

## 80V N-Channel Enhancement Mode MOSFET

### 1. Product Information

#### 1.1 Features

- ◇ Surface-mounted package
- ◇ Advanced SGT cell design
- ◇ MSL1

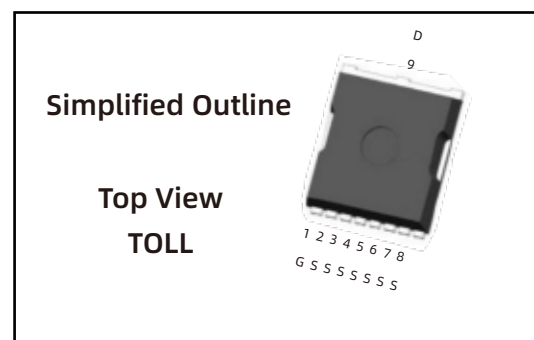
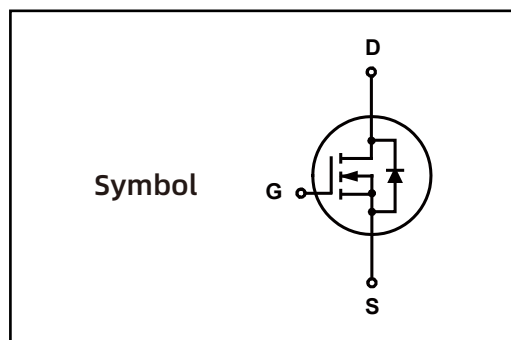
#### 1.2 Applications

- ◇ BMS appliances
- ◇ High power inverter system
- ◇ Power appliances

#### 1.3 Quick reference

- ◇  $BV \cong 80\text{ V}$
- ◇  $P_{\text{tot}} \cong 500\text{ W}$
- ◇  $I_D \cong 250\text{ A}$
- ◇  $R_{\text{DS(ON)}} \cong 3.5\text{ m}\Omega @ V_{\text{GS}} = 10\text{ V}$

### 2. Pin Description



### 3. Marking Information

Product Name	Marking
LN023N080T	LN023N080T AYWWZZ XXXXXX

## 4.Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
$V_{DS}$	Drain-Source Voltage	$T_c = 25\text{ }^\circ\text{C}$	80	-	V
$V_{GS}$	Gate-Source Voltage	$T_c = 25\text{ }^\circ\text{C}$	-	$\pm 20$	V
$I_D^{*,***}$	Drain Current ( DC )	$T_c = 25\text{ }^\circ\text{C}, V_{GS} = 10\text{ V}$	-	250	A
$I_{DM}^{*,**,***}$	Drain Current ( Pulsed )	$T_c = 25\text{ }^\circ\text{C}, V_{GS} = 10\text{ V}$	-	800	A
$P_{tot}^*$	Drain power dissipation	$T_c = 25\text{ }^\circ\text{C}$	-	500	W
$T_{stg}$	Storage Temperature		-55	175	$^\circ\text{C}$
$T_j$	Junction Temperature		-	175	$^\circ\text{C}$
$I_s$	Continuous-Source Current	$T_c = 25\text{ }^\circ\text{C}$	-	250	A
$E_{AS}^*$	Single Pulsed Avalanche Energy	$V_{DD}=50\text{V}, L=0.5\text{mH}, R_G=1\Omega$	-	2000	mJ
$R_{\theta JC}^*$	Thermal Resistance- Junction to Case		-	0.25	$^\circ\text{C}/\text{W}$

Notes :

- \* Surface Mounted on 1 in<sup>2</sup> pad area, t ≤ 10 sec
- \*\* Pulse width ≤ 300 μs, duty cycle ≤ 2 %
- \*\*\* limited by bonding wire

## 5.Ordering Code

Product Name	Package	Reel Size	Tape width	Quantity	Note
<b>LN023N080T</b>	<b>TOLL-8L</b>			<b>2000</b>	

Note: COMTECH defines " Green " as lead-free ( RoHS compliant ) and halogen free ( Br or Cl does not exceed 900 ppm by weight in homogeneous material and total of Br and Cl does not exceed 1500 ppm by weight; Follow IEC 61249-2-21 and IPC / JEDEC J-STD-020C )

