100V N-Channel Enhancement Mode MOSFET

1.Product Information ◇

1.1 Features

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

1.2 Applications

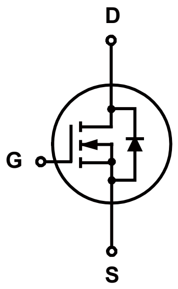
- ◇ LCD TV appliances
- ◇ LCDM appliances
- ◇ High power inverter system

1.3 Quick reference

- ◇ BV ≧ 100 V
- ◇ P_{tot} ≦ 312.5 W
- ◇ I_D ≦ 180 A
- ◇ $R_{DS(ON)}$ ≦ 2.35mΩ @ V_{GS} = 10 V

2.Pin Description

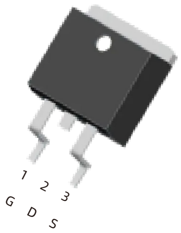
Symbol



Simplified Outline

Top View

TO-263-3L



3.Marking Information

Product Name	Marking
LN019N100K	**LN019N100K** **CYWWZZ** **XXXXXX**

4.Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V_{DS}	Drain-Source Voltage	T_C = 25 ℃	-	100	V
V_{GS}	Gate-Source Voltage	T_C = 25 ℃	-	±20	V
I_D*,***	Drain Current (DC)	T_C = 25 ℃, V_{GS} = 10 V	-	180	A
		T_C = 100 ℃, V_{GS} = 10 V	-	165	A
I_{DM}*,**,***	Drain Current (Pulsed)	T_C = 25 ℃, V_{GS} = 10 V	-	720	A
P_{tot}*	Drain power dissipation	T_C = 25 ℃	-	312.5	W
T_{stg}	Storage Temperature		-55	150	℃
T_J	Junction Temperature		-	150	℃
I_S	Continuous-Source Current	T_C = 25 ℃	-	180	A
E_{AS}*	Single Pulsed Avalanche Energy	V_{DD}= 50 V , L= 0.5mH	-	1225	mJ
$R_{θJA}$*	Thermal Resistance- Junction to Ambient		-	62.5	℃/W
$R_{θJC}$*	Thermal Resistance- Junction to Case		-	0.4	

Notes :
* Surface Mounted on 1 in^2 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
LN019N100K	**TO263**			**800**	

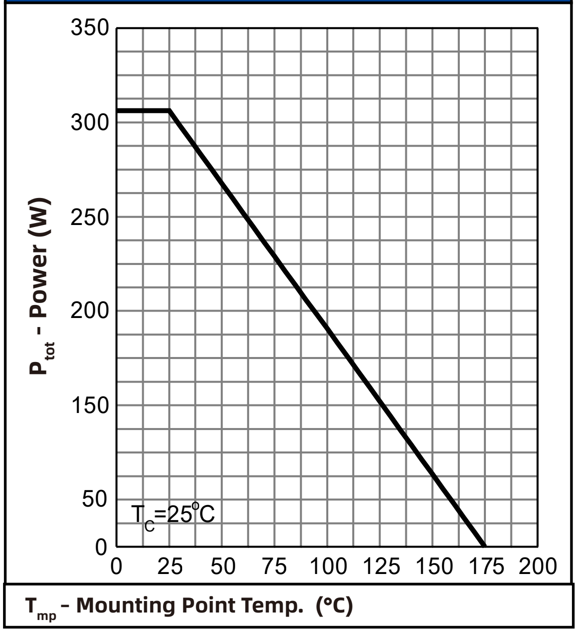
Note: COMTECH defines “ Green ” as lead-free (RoHS compliant) and halogen free (Br or Cl does not exceed900 ppm by weight in homogeneous material and total of Br and Cl does not exceed 1500 ppm by weight;Follow IEC 61249-2-21 and IPC / JEDEC J-STD-020C)

