

/ Descriptions

TOLL-8L N

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

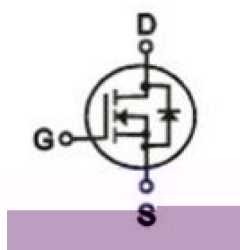
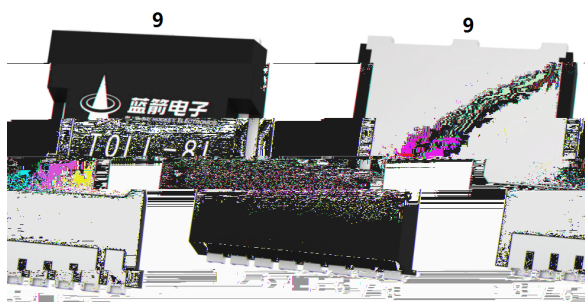
/ Features $V_{DS}(V)=100V$ $I_D=300A$ $R_{DS(ON)}@10V \leq 1.3m\Omega$ (Typ. $1.1m\Omega$) $R_{DS(ON)}@6V \leq 2.0m\Omega$ (Typ. $1.5m\Omega$)

HF Product.

/ Applications

LCDM

LCD TV appliances, LCDM appliances, High power inverter system.

/ Equivalent Circuit**/ Pinning**

PIN1	G	PIN2	3	4	5	6	7	8	S	PIN9	D
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/ Marking

See Marking Instructions.

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	100	V
Drain Current(DC) ^{***}	$I_D(T_C=25^\circ\text{C})$	300	A
	$I_D(T_C=100^\circ\text{C})$	215	A
Drain Current – Pulsed ^{*,**}	I_{DM}	1200	A
Gate-Source Voltage	V_{GS}	20	V
Power Dissipation	P_{tot}	250	W
Continuous-Source Current	I_S	400	A
Single Pulse Avalanche Energy($V_{DD}=50\text{V}, L=1.0\text{mH}$)	E_{AS}	2592	mJ
Junction and Storage Temperature Range	T_j, T_{stg}	-55 to 175	
Thermal resistance, junction – ambient ^{**}	$R_{\theta JA}$	46	/W
Thermal resistance, junction – case ^{**}	$R_{\theta JC}$	0.6	

Notes:

* Pulse width $\leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$ ** Surface Mounted on 1 in² pad area, $t \leq 10\text{sec}$

