BRCS020N10SHTL

Rev.A Mar.-2025

DATA SHEET

/ Descriptions

TOLL-8L N

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

/ Features

V_{DS}(V)=100V I_D=259A

$R_{DS(ON)}$@10V≤2.0mΩ(Typ. 1.6mΩ)

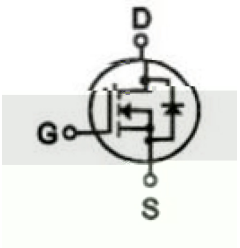
HF Product.

/ Applications

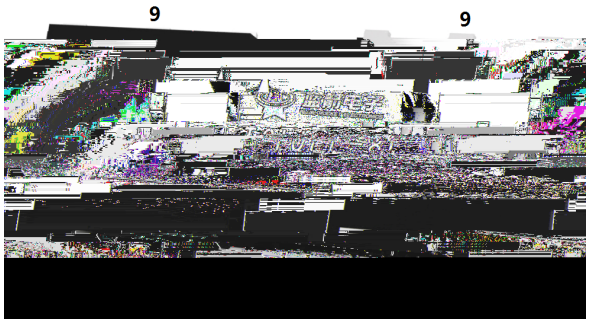
DC/DC

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)

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	/ W
Thermal resistance, junction - case	Steady-State	$R_{\theta JC}$	0.5	

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	I_D=250uA, V_{GS}=0V	100			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=100V, V_{GS}=0V			1	uA
Gate-Body leakage current	I_{GSS}	V_{DS}=0V, V_{GS}= ±20V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250uA	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	mΩ
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		Ω
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, V_{DS}=50V I_{DS}=100A		176		nC
Gate Source Charge	Q_{gs}			47		
Gate Drain Charge	Q_{gd}			54		

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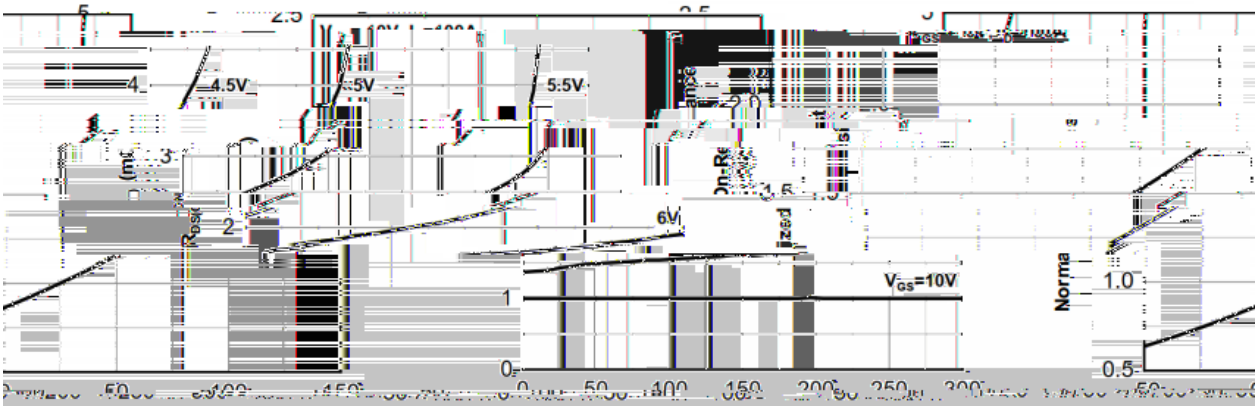
Parameter	Symbol	Test Conditions

