

BRCS020N10SHTL

Rev.A Mar.-2025

/ Descriptions

TOLL-8L N

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

/ Features

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

$R_{DS(ON)}@10V$ 2.0m (Typ. 1.6m)

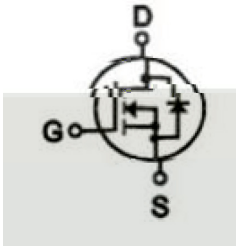
HF Product.

/ Applications

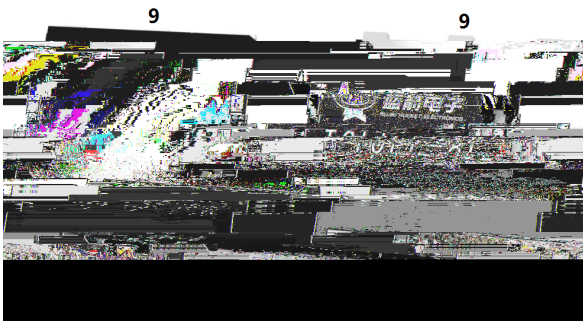
DC/DC

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_{JA}	40	/ W
Thermal resistance, junction - case	Steady-State	R_{JC}	0.5	

/ Electrical Characteristics($T_a=25$)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=250\mu A, V_{GS}=0V$	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		

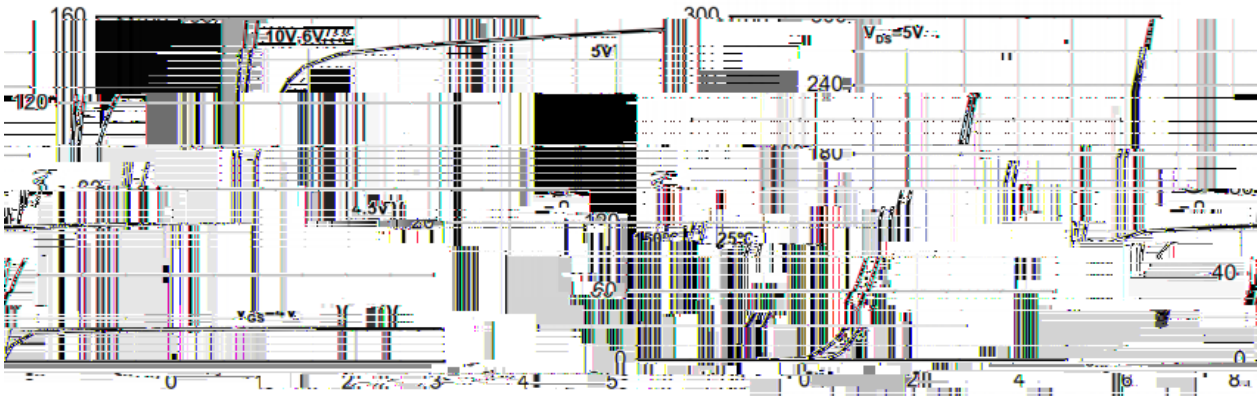
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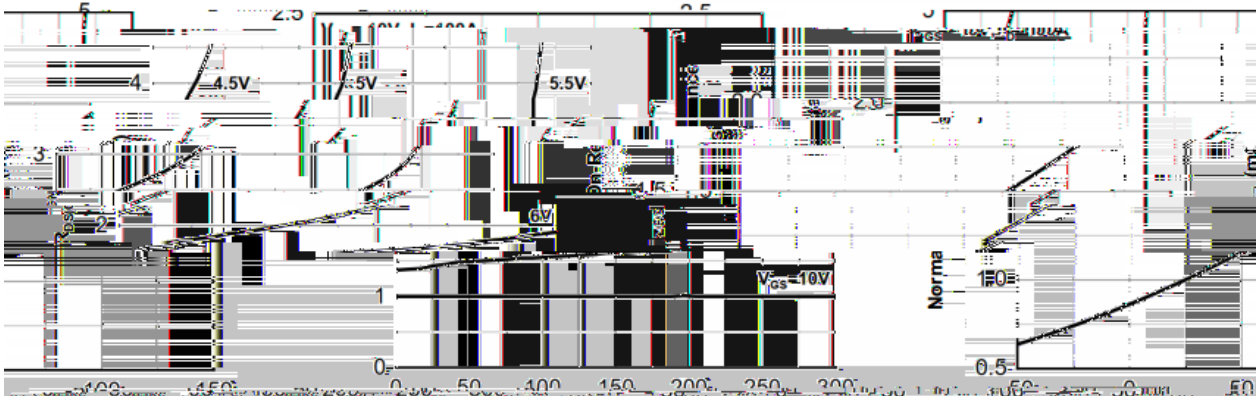
Parameter	Symbol	Test Conditions
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/ Electrical Characteristic Curve