*** Limited by bonding wire

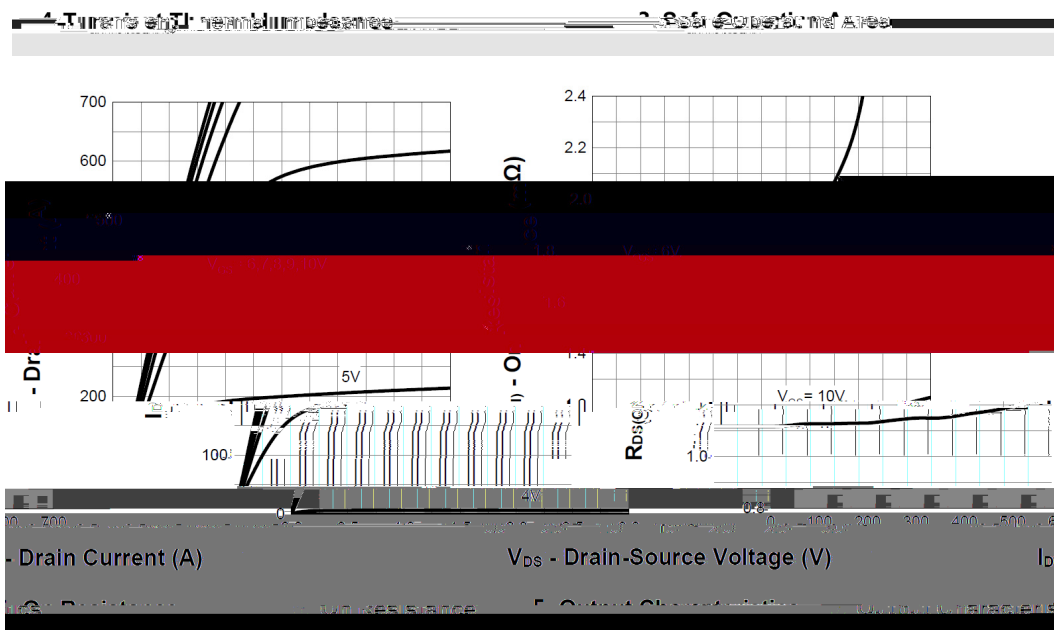
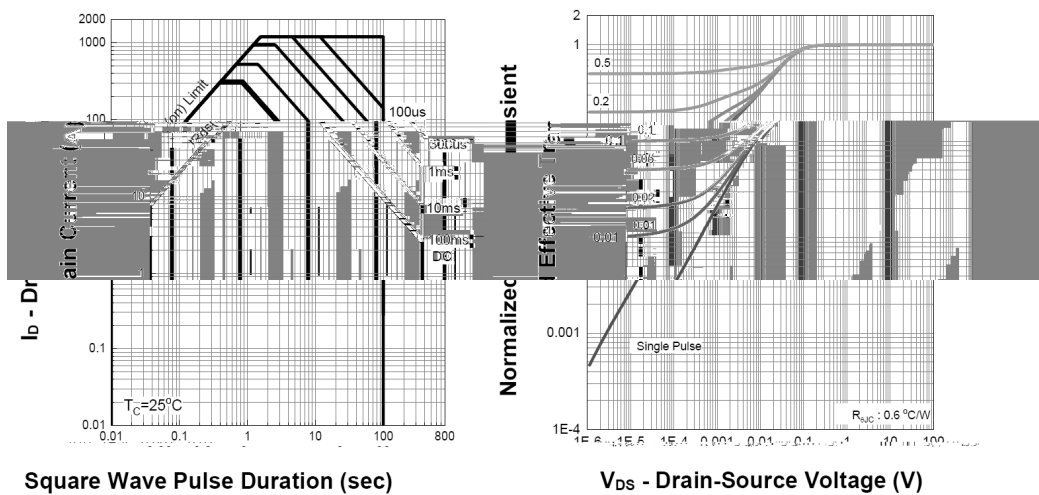
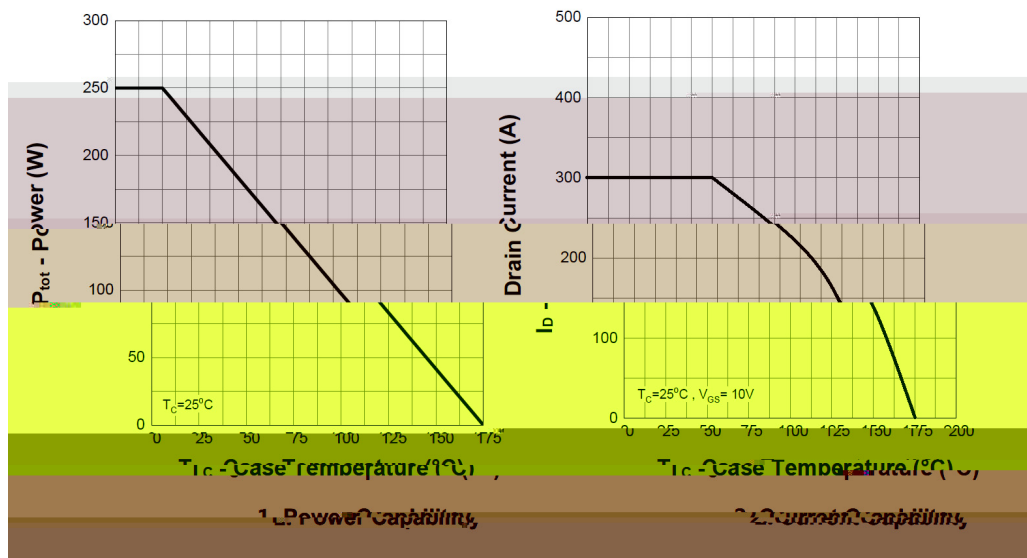
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
	BV_{DSS}	$I_D=250\mu\text{A}, V_{GS}=0\text{V}$	100			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=80\text{V}, V_{GS}=0\text{V}$			1	μA
Gate-Body leakage current	I_{GSS}	$V_{DS}=0\text{V}, V_{GS}=\pm 20\text{V}$			100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	2		4	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10\text{V}, I_D=50\text{A}$		1.1	1.3	m Ω
		$V_{GS}=6\text{V}, I_D=30\text{A}$		1.5	2.0	
Diode Forward Voltage	V_{SD}	$I_S=50\text{A}, V_{GS}=0\text{V}$			1.3	V
Reverse Recovery Time	t_{rr}	$I_F = 50\text{A}, V_{DS} = 50\text{V}$		140		ns
Reverse Recovery Charge	Q_{rr}	$dI_{SD}/dt = 100\text{A}/\mu\text{s}$		403		nC
Input Capacitance	C_{iss}	$V_{DS}=50\text{V}, V_{GS}=0\text{V}$		12881		
Output Capacitance	C_{oss}	$f=1.0\text{MHz}$		2122		

