

Descriptions

This is 100V 259A N-Channel MOSFET in a TOLL-8L Plastic Package .

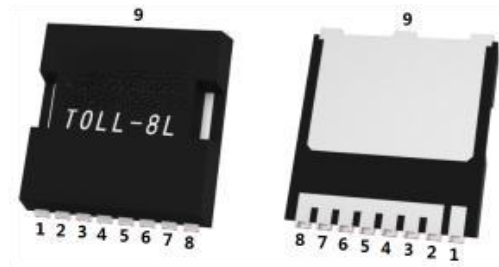
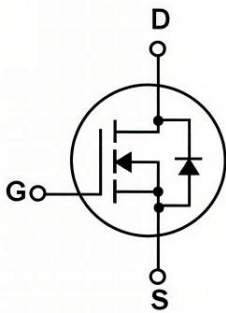
Features

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

Applications

- DC/DC 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(Ta=25°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	°C
Thermal resistance, junction - ambient	Steady-State	$R_{\theta JA}$	40	°C/ W
Thermal resistance, junction - case	Steady-State	$R_{\theta JC}$	0.5	

Electrical Characteristics(Ta=25°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 Ω
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	$V_{GS}=10V, I_{DS}=100A, V_{DS}=50V$		176		nC
Gate Source Charge	Q_{gs}			47		
Gate Drain Charge	Q_{gd}			54		

Electrical Characteristics(Ta=25°C)

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}	$I_F = 50\ A, V_{DS} = 50\ V$		79		ns
Reverse Recovery Charge	Q_{rr}	$di_{SD}/dt = 100\ A/\mu s$		180		nC