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

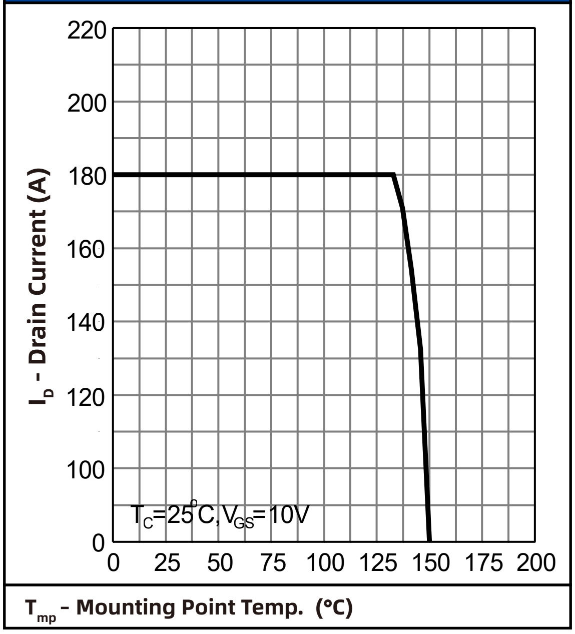
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS} = 0 V, I_{DS} = 250 µA	100	-	-	V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_{DS} = 250 µA	2	-	4	V
I_{DSS}	Zero Gate Voltage Source Current	V_{DS} = 80 V, V_{GS} = 0 V	-	-	1	µA
I_{GSS}	Gate Leakage Current	V_{GS} = 0 V, V_{GS} = ± 20 V	-	-	±100	nA
$R_{DS(ON)}$ [a]	On-State Resistance	V_{GS} = 10 V, I_{DS} = 50A	-	2.0	2.35	mΩ
Diode Characteristics						
V_{SD} [a]	Diode Forward Voltage	I_{SD} = 50 A, V_{GS} = 0 V	-	-	1.3	V
t_{rr}	Reverse Recovery Time	I_{SD} = 50 A	-	66	-	nS
Q_{rr}	Reverse Recovery Charge	dI_{SD}/dt = 100 A/µs	-	200	-	nC
Dynamic Characteristics[b]						
C_{iSS}	Input Capacitance	V_{GS} = 0 V, V_{DS} = 50V Frequency = 1 MHz	-	11132	-	pF
C_{OSS}	Output Capacitance		-	2780	-	
C_{rSS}	Reverse Transfer Capacitance		-	532	-	
t_d(on)	Turn-on Delay Time	V_{DS} =50 V, V_{GEN} = 10 V, R_G = 3.9 Ω, R_L = 1 Ω, I_{DS} = 50 A	-	59	-	nS
t_r	Turn-on Rise Time		-	66	-	
t_d(off)	Turn-off Delay Time		-	185	-	
t_f	Turn-off Fall Time		-	95	-	
Gate Charge Characteristics[b]						
Q_g	Total Gate Charge	V_{DS} = 50 V, V_{GS} = 10 V, I_{DS} = 50 A	-	168	-	nC
Q_{gs}	Gate-Source Charge		-	59	-	
Q_{gd}	Gate-Drain Charge		-	35	-	

Notes：
a：Pulse test；pulse width ≤ 300 µs, duty cycle ≤ 2%
b：Guaranteed by design, not subject to production testing