## 6. Electrical Characteristics (TA=25 ° Unless Otherwise Noted )

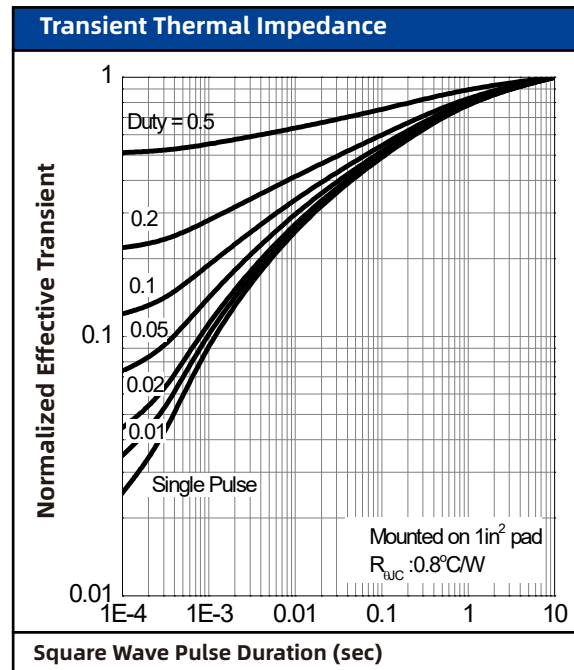
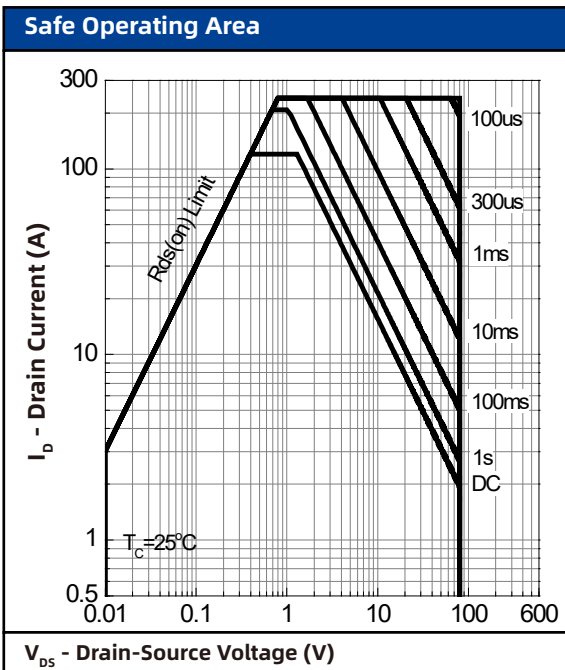
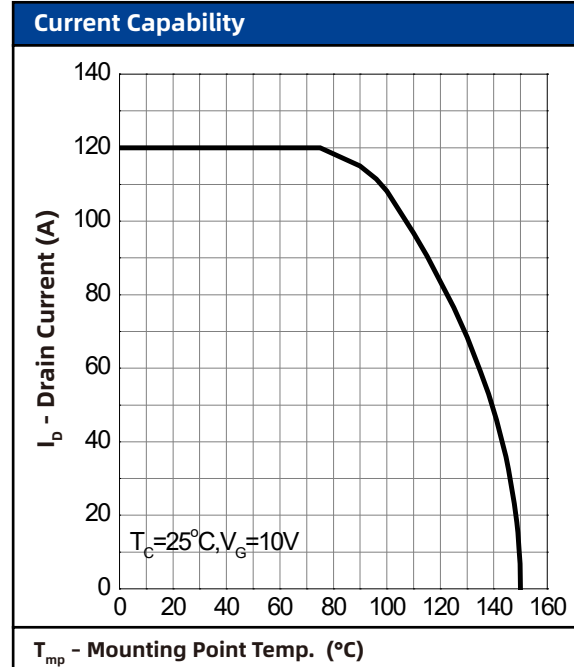
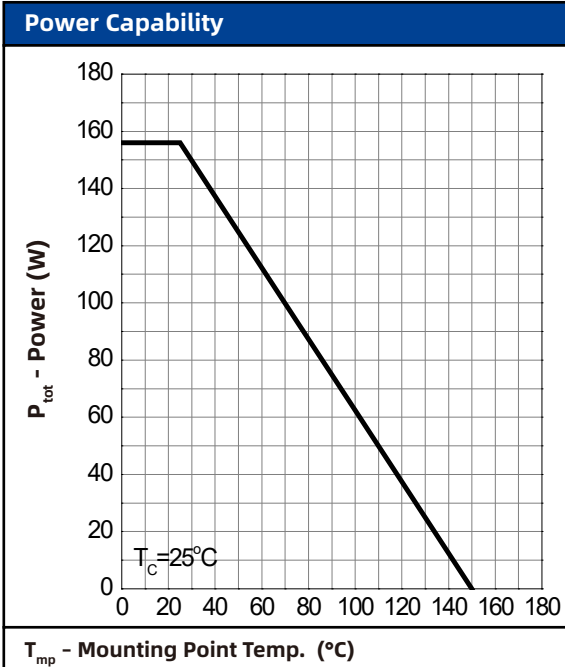
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS} = 0\text{ V}, I_{DS} = 250\ \mu\text{A}$	80	-	-	V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_{DS} = 250\ \mu\text{A}$	2	-	4	V
$I_{DSS}$	Drain Leakage Current	$V_{DS} = 64\text{ V}, V_{GS} = 0\text{ V}$	-	-	1	$\mu\text{A}$
		$T_J = 85^\circ\text{C}$	-	-	30	$\mu\text{A}$
$I_{GSS}$	Gate Leakage Current	$V_{GS} = 0\text{ V}, V_{DS} = \pm 20\text{ V}$	-	-	$\pm 100$	nA
$R_{DS(ON)}^a$	On-State Resistance	$V_{GS} = 10\text{ V}, I_{DS} = 50\text{ A}$	-	2.8	3.5	m $\Omega$
<b>Diode Characteristics</b>						
$V_{SD}^a$	Diode Forward Voltage	$I_{SD} = 30\text{ A}, V_{GS} = 0\text{ V}$	-	-	1.2	V