Tc() 154n5.0021 T

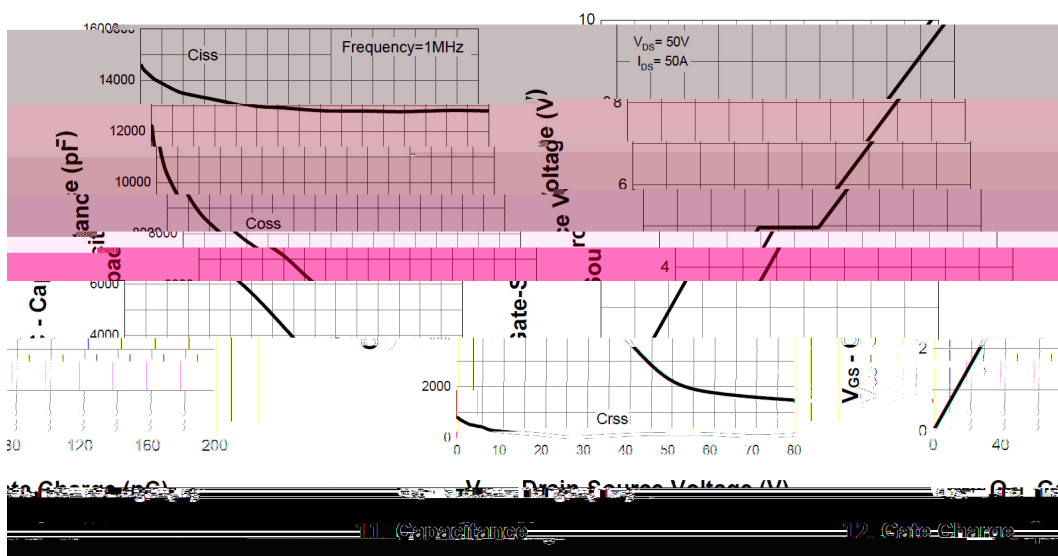
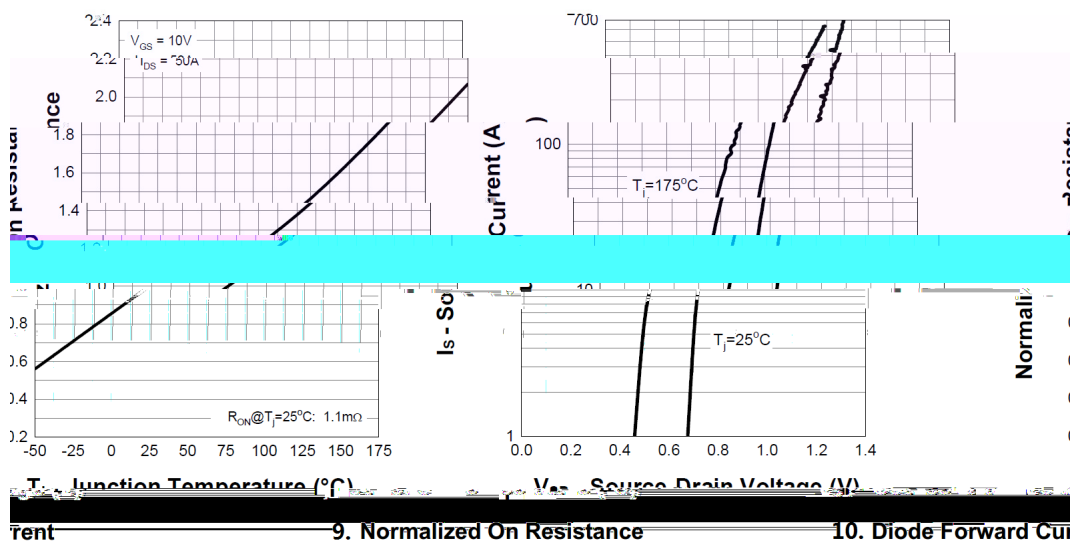
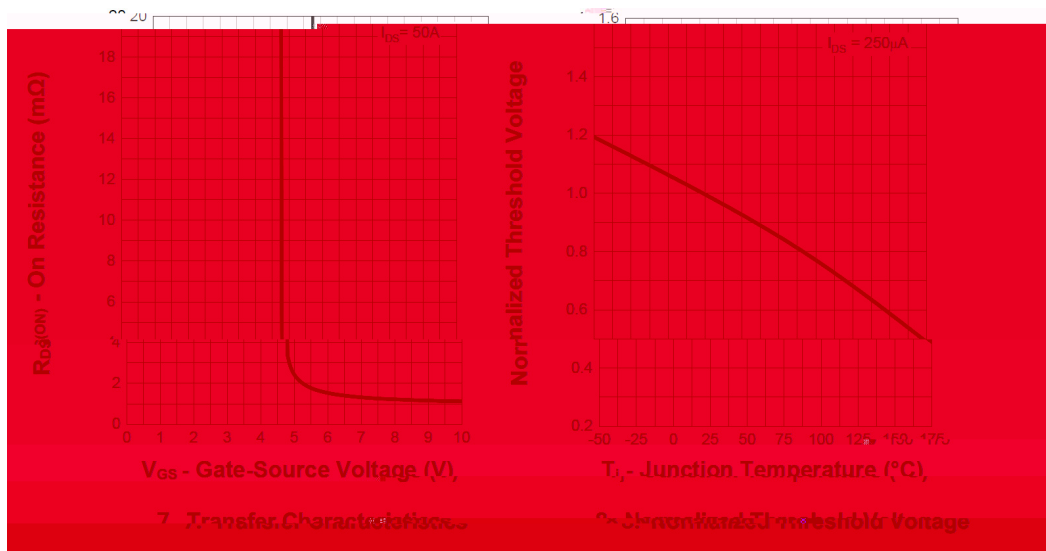
/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Total Gate Charge	Q_g	$V_{GS}=10V, \quad V_{DS}=50V$ $I_{DS}=50A$		196		nC
Gate Source Charge	Q_{gs}			68		
Gate Drain Charge	Q_{gd}			35		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V \quad V_{DS}=50V$ $R_G=3.9 \quad R_L=1$ $I_D=50A$		41		nS
Turn-On Rise Time	t_r			172		
Turn-Off Delay Time	$t_{d(off)}$			111		
Turn-Off Fall Time	t_f			132		