/ Electrical Characteristic Curve



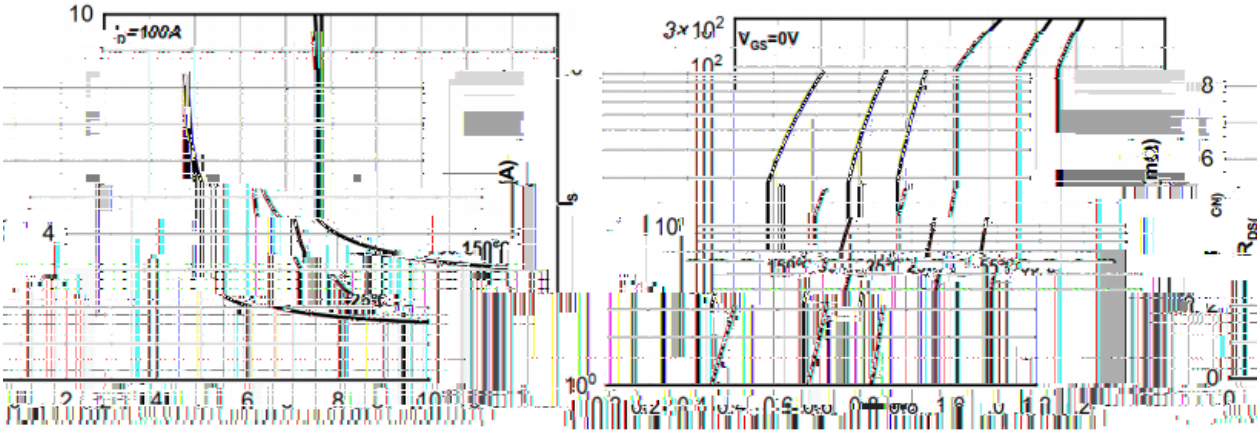
V_{DS} (Volts)
Figure 1: On-Region Characteristics

V_{GS} (Volts)
Figure 2: Transfer Characteristics



Temperature (°C)
Figure 4: On-Resistance vs. Junction Temperature

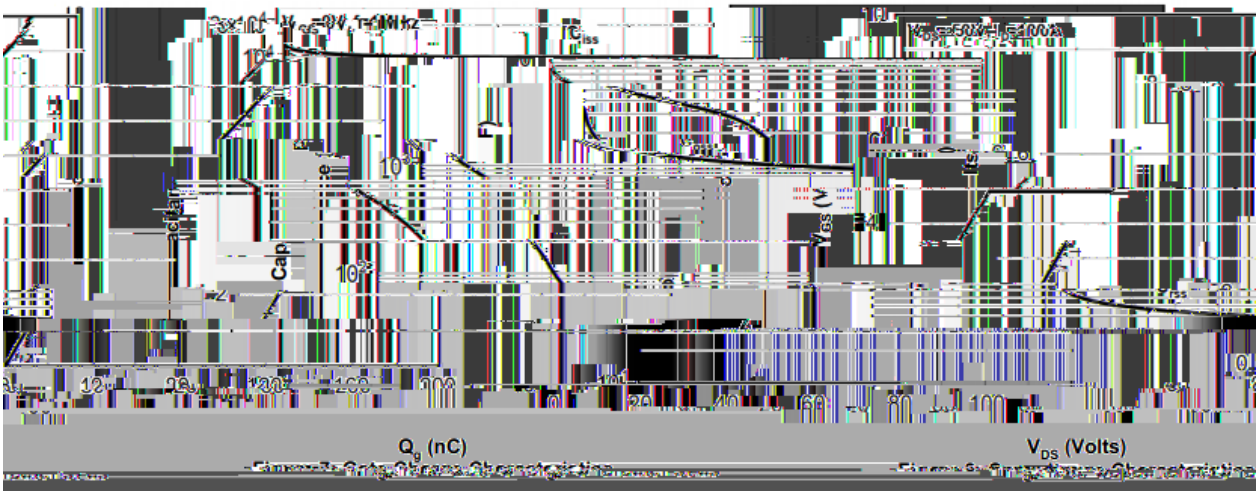
Figure 3: On-Resistance vs. Drain Current and Gate Voltage