$t_{rr}$	Reverse Recovery Time	$I_{DS} = 30\text{ A}, V_{GS} = 0\text{ V}$	-	65	-	nS
$Q_{rr}$	Reverse Recovery Charge	$dI_{SD}/dt = 100\text{ A}/\mu\text{s}$	-	83	-	nC
<b>Dynamic Characteristics<sup>b</sup></b>						
$C_{ISS}$	Input Capacitance	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}$ Frequency = 1 MHz	-	13200	-	pF
$C_{OSS}$	Output Capacitance		-	950	-	
$C_{rSS}$	Reverse Transfer Capacitance		-	810	-	
$t_d(on)$	Turn-on Delay Time	$V_{DS} = 40\text{ V}, V_{GEN} = 10\text{ V},$ $R_G = 4.5\ \Omega, R_L = 1.3\ \Omega,$ $I_{DS} = 40\text{ A}$	-	26	-	nS
$t_r$	Turn-on Rise Time		-	20	-	
$t_d(off)$	Turn-off Delay Time		-	50	-	
$t_f$	Turn-off Fall Time		-	18	-	
<b>Gate Charge Characteristics<sup>b</sup></b>						
$Q_g$	Total Gate Charge	$V_{DS} = 64\text{ V}, V_{GS} = 10\text{ V},$ $I_{DS} = 80\text{ A}$	-	257	-	nC
$Q_{gs}$	Gate-Source Charge		-	76	-	
$Q_{gd}$	Gate-Drain Charge		-	80	-	