Electrical Characteristic Curve

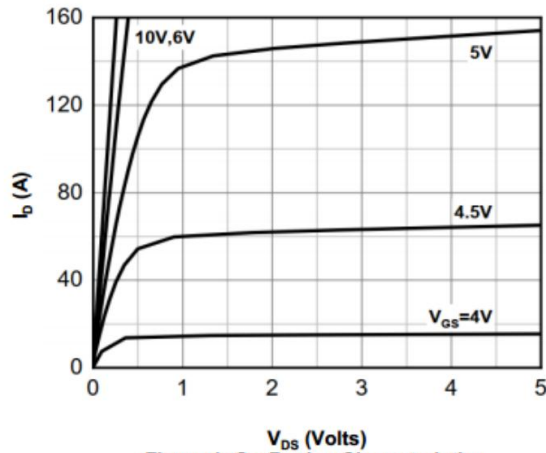


Figure 1: On-Region Characteristics

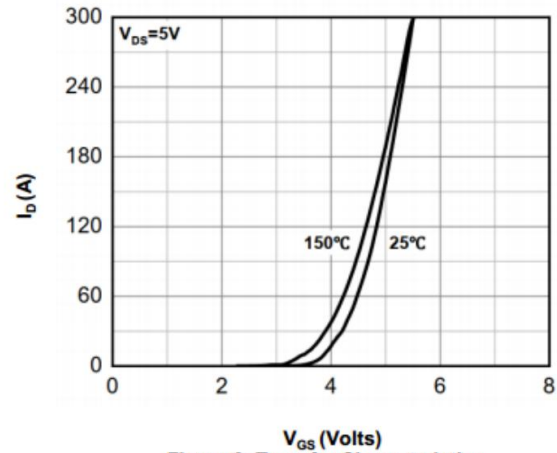


Figure 2: Transfer Characteristics

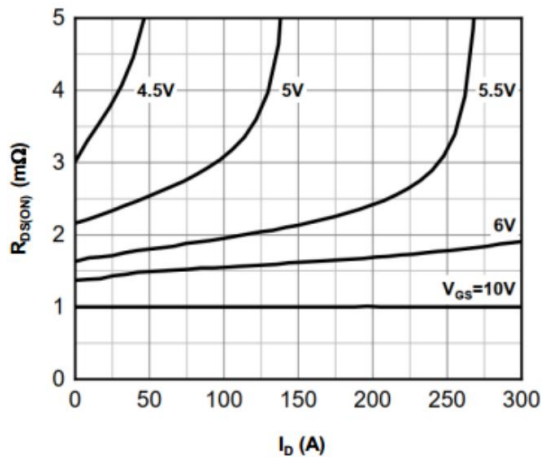


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

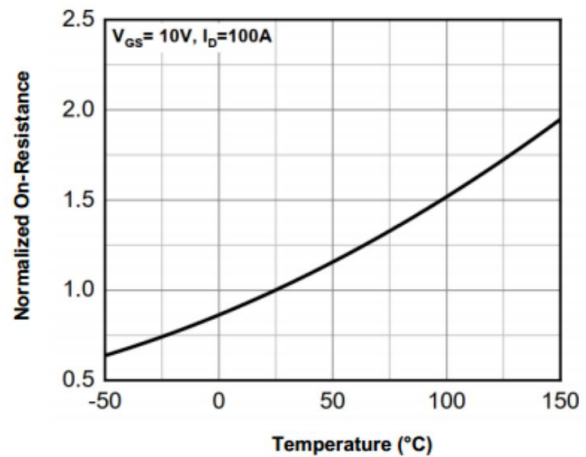


Figure 4: On-Resistance vs. Junction Temperature

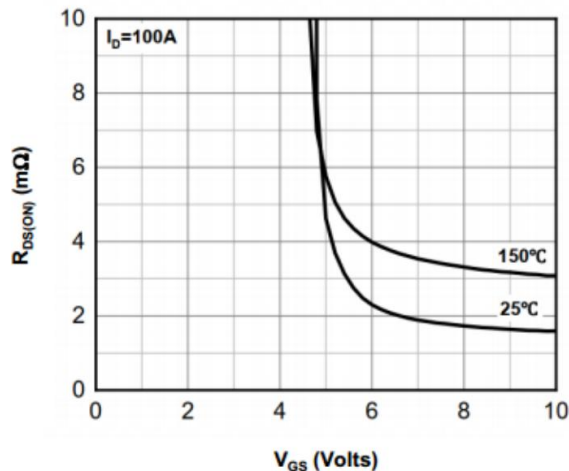


Figure 5: On-Resistance vs. Gate-Source Voltage