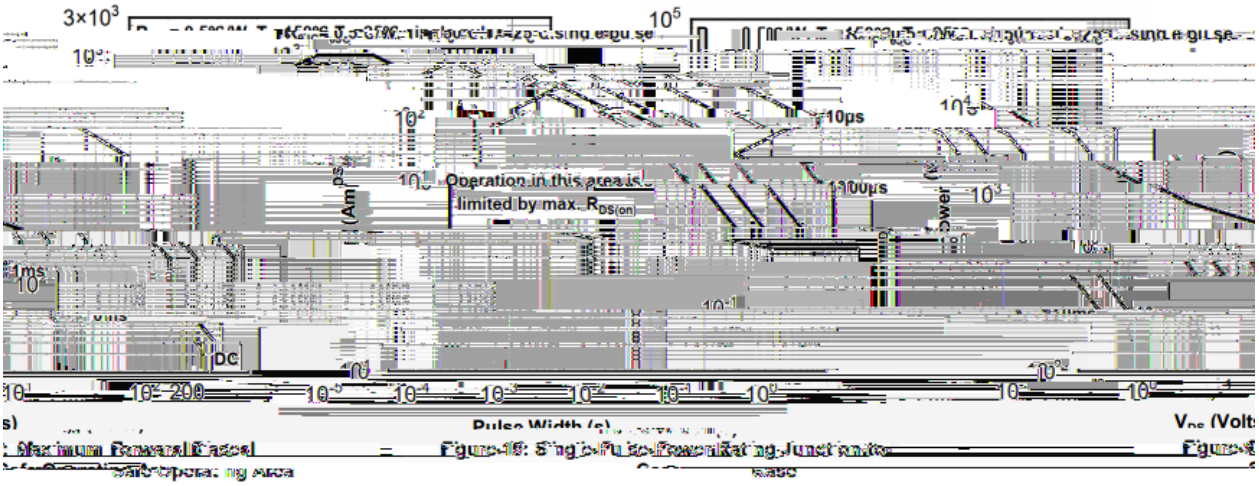


V_{GS} (Volts)
Figure 5: On-Resistance vs. Gate-Source Voltage

V_{SD} (Volts)
Figure 6: Body-Diode Characteristics

/ Electrical Characteristic Curve





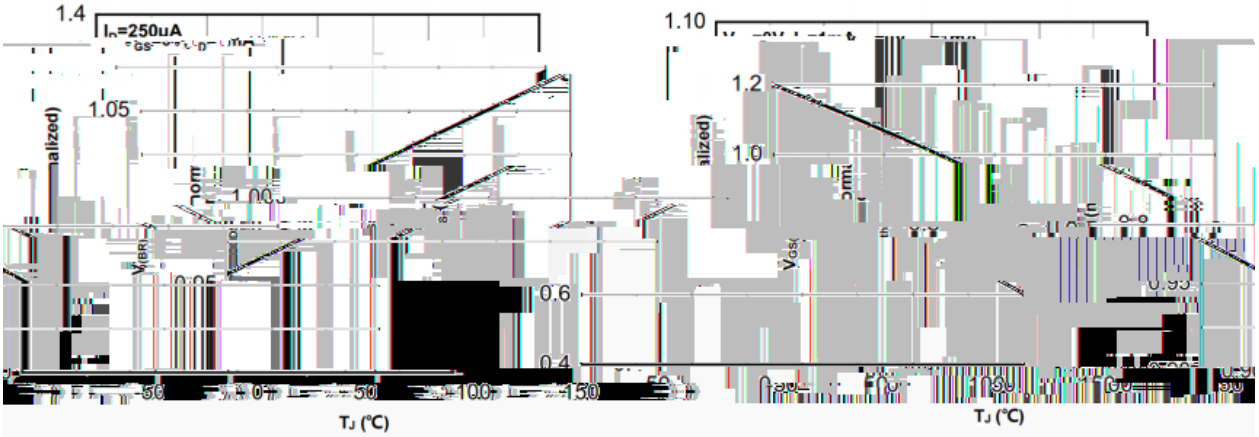