Notes :

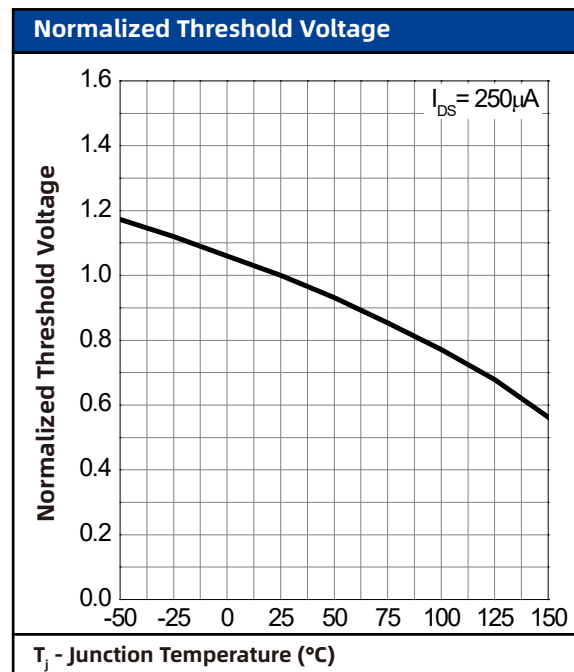
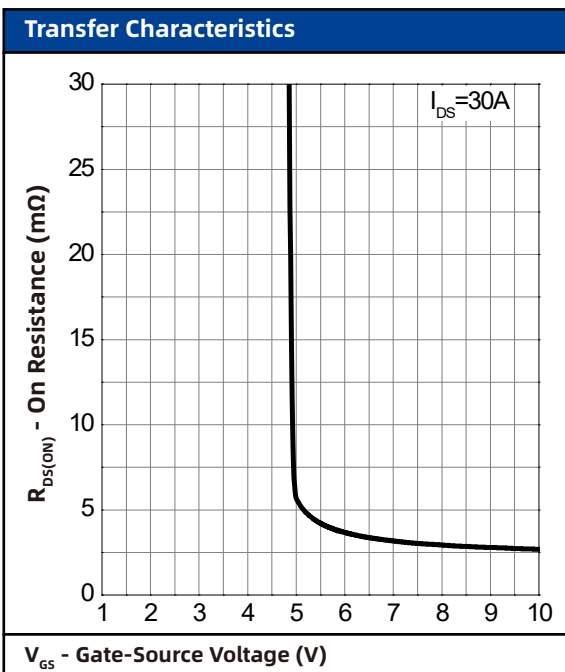
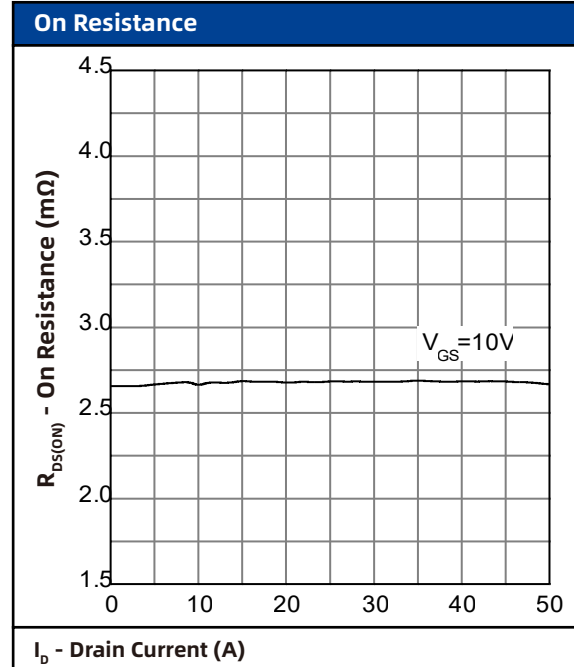
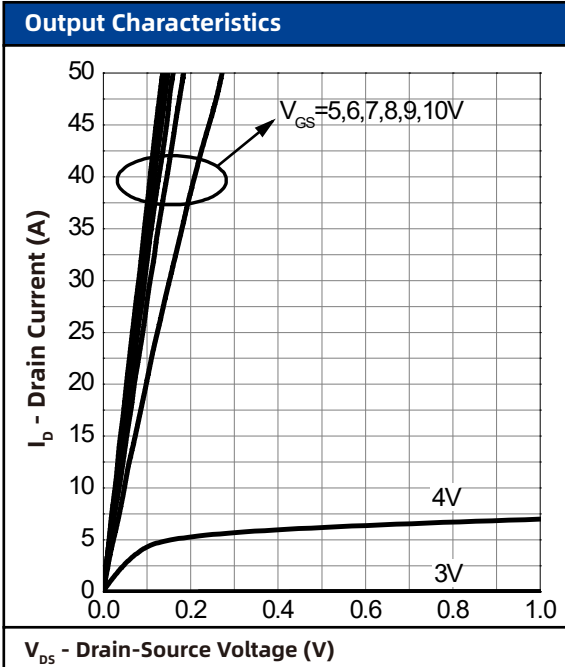
a : Pulse test ; pulse width  $\leq 300\ \mu\text{s}$ , duty cycle  $\leq 2\%$