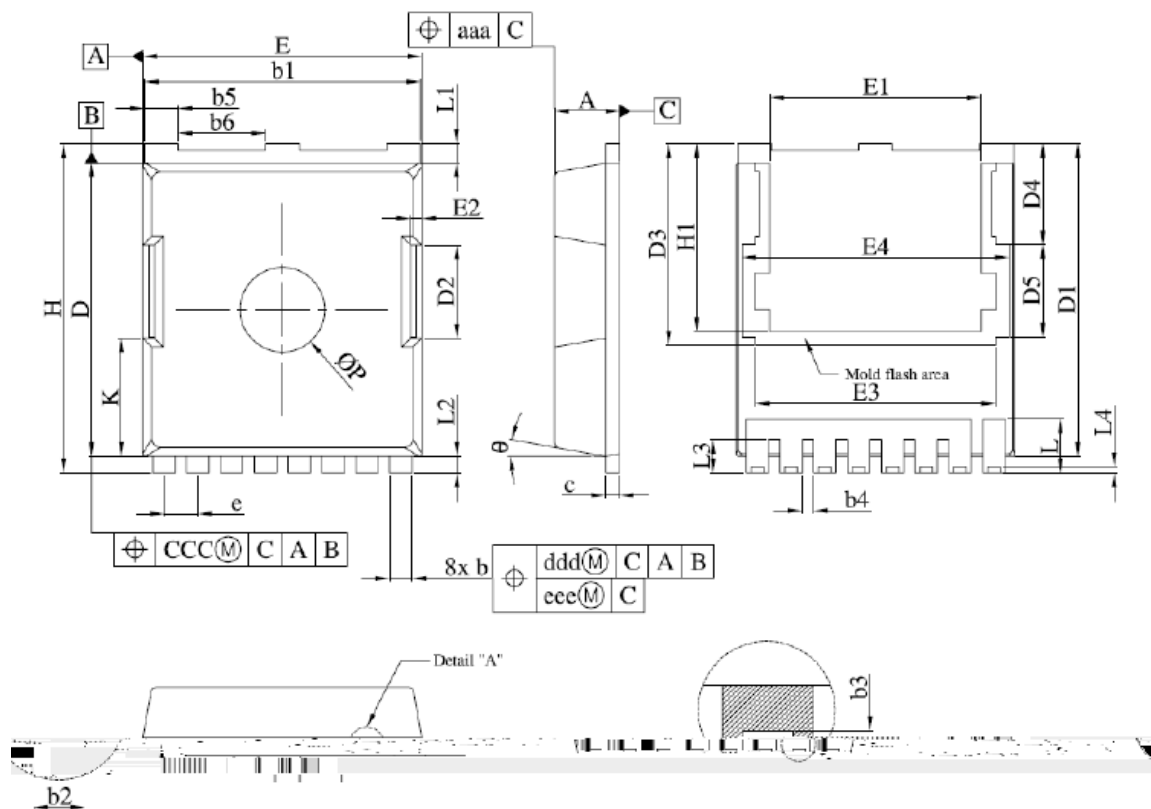
/ Electrical Characteristic Curve



/ Electrical Characteristic Curve

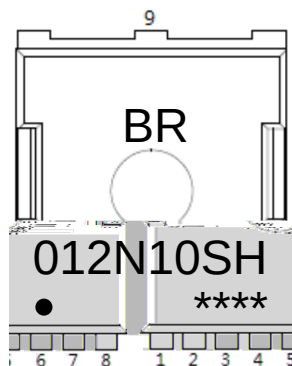


/ Package Dimensions



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	MIN.	MAX.		MIN.	MAX.
A	2.20	2.40	E2	7.40	7.60
b	0.70	0.90	E3	8.50	
b1	9.70	9.90	E4	9.46	
b2	0.36	0.55	H	11.50	11.85
b3	0.05	/	H1	6.55	6.75
b4	0.30	0.50	K	4.08	4.28
b5	1.10	1.30	L	1.60	2.10
b6	3.00	3.20	L1	0.50	0.90
c	0.40	0.60	L2	0.50	0.70
D	10.28	10.55	L3	1.00	1.30
D1	10.98	11.18	L4	0.13	0.33
D2	3.20	3.40	P	2.85	3.15
D3	7.15		θ	10°REF	
D4	3.59		aaa	0.20	
D5	3.26		ccc	0.20	
e	1.10	1.30	ddd	0.25	
E	9.80	10.00	eee	0.20	
E1	7.40	7.60			

/ Marking Instructions



BR

012N10SH

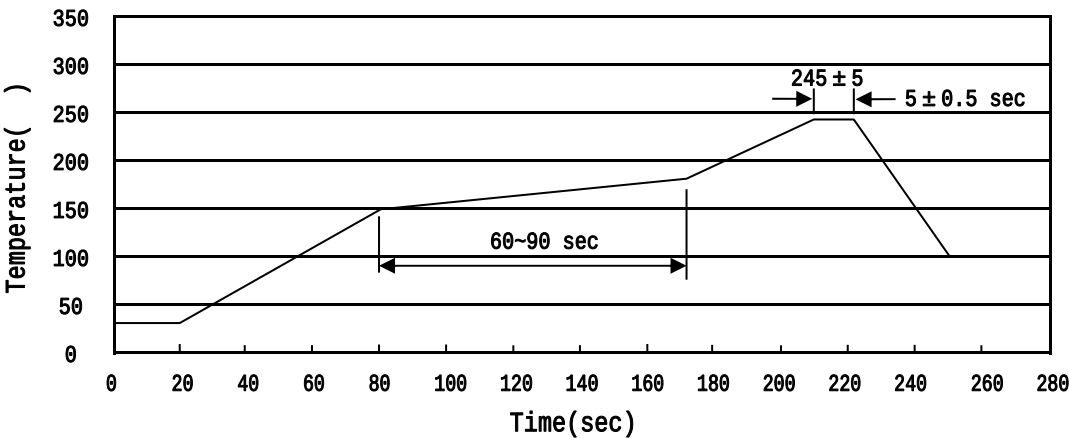
Note

BR Company Code

012N10SH 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 °C , Time:60~90sec. |
| 2 | 245±5 | | | 5±0.5sec; | 2.Peak Temp.:245±5 °C , Duration:5±0.5sec. |
| 3 | | 2 | 10 | /sec. | 3. Cooling Speed: 2~10 °C/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 ;>β fH					Dimension ;>β p . (unit ~ mm³)		
	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.