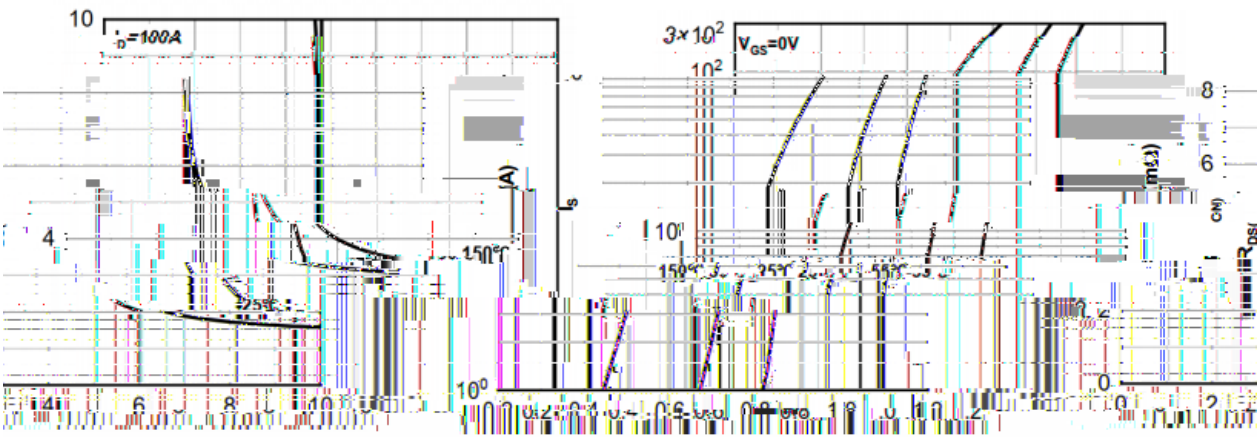
V_{DS} (Volts)
Figure 1: On-Region Characteristics