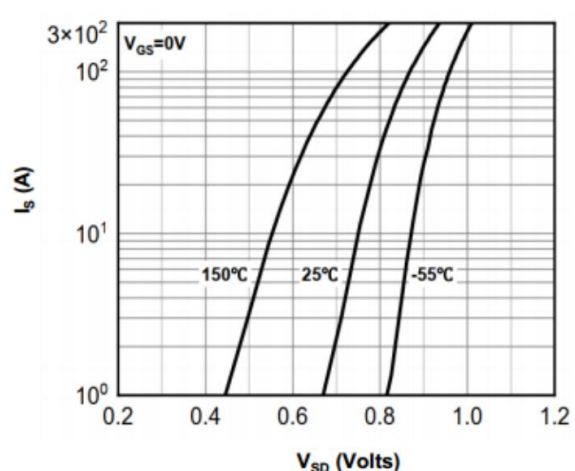


Figure 6: Body-Diode Characteristics

Electrical Characteristic Curve

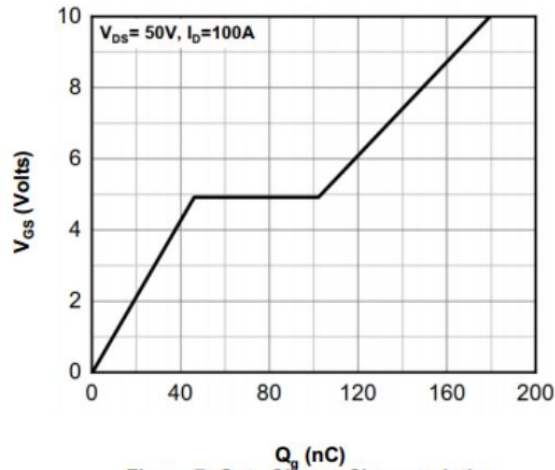


Figure 7: Gate-Charge Characteristics

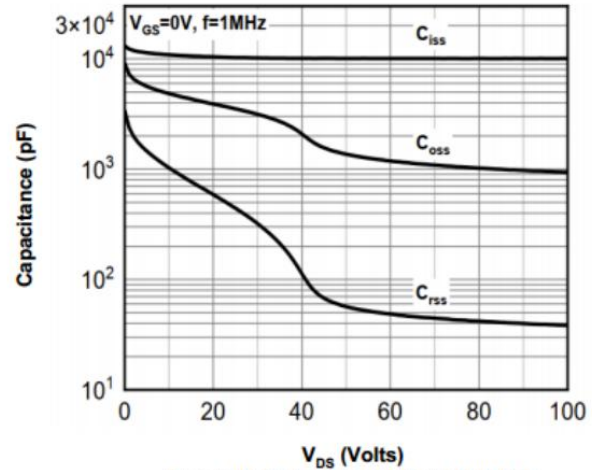


Figure 8: Capacitance Characteristics

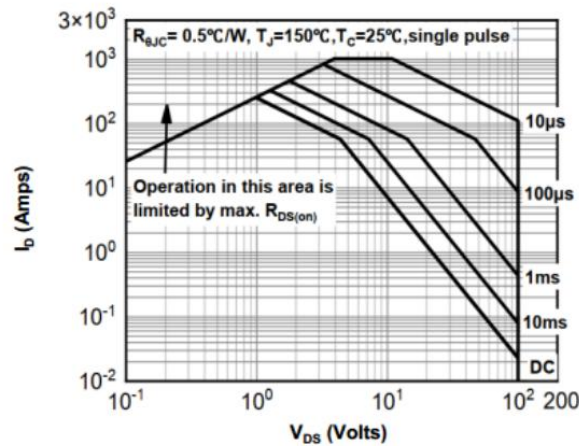


Figure 9: Maximum Forward Biased Safe Operating Area

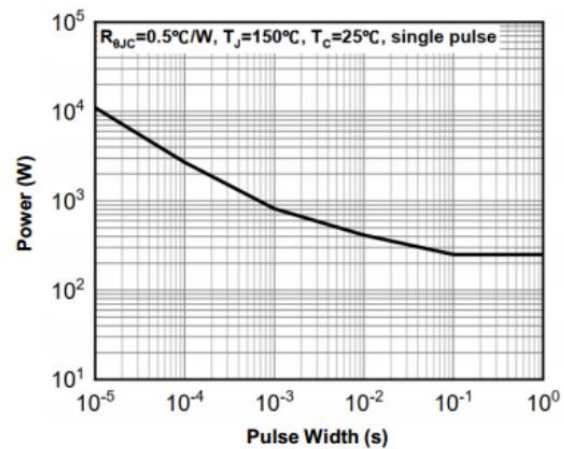
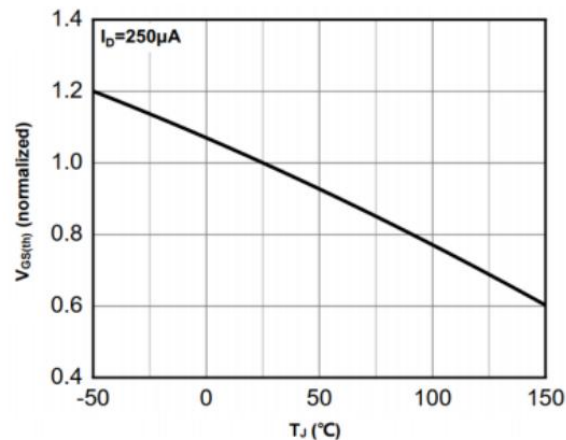
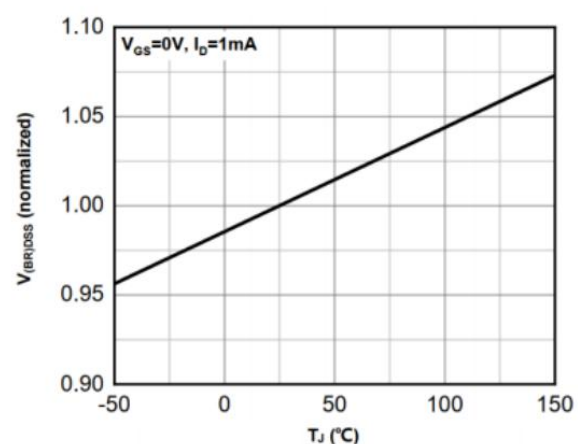