b : Guaranteed by design, not subject to production testing

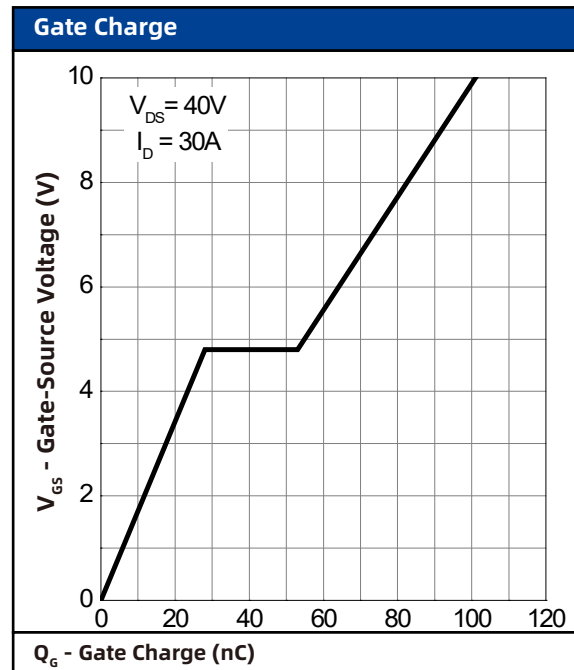
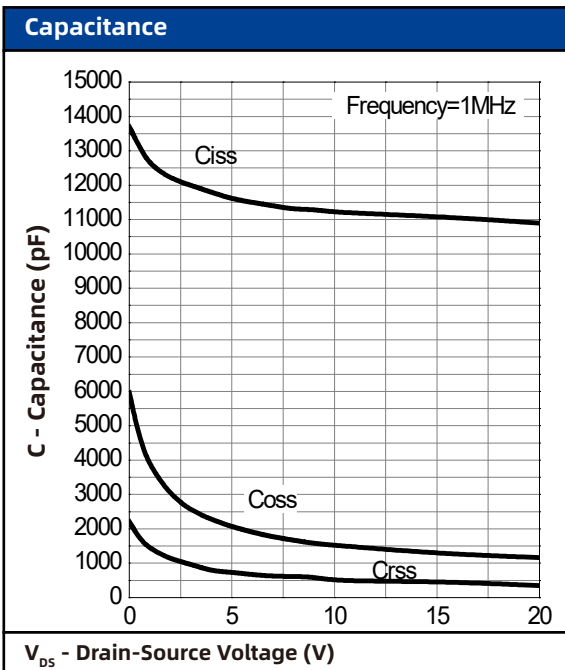
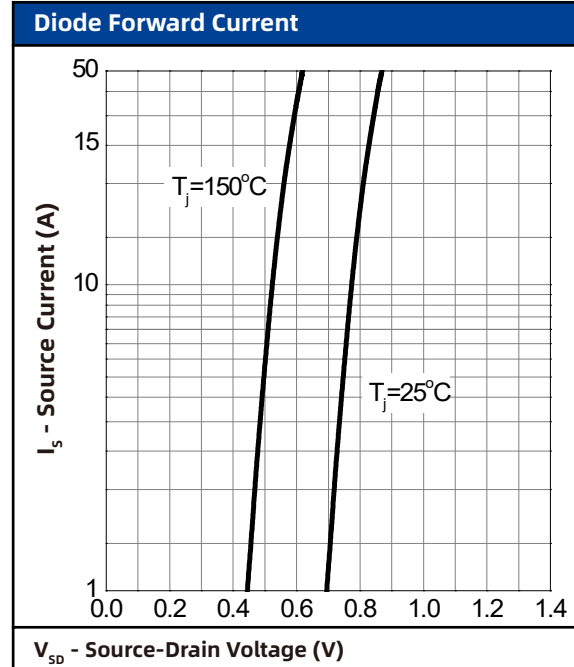
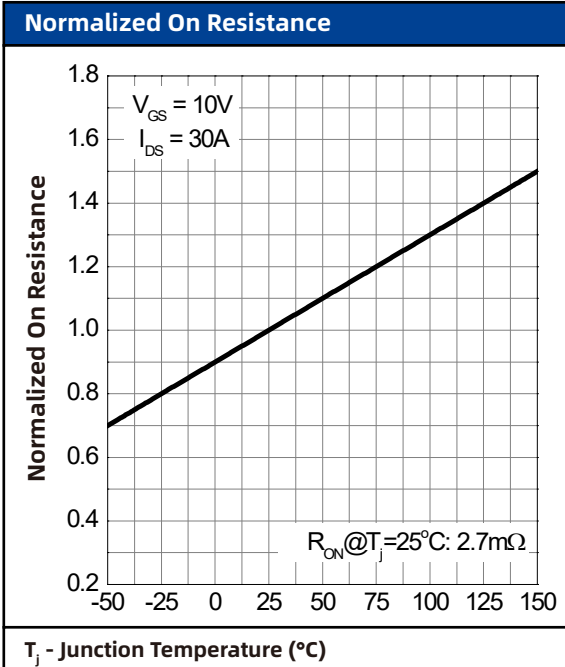
## 7. Typical Characteristics