Figure 12: Normalized V(BR)DSS vs. Junction Temperature

Figure 11: Normalized VGS(th) vs. Junction Temperature

/ Electrical Characteristic Curve

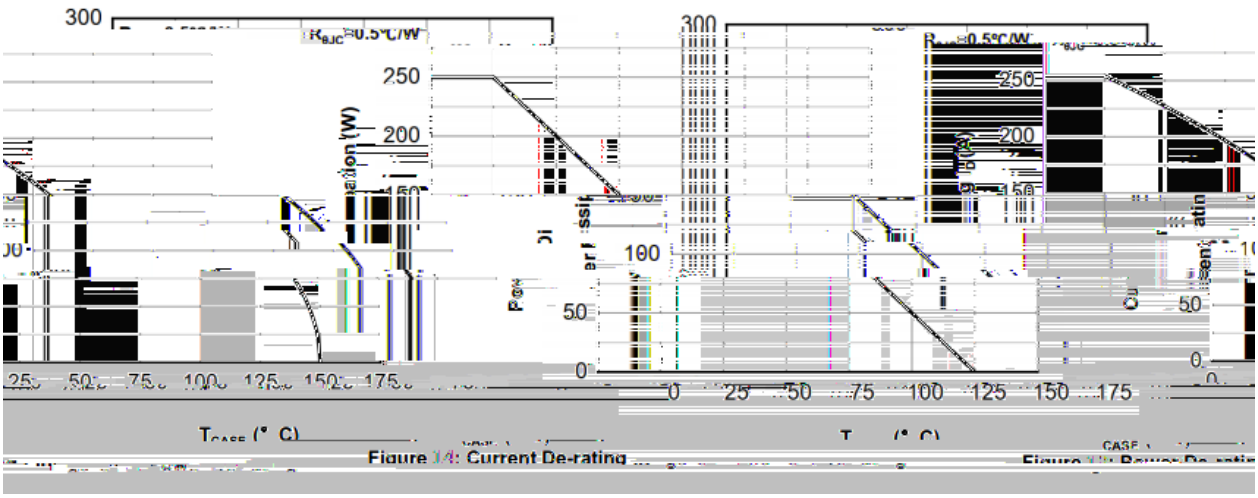
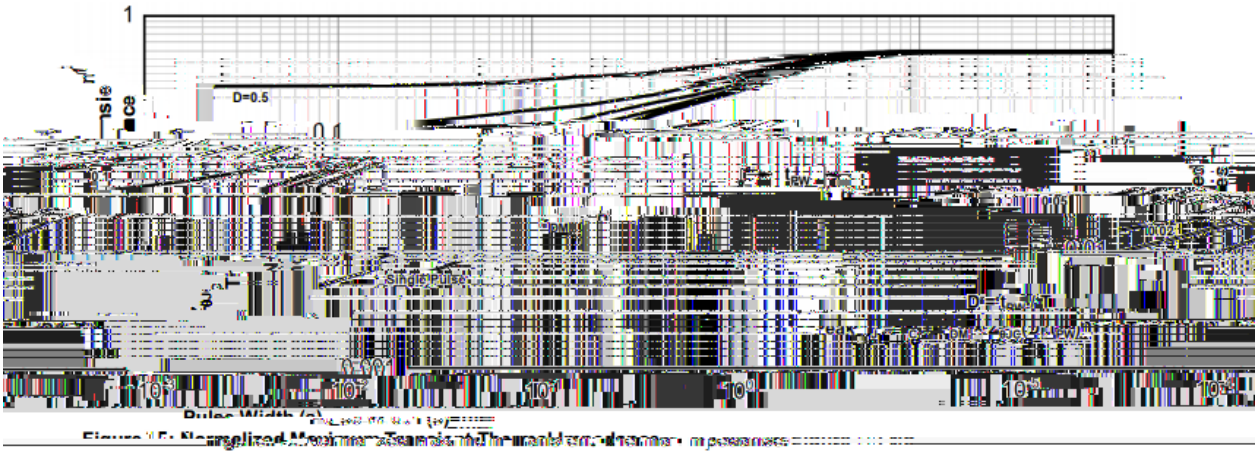
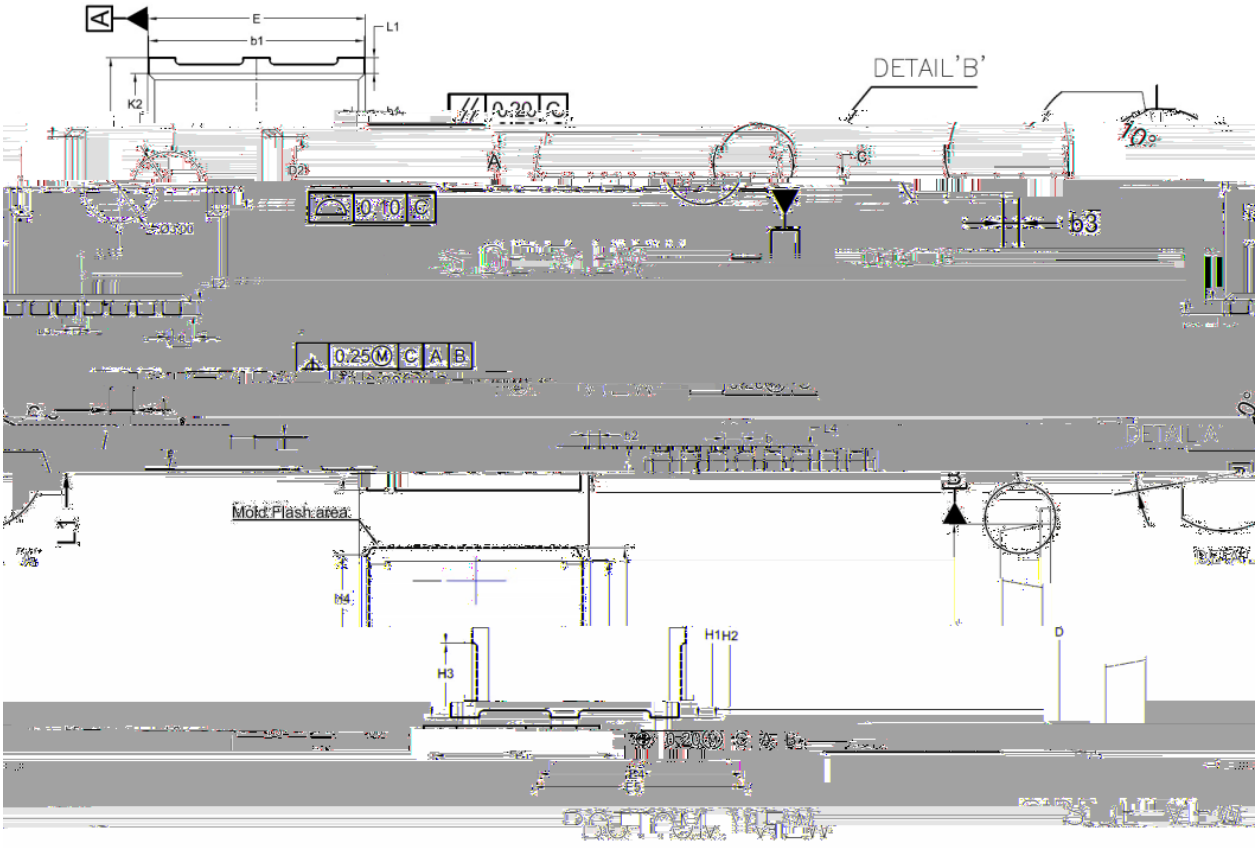