Figure 10: Single Pulse Power Rating Junction-to-Case

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

Electrical Characteristic Curve

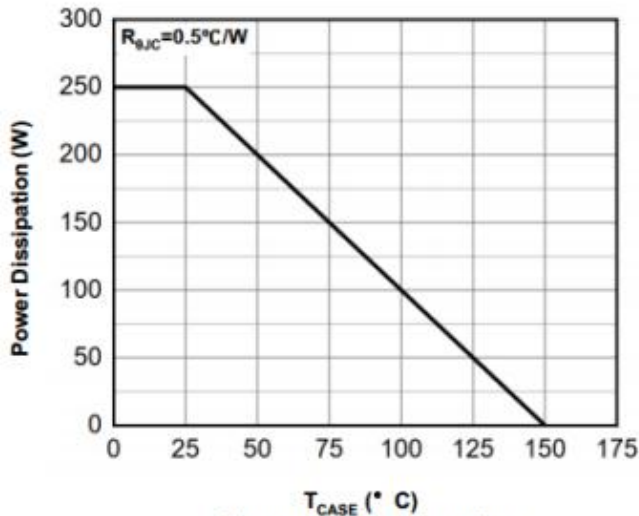


Figure 13: Power De-rating

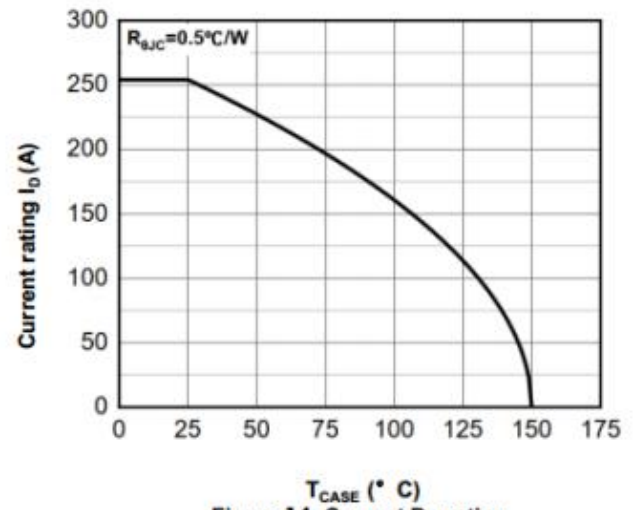


Figure 14: Current De-rating

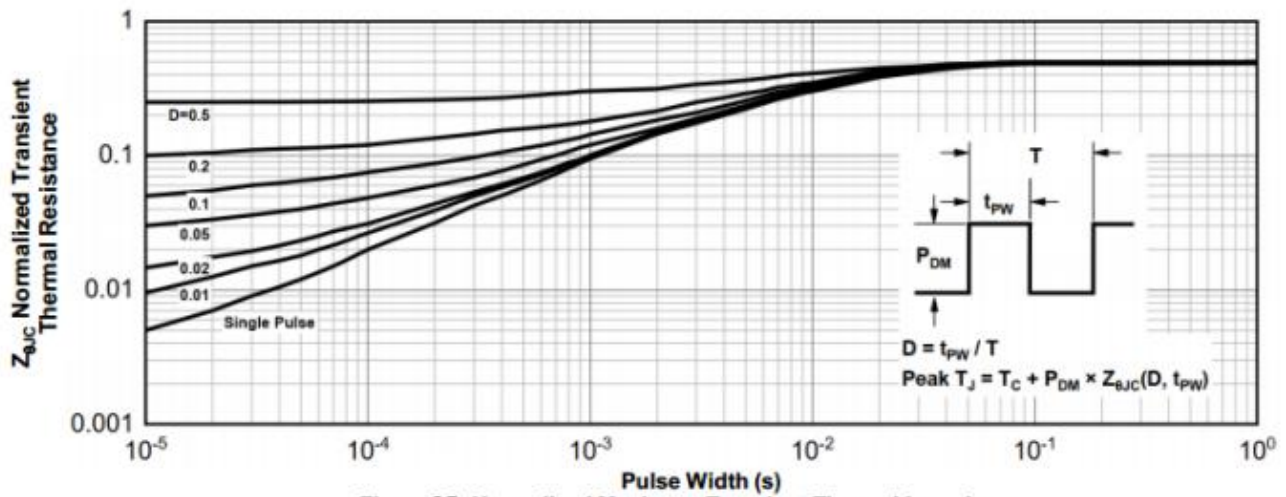
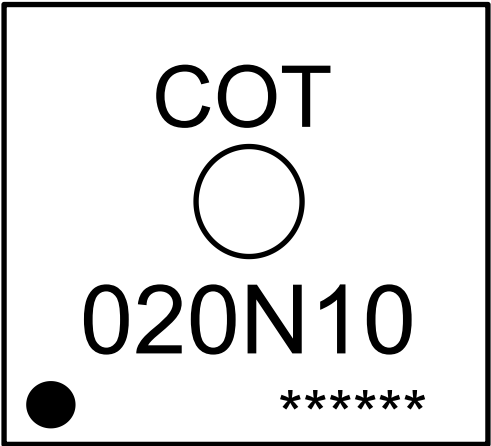


