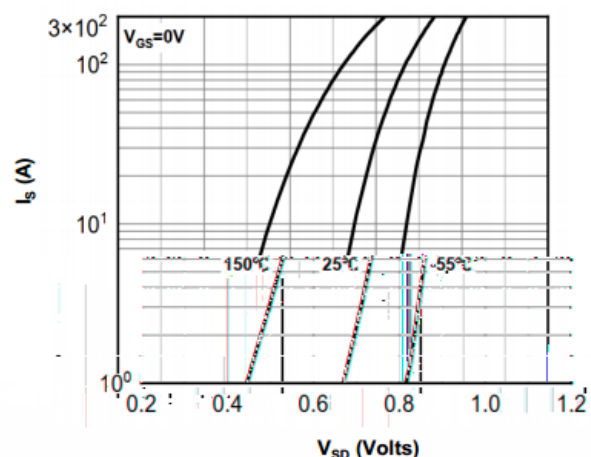


Figure 6: Body-Diode Characteristics

/ Electrical Characteristic Curve

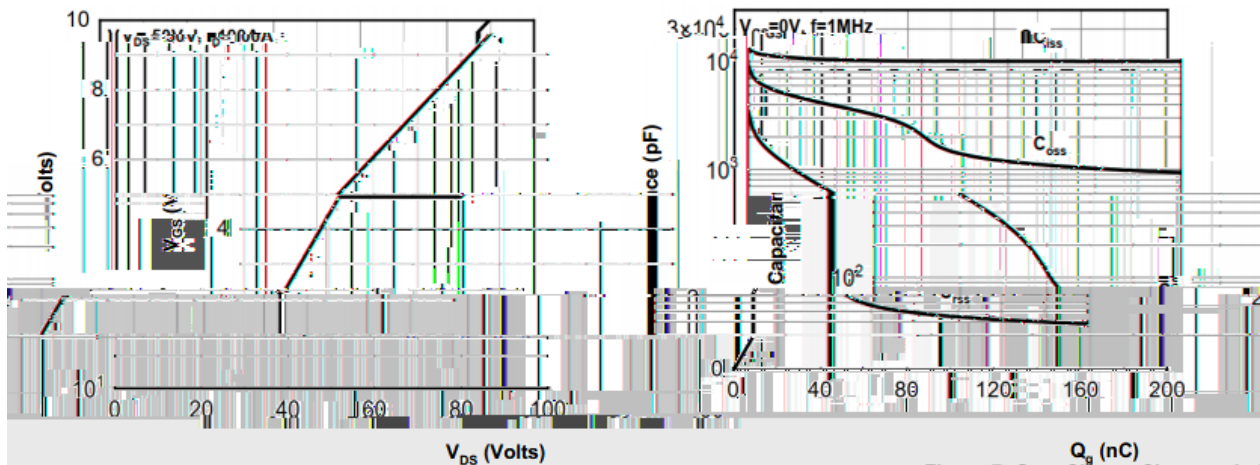


Figure 8: Capacitance Characteristics