Figure 14: Current De-rating

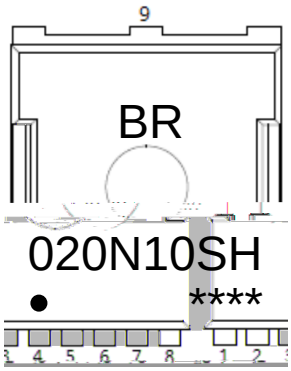


/ Package Dimensions



Symbol	Dimensions In Millimeters			Symbol	Dimensions In Millimeters		
	MIN.	NOM.	MAX.		MIN.	NOM.	MAX.
A	2.200	2.300	2.400	b1	9.700	9.800	9.900
c	0.492	0.500	0.508	b1	0.420	0.460	0.500
D	10.280	10.380	10.480	b3	0.350		
E	9.800	9.900	10.000	b4	0.600		
e	1.20 BSC			b5	3.100		
H	11.580	11.680	11.780	b6	1.200		
H1	6.650	6.750	6.850	L	1.700	1.900	2.100
H2	7.300			L1	0.700		
H3	3.200			L2	0.600 A		

/ Marking Instructions



BR

020N10SH

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Note

BR	Company Code
020N10SH	Product Type Code
****:	Lot No. Code, code change with Lot No.