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



I_D (A)
Figure 3: On-Resistance vs. Drain Current and Gate Voltage

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



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

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

Figure 5: O

/ Electrical Characteristic Curve

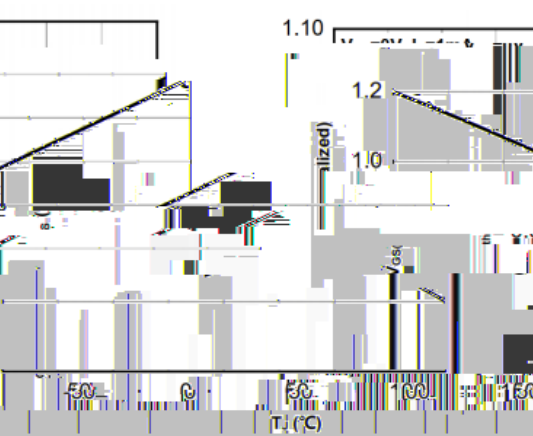
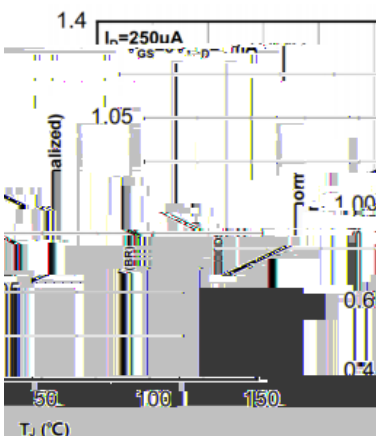
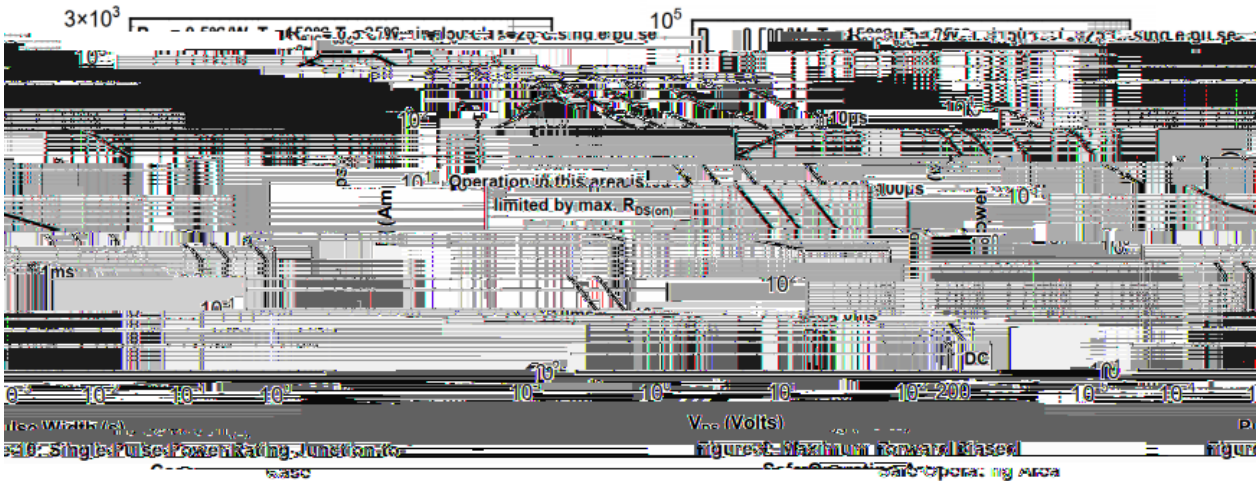
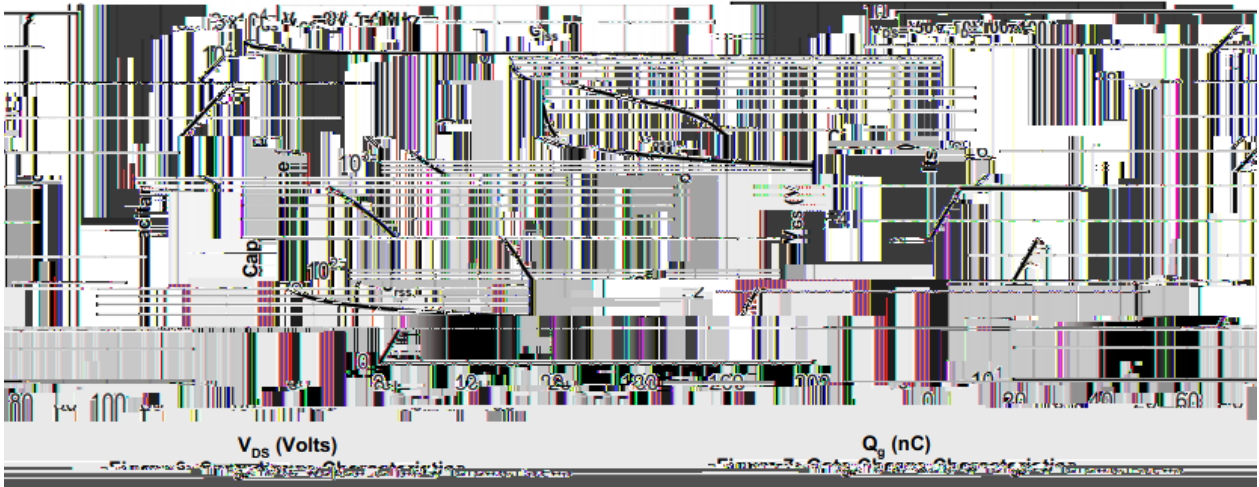