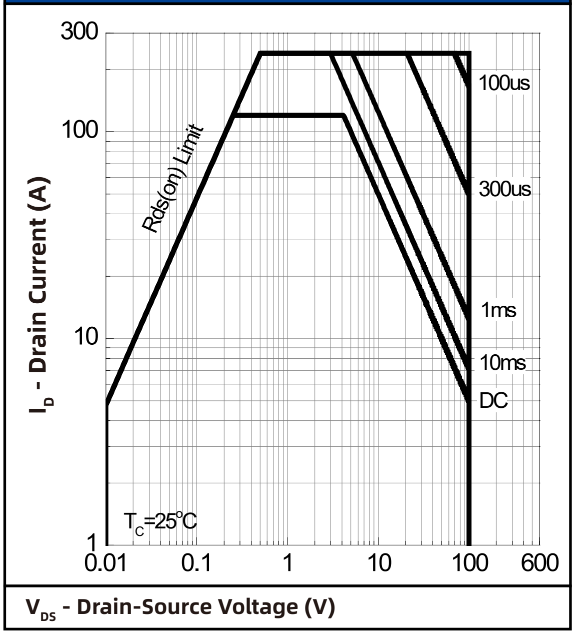
7. Typical Characteristics



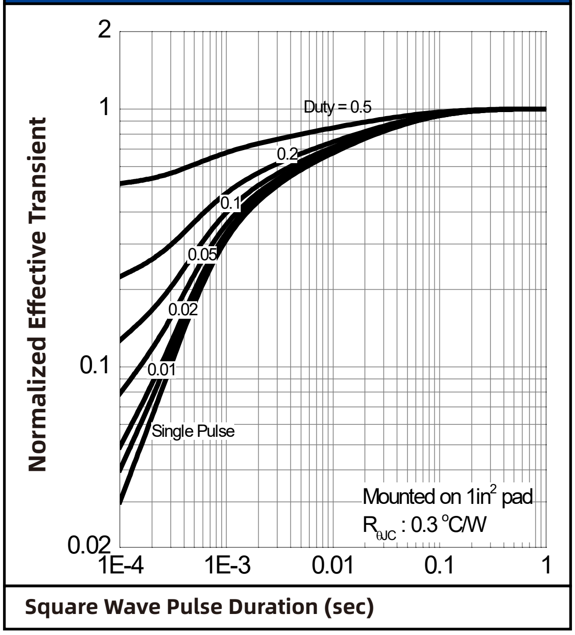
Power Capability



Current Capability



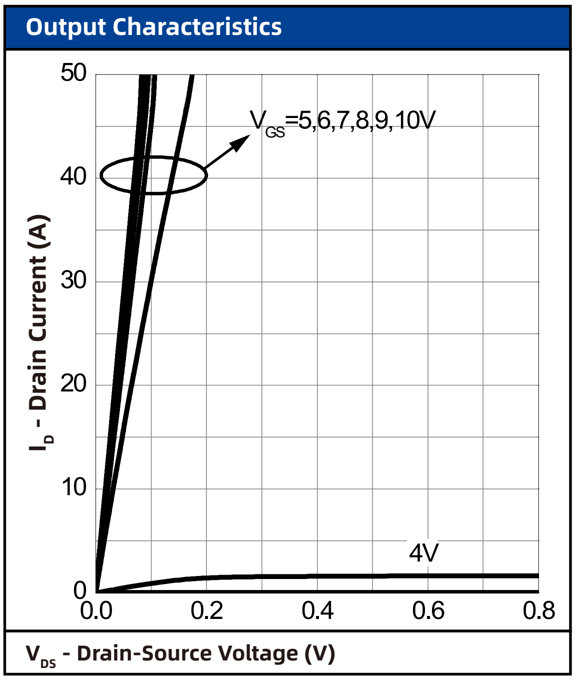
Safe Operating Area



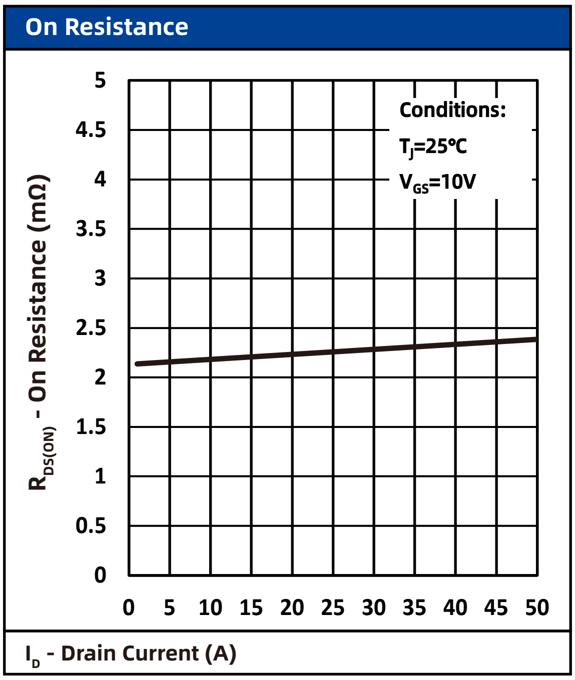
Transient Thermal Impedance

7. Typical Characteristics (cont.)

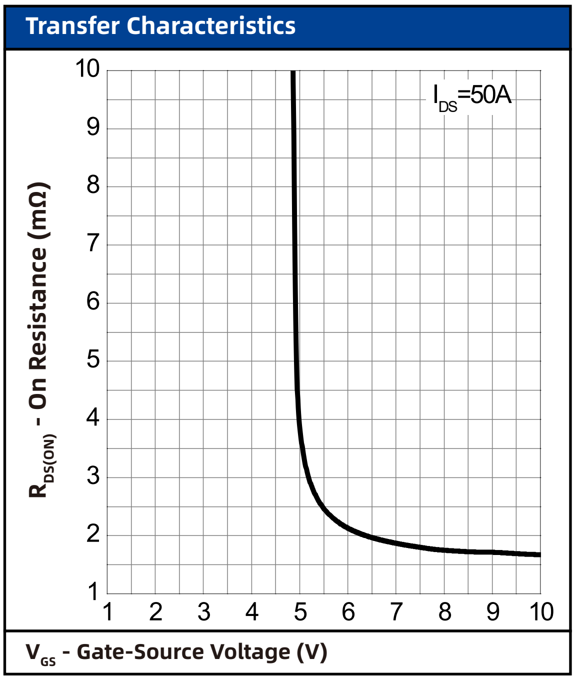