Figure 7: Gate-Charge Characteristics

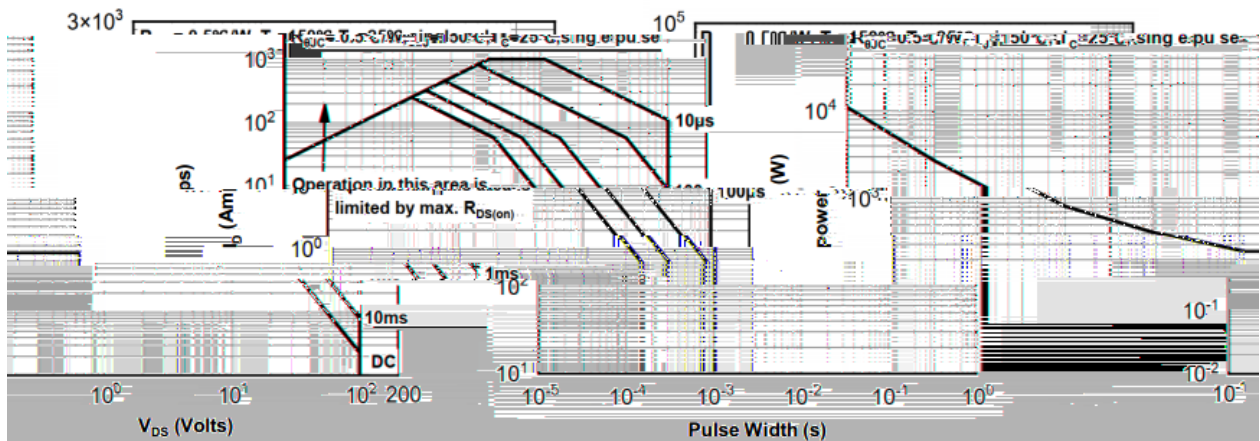
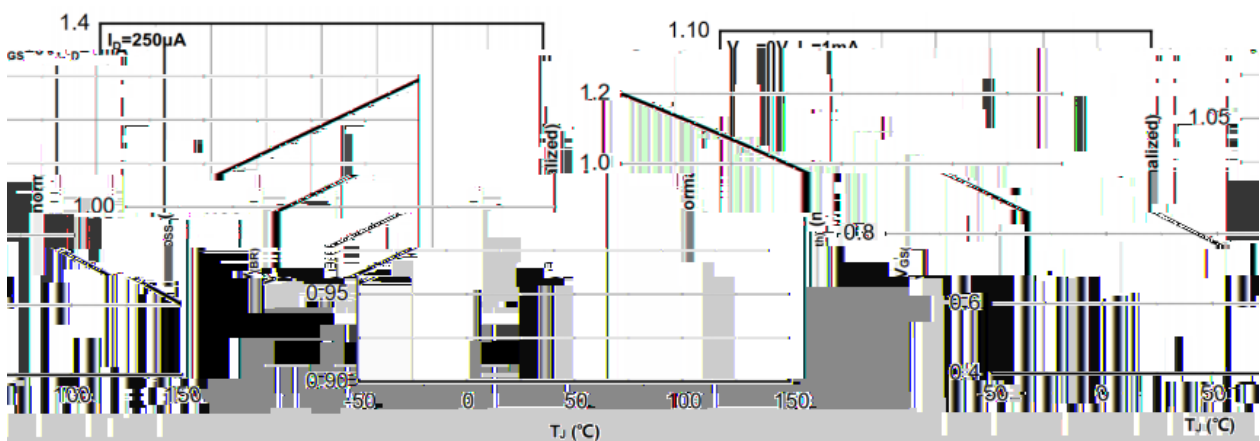
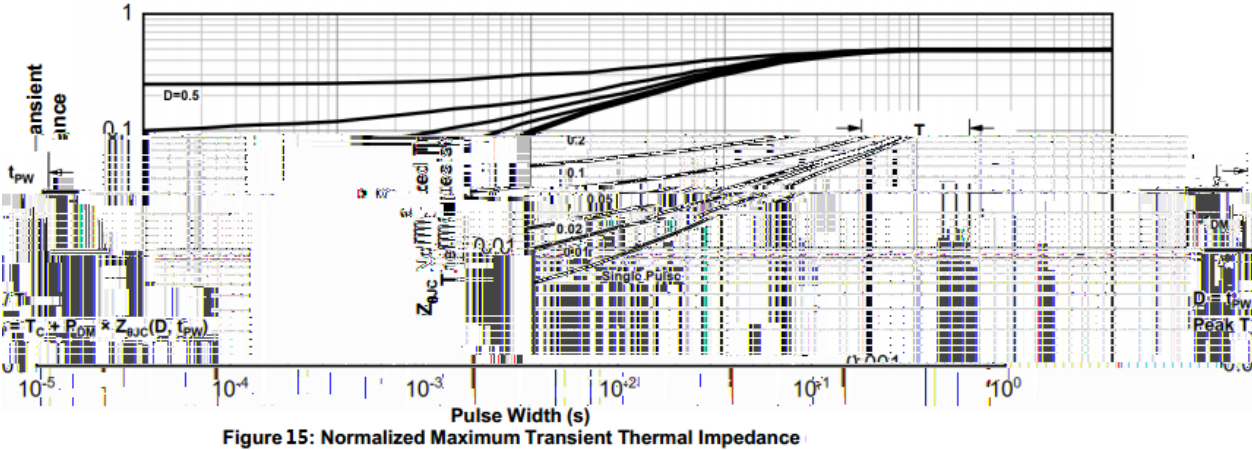
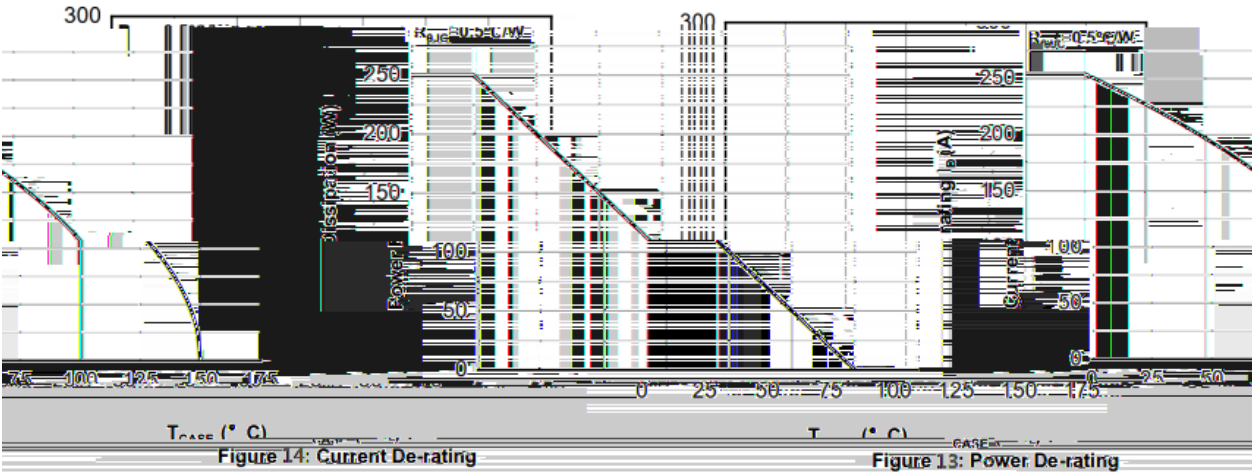