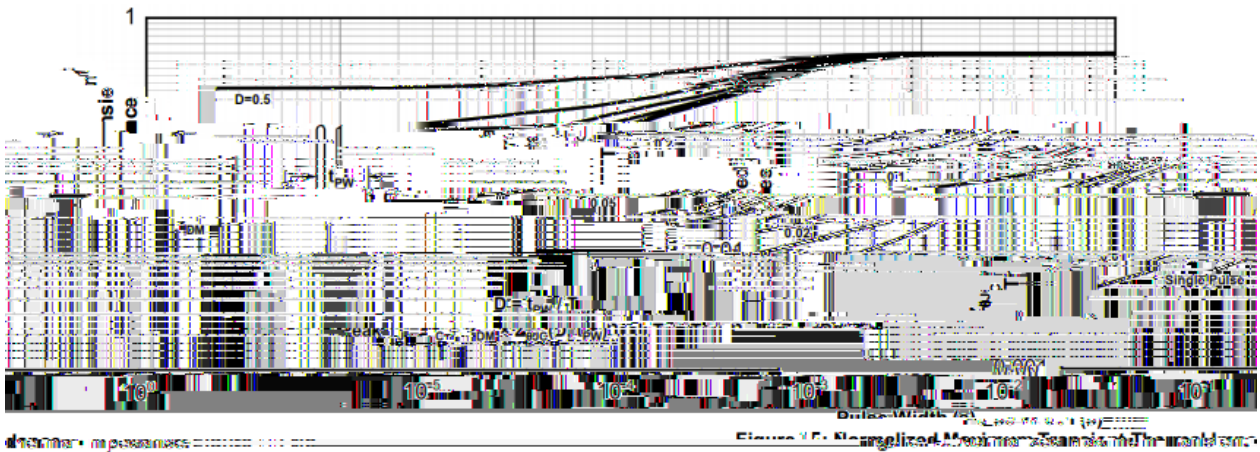
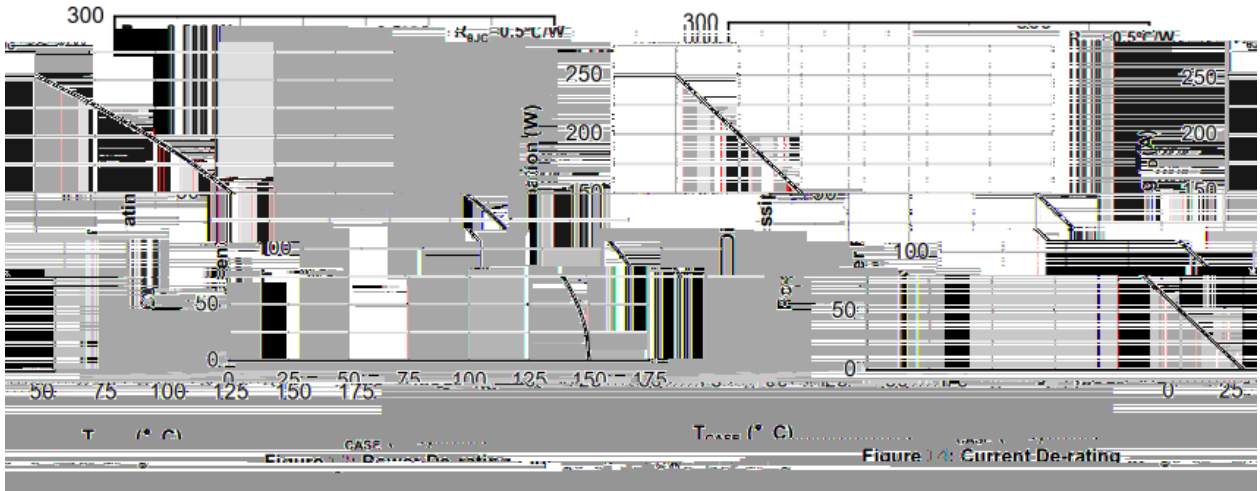


Figure 10: Single Pulse Forward Biasing Characteristics

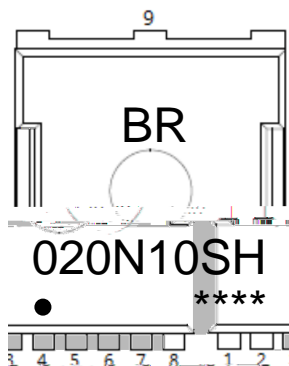
Figure 11: Normalized $V_{GS(th)}$ vs. Junction Temperature

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

/ Electrical Characteristic Curve



/ Marking Instructions



BR

020N10SH

Note

BR Company Code

020N10SH Product Type Code

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