Output Characteristics



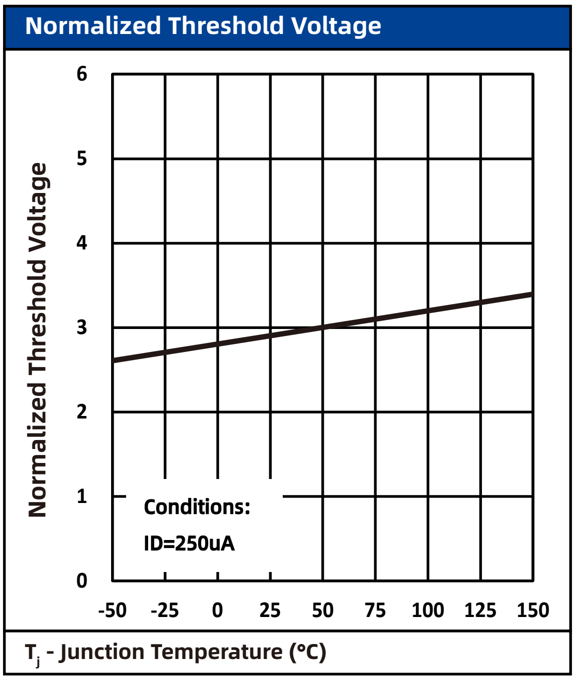
On Resistance



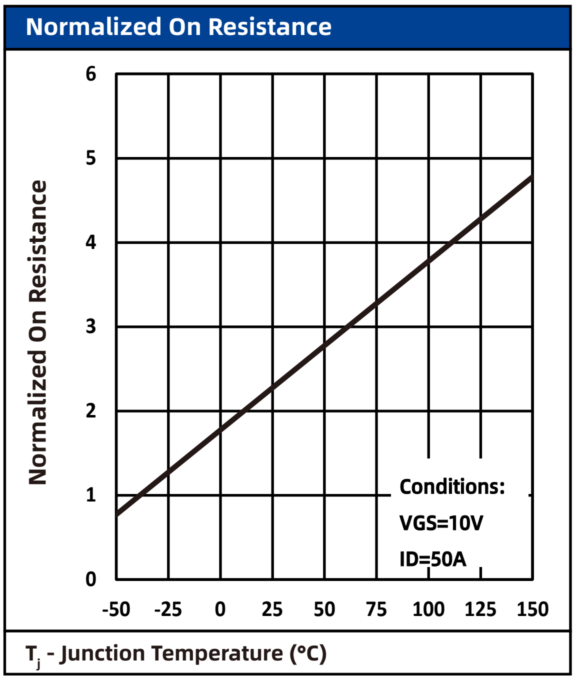
Transfer Characteristics

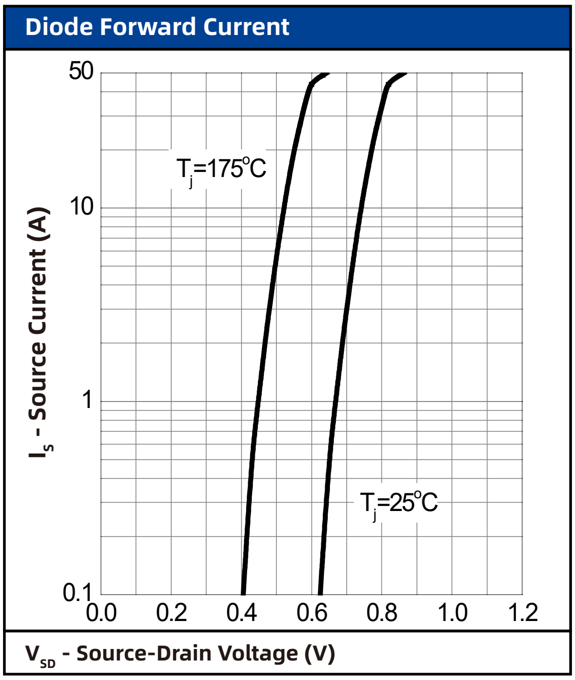


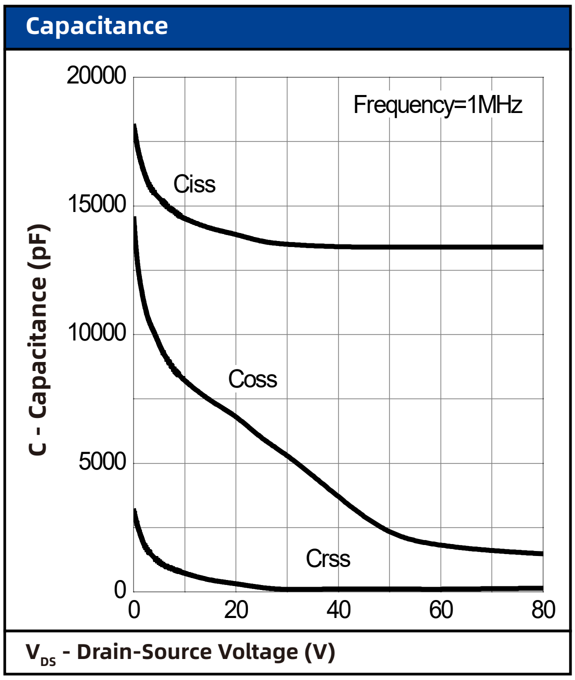
Normalized Threshold Voltage

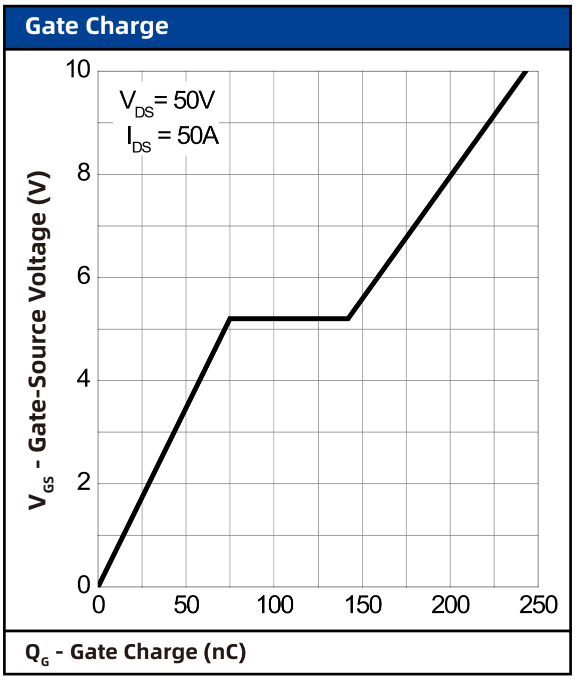


7. Typical Characteristics (cont.)