Figure 15: Normalized Maximum Transient Thermal Impedance

Marking Instructions



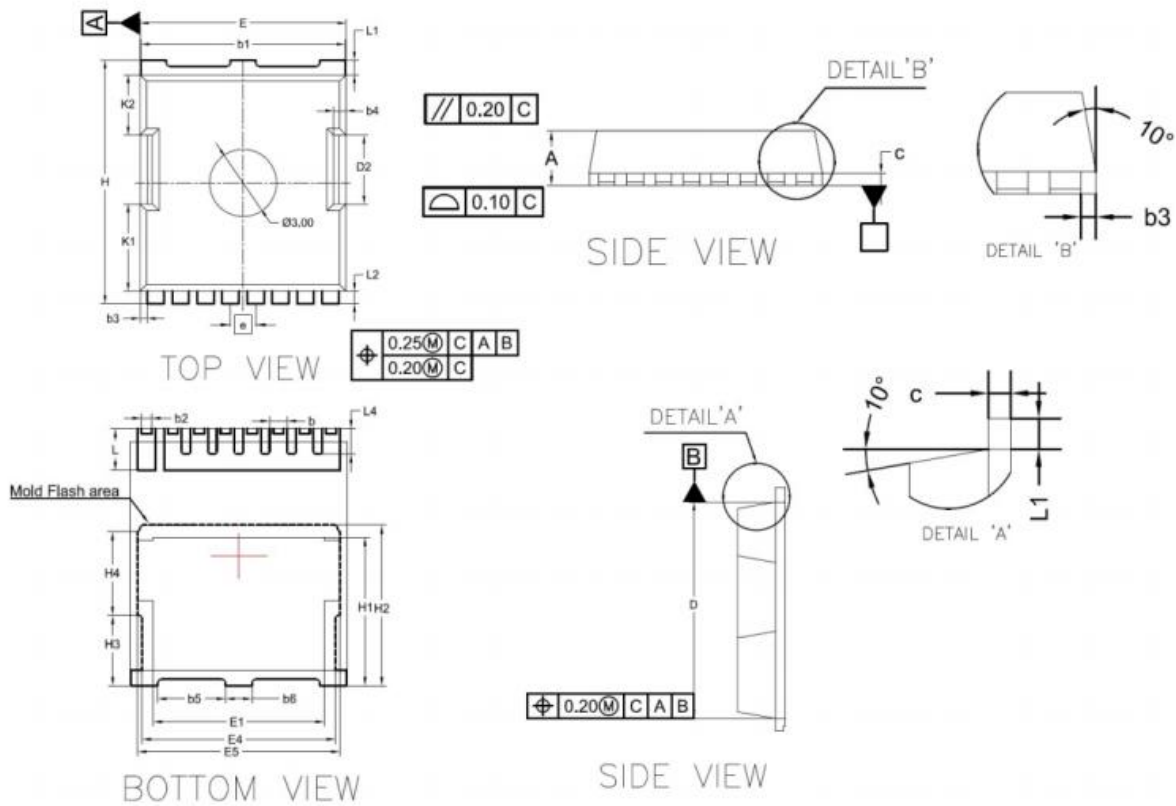
Note :
COT: Company Code
020N10: Product Type Code
*****: Lot No. Code, code change with Lot No.

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

Package Outline 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		
H4	3.800			L4	1.050	1.150	1.250
K1	4.180			L5	0.500	0.600	0.700
K2	2.900			E1	7.800		
D2	3.300			E4	8.800		
b	0.700	0.800	0.900	E5	9.200		