## 7. Typical Characteristics (cont.)

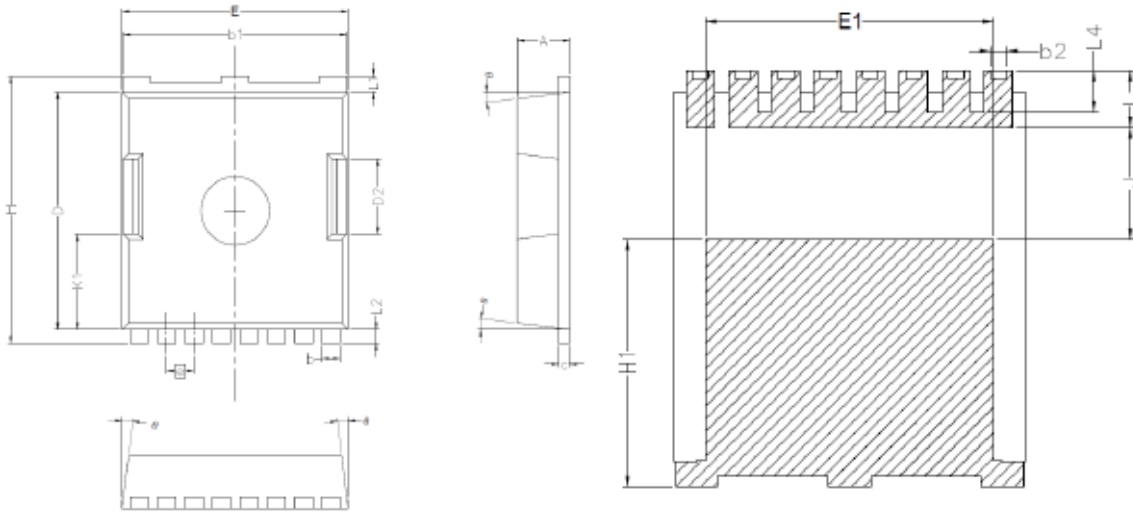


## 7. Typical Characteristics (cont.)



## 8. Package Dimensions

### TOLL-8L Package



Symbol	Dimensions In Millimeters	
	Min.	Max.
A	2.20	2.40
b	0.70	0.90
b1	9.70	9.90
b2	0.42	0.50
c	0.40	0.60
D	10.28	10.58
D2	3.10	3.50
E	9.70	10.10
E1	7.90	8.30
e	1.20BSC	
H	11.48	11.88
H1	6.75	7.15
N	8	
J	3.00	3.30
K1	3.98	4.38
L	1.40	1.80
L1	0.60	0.80
L2	0.50	0.70
L4	1.00	1.30
$\theta$	4°	10°