Normalized On Resistance

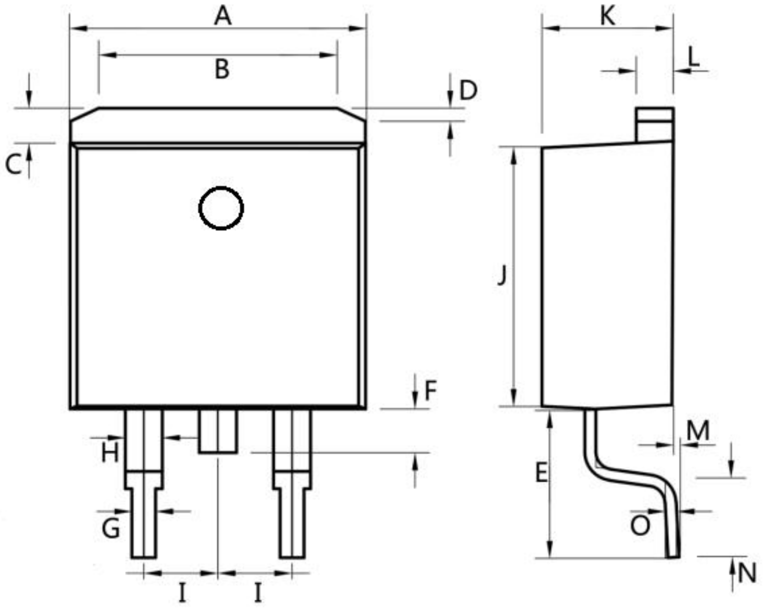

Diode Forward Current


Capacitance


Gate Charge

8. Package Dimensions

TO-263-3L Package



Symbol	Dimensions In Millimeters	
	MIN.	MAX.
A	9.8	10.2
B	6.1	6.7
C	1.1	1.4
D	0.5	1.0
E	4.6	5.0
F	1.4	1.6
G	0.7	0.9
H	1.17	1.37
I	Typ2.54	
J	9	9.2
K	4.3	4.7
L	1.25	1.35
M	0.02	0.23
N	2.2	2.8
O	0.45	0.55