Figure 9: Maximum Forward Biased Safe Operating Area

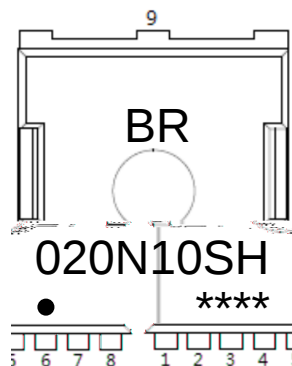
Figure 10: Single Pulse Power Rating Junction-to-Case

Figure 12: Normalized $V(BR)_{DSS}$ vs. Junction TemperatureFigure 11: Normalized V_G vs. Junction Temperature

/ Electrical Characteristic Curve



/ Marking Instructions



020N10SH

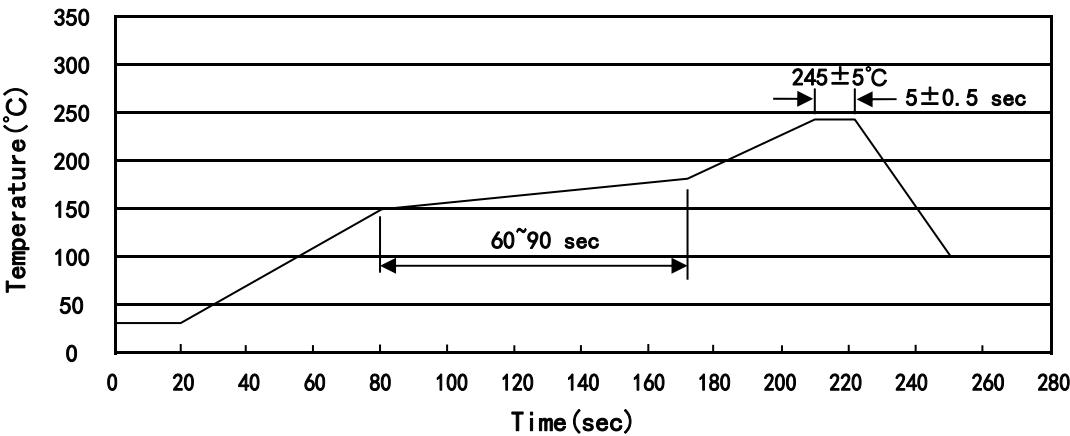
Note

BR Company Code

020N10SH 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

/ 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

All information provided in this document is subject to legal disclaimers.